Advancing Cancer Diagnostics
Improving Lives

Leica
BIOSYSTEMS

IHC & ISH Product Catalog

Novocastra Antibodies, Kreatech Probes and BOND Reagents

How To Use This Catalog

Products in this catalog are listed alphabetically in sections according to their product type. The Primary Antibodies and ISH Probes sections include products in BOND Ready-To-Use formats. This makes it easy to search for the required antibody and to identify the best available format for the intended application.

To find a product, either use the contents page to locate the appropriate section and then go directly to the product, or use the product name index at the back of the catalog.

ADDITIONAL INFORMATION

Products are listed with their product code and volume/approximate number of tests. Primary antibody listings include the clone, format, tissue utility and recommended retrieval.

Regional product availability is defined by three categories, which are detailed below:

US
United States of America.

EU
Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Malta, Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom.

ROW
All other countries not listed above.

For more specific information regarding availability in your region, please consult your Leica Biosystems sales representative.

KEY

IVD	*In vitro* diagnostic use
RUO	For Research Use Only. Not for use in diagnostic procedures
ASR	Analyte Specific Reagent. Analytical and performance characteristics are not established
GPR	General Purpose Reagent
F	Frozen
P	Paraffin
O	Other applications
W	Western blotting
P (HIER)	Paraffin sections with heat induced epitope retrieval recommended
P (ENZYME)	Paraffin sections with enzyme digestion recommended
P (ENZYME+HIER)	Parffin sections with enzyme digestion followed by heat induced epitope retrieval recommended
P (ENZYME/HIER)	Paraffin sections with enzyme digestion or heat induced epitope retrieval recommended - optimum pretreatment to be determined by end user

The first letters of the product code indicate the product type.

NCL	Concentrated primary antibody or miscellaneous products
RTU	Ready-To-Use primary antibody
RE	Manual detection or ancillary reagent
PA	BOND format primary antibody
PB	BOND format ISH probe
AR	BOND ancillary reagent
DS	BOND detection system
KBI	Kreatech IVD products
KI	Kreatech RUO products

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BOND Detection

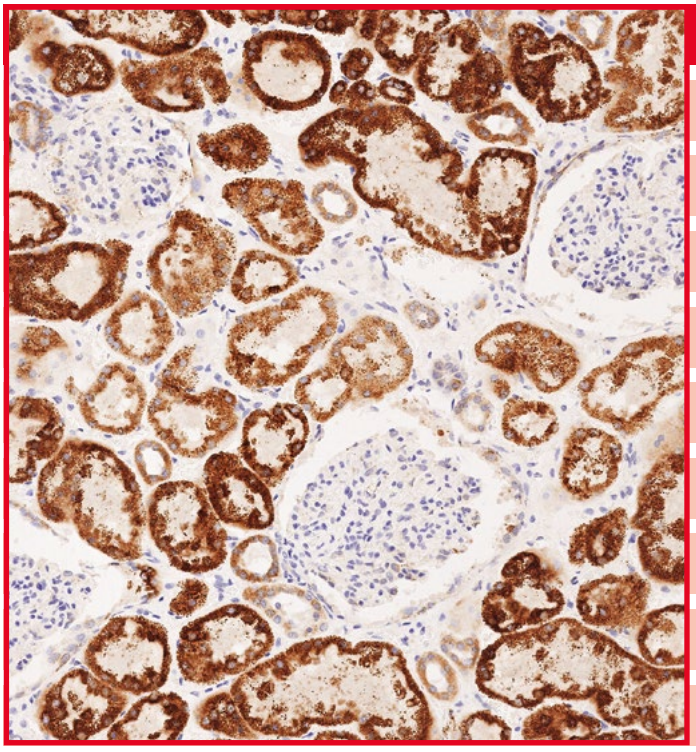
BOND Ancillaries

XL FISH Probes for BOND

BOND CISH Probes

BOND Consumables

Automation



AUTOMATION

- BOND SYSTEM
- BOND DETECTION
- BOND ANCILLARIES
- BOND READY-TO-USE ANTIBODIES
- BOND FISH PROBES
- BOND CISH PROBES
- BOND CONSUMABLES
- COMPANION DIAGNOSTICS
- THERMOBRITE INSTRUMENTS & CONSUMABLES

The BOND Ecosystem

THE BOND FAMILY

For Clinical Use

For Research Use Only

BOND-MAX

Lab friendly operation in a small footprint

- Compact
- Bench-top
- Full automation

BOND-III

High throughput, supporting lean practices

- Speed
- Fast TAT
- Full automation

BOND RX

Highly flexible, fast throughput

- Protocol flexibility
- Reagent flexibility
- Speed

BOND RX^{m}

Highly flexible, small footprint

- Protocol flexibility
- Reagent flexibility
- Compact, bench-top

Quality

Total Tissue Care · Accuracy · Consistency · Reliability

Efficiency

Quick to Learn · Easy to Run · Easy to Manage

LEAN YOUR LAB

BOND-ADVANCE NETWORK

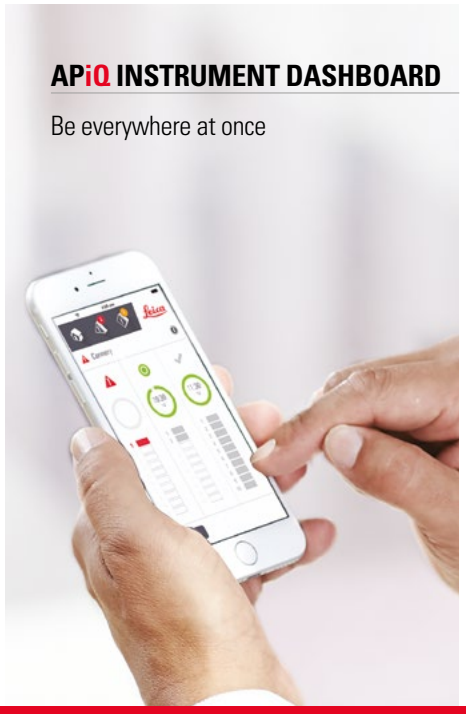
A server-based BOND network that grows with your laboratory

Deploy up to 30 BOND instruments on a single unified network.

- Enhanced data security
- Flexible work cells configuration
- Visual management dashboards

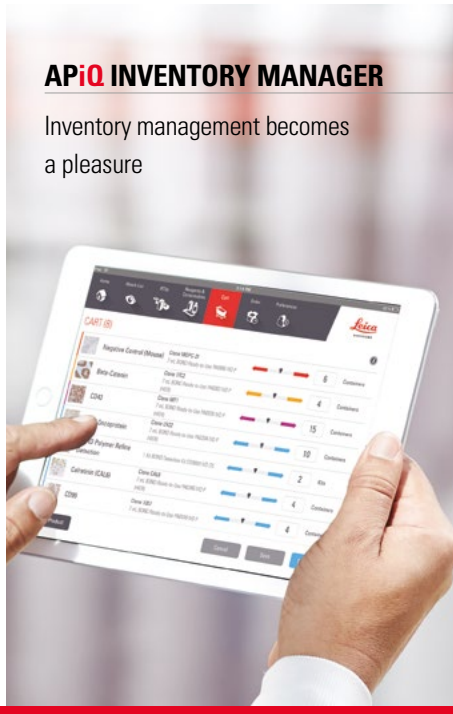
APiQ INSTRUMENT DASHBOARD

Be everywhere at once

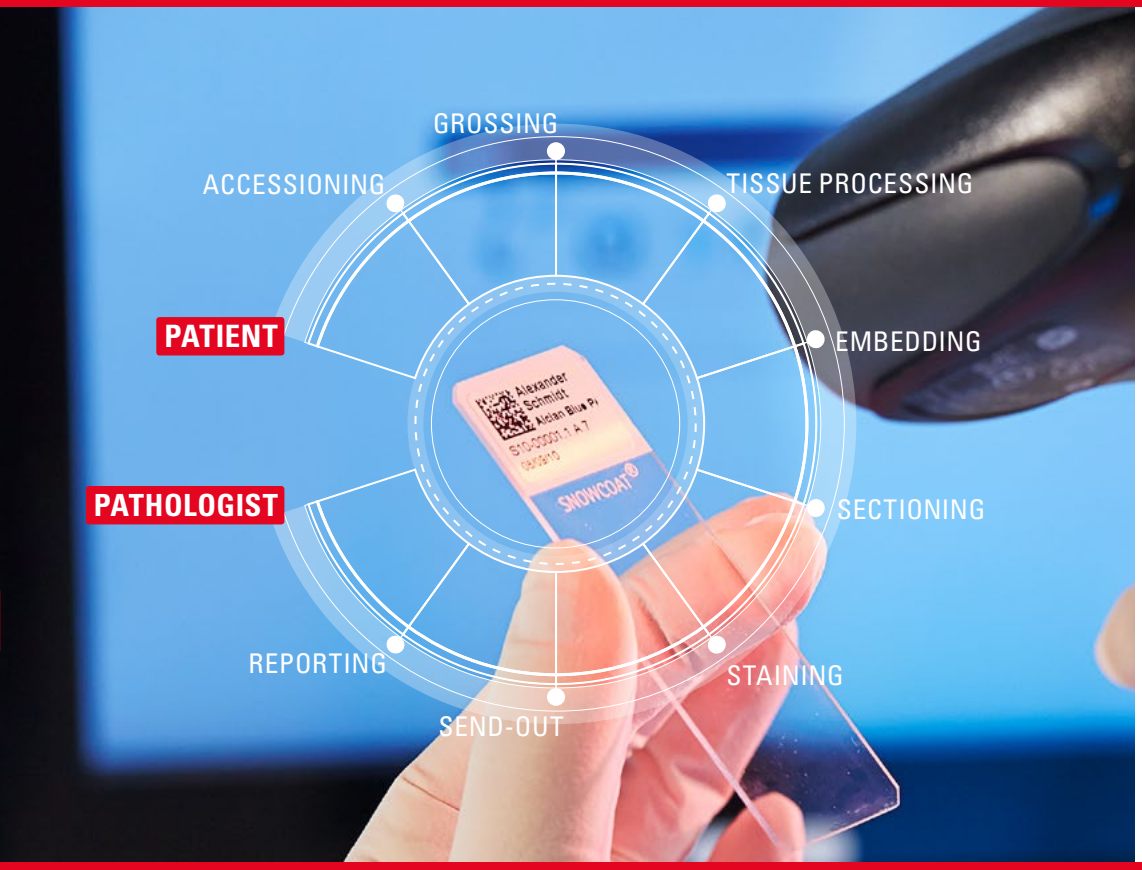


APiQ INVENTORY MANAGER

Inventory management becomes a pleasure



THE FREEDOM TO WORK SMART



LIS CONNECTIVITY

Seamless integration with your hospital's LIS

- Customized to suit your hospital's requirements
- Reduce the time spent manually entering patient data

Data has shown that UNC reduced the turnaround time for IHC by 25.7 minutes per stain.

"The use of the orders interface seemed to be an elegant way to decrease errors, improve efficiency and save time. It makes the BOND-III truly 'walk-away' by allowing the instrument to associate the appropriate protocols with the slides. The slides never have to be re-labeled so QC is quicker and slides are in the hands of pathologists much faster."

Marilou Maglione, Assistant Administrative Director, Anatomic Pathology & Autopsy Services, UNC Healthcare

EXPANDED CONNECTIVITY

BOND Polymer Refine Detection

FORMAT	CODE	USAGE	STATUS
200 Tests	DS9800	P	IVD

Application - Immunohistochemistry (IHC)

Primary antibody binding to tissue sections can be visualized using BOND Polymer Refine Detection, where it provides intense, high resolution staining. A range of BOND Ready-To-Use primary antibodies are available, or alternatively, use antibody concentrates diluted with BOND Primary Antibody Diluent (AR9352).

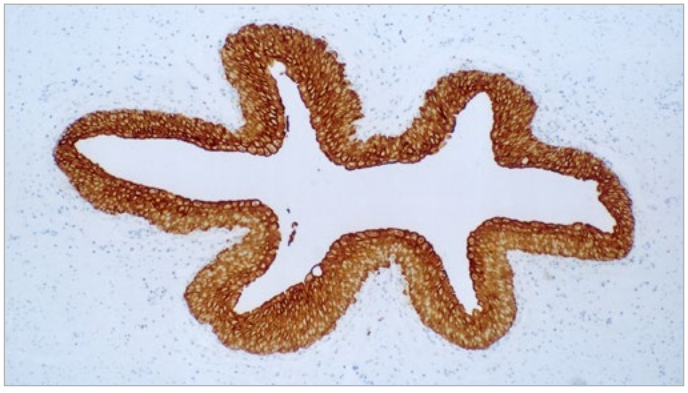
Application - Chromogenic *in situ* Hybridization (ISH)

BOND Polymer Refine Detection produces highly specific, sensitive and reproducible demonstration of nucleic acid sequences through controlled hybridization reactions.

Components

A state-of-the-art Compact Polymer detection system for use in both immunohistochemistry and chromogenic *in situ* hybridization. Small multifunctional linkers enhance tissue penetration, producing unsurpassed sensitivity. The system is biotin-free.

BOND Polymer Refine Detection contains a peroxide block, post primary, polymer reagent, DAB chromogen and hematoxylin counterstain. It is supplied ready-to-use for the automated BOND system.



Colon mucosa: immunohistochemical staining with BOND Ready-To-Use Cytokeratin 8/18 (5D3) (PA0067) using BOND Polymer Refine Detection

BOND Polymer Refine Detection.

BOND Polymer Refine Red Detection

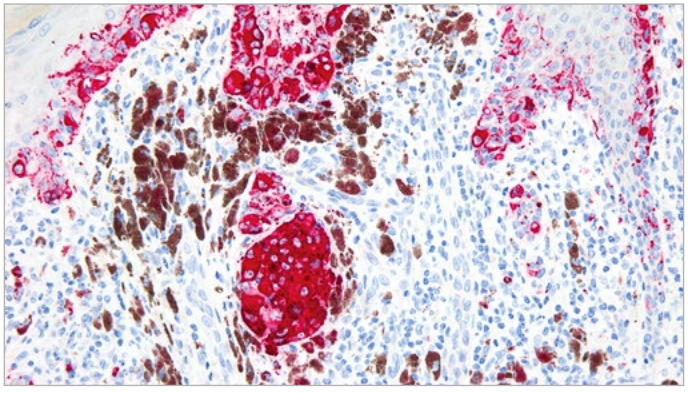
FORMAT	CODE	USAGE	STATUS
100 Tests	DS9390	P	IVD

Application - Immunohistochemistry (IHC)

Primary antibody binding to tissue sections can be visualized using the BOND Polymer Refine Red Detection, providing an intense and high resolution stain.

Components

BOND Polymer Refine Red Detection is an IVD labeled red detection system for the automated BOND system. BOND Polymer Refine Red Detection is biotin-free, utilizing alkaline phosphatase (AP)-linked compact polymer to provide enhanced tissue penetration and unsurpassed reagent sensitivity. It contains post primary, polymer reagent, Fast Red chromogen, and hematoxylin counterstain and is supplied in a convenient, ready-to-use format.



Human skin stained for melanoma marker HMB45 using BOND Polymer Refine Red Detection. Note intense cytoplasmic staining of melanocytes in contrast to the brown endogenous melanin

BOND Polymer Refine Red Detection.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

ChromoPlex 1 Dual Detection for BOND

FORMAT	CODE	USAGE	STATUS
100 Tests	DS9477	P	IVD

ChromoPlex 1 Dual Detection - 50 Tests

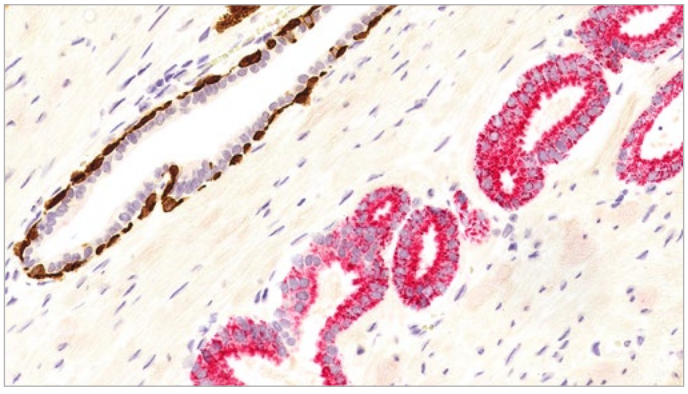
FORMAT	CODE	USAGE	STATUS
50 Tests	DS9665	P	IVD

Application - Immunohistochemistry (IHC)

When tissue is limited and a diagnosis is required, the most effective use of tissue sections becomes imperative. With ChromoPlex 1 Dual Detection for BOND, you can view multiple antibodies using two distinctive chromogens on a single slide, to give you a faster, more comprehensive result for clinical assessment.

Components

ChromoPlex 1 Dual Detection is a biotin-free, polymeric horseradish peroxidase (HRP)-linker and polymeric alkaline phosphatase (AP)-linker antibody conjugate system for the detection of tissue-bound mouse and rabbit IgG primary antibodies. It is intended for staining sections of formalin-fixed, paraffin-embedded tissue on the BOND automated system.



Sensitive and specific staining of the basal cell layer of a prostate biopsy with DAB chromogen. Excellent staining intensity of malignant cells detected with Fast Red chromogen. Prostate Biopsy stained with ChromoPlex 1 Dual Detection and a prostate cocktail (PIN-4)

BOND FISH Kit

FORMAT	CODE	USAGE	STATUS
60 Tests	DS9636	P	IVD
60 Tests	DS9374	P	GPR

Application

The BOND FISH Kit enables the user to perform fluorescence *in situ* hybridization (FISH) on the automated BOND system. It is intended for use with nucleic acid probes on formalin-fixed, paraffin embedded (FFPE) tissue. The kit consists of a formamide mixture which reduces non-specific hybridization of nucleic acid probes.

Restrictions

DS9636 is not available for sale in the US.

DS9374 is only available in the US.

BOND FISH Kit

BOND Intense R Detection

FORMAT	CODE	USAGE	STATUS
200 Tests	DS9263	P	RUO

Application

By allowing a free choice of biotinylated secondary antibody, BOND Intense R Detection is ideal for the detection of primary antibodies from any species. Research applications such as IHC staining of mouse tissues can be accommodated in this manner. The intense deposition of DAB reaction product produces strong immunostaining.

Components

BOND Intense R Detection is a peroxidase detection system optimized for use on the automated BOND system and is ideal for research applications. It contains a peroxide block, streptavidin/peroxidase conjugate, DAB chromogen and hematoxylin counterstain. Users must supply a biotinylated secondary antibody of their choice.

BOND Intense R Detection.

BOND Research Detection

FORMAT	CODE	USAGE	STATUS
200 Tests	DS9455	-	RUO
200 Tests	DS9777	-	RUO

Application

BOND Research Detection offers researchers the ability to tailor applications and fully automate staining for ease of use.

Components

BOND Research Detection System (DS9455), this open detection system consists of six standard 30 mL open containers in a reagent tray.

BOND Research Detection System 2 (DS9777), this open detection system consists of nine standard 30 mL open containers in a reagent tray.

BOND RNAscope Detection Reagents - BROWN

FORMAT	CODE	USAGE	STATUS
60 Tests	DS9790	P	GPR

Application

The BOND RNAscope Detection Reagents - BROWN consists of a series of reagents that enable visualization of RNA in FFPE (formalin fixed, paraffin-embedded) tissue following hybridization with a target RNA specific oligonucleotide probe. The sequential addition of the reagents after probe hybridization results in RNA target and signal amplification, visualized through chromogenic conversion of DAB by HRP. The detection reagents enable chromogenic RNA ISH to be performed on the automated BOND-III system.

Components

BOND RNAscope Detection Reagents – BROWN is ready to use. Reconstitution, mixing, dilution or titration of this reagent is not required. This product contains:

RNAscope Rinse	Hematoxylin
DAB Part 1	DAB Part B
RNAscope Bluing	RNAscope AMP 1 DAB
RNAscope AMP 2 DAB	RNAscope AMP 3 DAB
RNAscope AMP 4 DAB	RNAscope AMP 5 DAB
RNAscope AMP 6 DAB	RNAscope H2O2BOND RNAscope

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BOND Dewax Solution

FORMAT	CODE	USAGE	STATUS
1 L	AR9222	P	IVD

Components

BOND Dewax Solution is a deparaffinization solution specifically designed for use on the automated BOND system. It is provided ready-to-use in 1 L bottles and can be poured directly into the appropriate bulk reagent container on the instrument.

Application

The use of BOND Dewax Solution allows paraffin wax to be removed from tissue sections before rehydration and staining on BOND. It is specially formulated to be compatible with the automated BOND system, and efficiently removes wax from slides while retaining the integrity of tissue antigens and probe binding sites. BOND Dewax Solution is less harmful than alternative deparaffinization solutions such as xylene.

BOND Dewax Solution.

BOND Wash Solution 10X Concentrate

FORMAT	CODE	USAGE	STATUS
1 L	AR9590	P	IVD

Components

BOND Wash Solution 10X Concentrate is a concentrated buffer solution specifically for use on the automated BOND system. It is available in 1 L quantities, and when diluted will make up 10 L of working solution.

Application

BOND Wash Solution is the only wash buffer that should be used in BOND automated staining procedures. It is formulated for optimal reagent flow under the BOND Covertile to help ensure that excess reagent is removed from the tissue section before new reagent is added.

BOND Wash Solution 10X Concentrate.

BOND Epitope Retrieval Solution 1

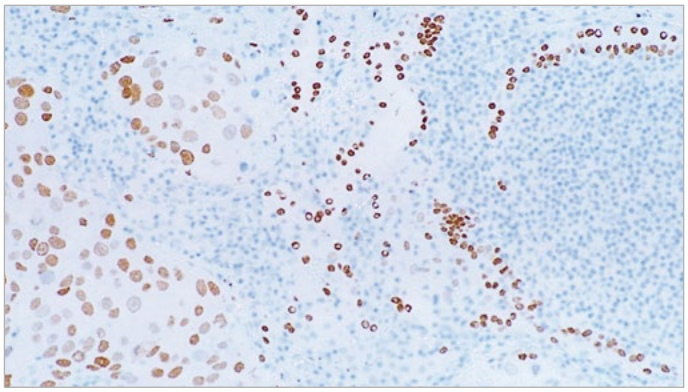
FORMAT	CODE	USAGE	STATUS
1 L	AR9961	P	IVD

Components

BOND Epitope Retrieval Solution 1 is a 1 L ready-to-use, citrate-based pH 6.0 solution. It is specifically for heat-induced epitope retrieval (HIER) on the automated BOND system.

Application

BOND Epitope Retrieval Solution 1 is for use on formalin-fixed, paraffin-embedded tissue sections to expose epitopes within tissue that have been masked during fixation. The solution is gentle on sections as it has a reduced boiling temperature and utilizes BOND Covertile technology to prevent reagent evaporation.



Human lung stained for TTF-1 with BOND Ready-To-Use Thyroid Transcription Factor-1 (SPT24, PA0364), using BOND Polymer Refine Detection and BOND Epitope Retrieval Solution 1.

BOND Epitope Retrieval Solution 1.

BOND Epitope Retrieval Solution 2

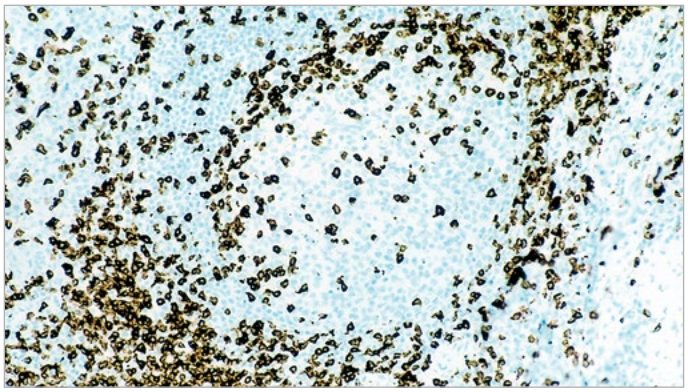
FORMAT	CODE	USAGE	STATUS
1 L	AR9640	P	IVD

Components

BOND Epitope Retrieval Solution 2 is a 1 L ready-to-use, EDTA-based pH 9.0 solution. It is specifically for heat-induced epitope retrieval (HIER) on the BOND system.

Application

BOND Epitope Retrieval Solution 2 is for use on formalin-fixed, paraffin-embedded tissue sections to expose epitopes within tissue that have been masked during fixation. The solution is gentle on sections as it has a reduced boiling temperature and utilizes BOND Covertile technology to prevent reagent evaporation.



Human tonsil stained for CD3 with BOND Ready-To-Use CD3 (LN10, PA0533), using BOND Polymer Refine Detection and BOND Epitope Retrieval Solution 2.

BOND Epitope Retrieval Solution 2.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

BOND Universal Covertile

FORMAT	CODE	USAGE	STATUS
160 Pack	S21.4611	P	IVD

The BOND Universal Covertile is a patented technology that facilitates gentle, even reagent flow over tissue. It prevents reagent evaporation and minimizes waste generation. The Covertile is re-usable and can also be recycled once its staining life is over.

BOND Universal Covertile.

BOND Primary Antibody Diluent

FORMAT	CODE	USAGE	STATUS
500 mL	AR9352	P	IVD

Components

BOND Primary Antibody Diluent is ready-to-use and available in a quantity of 500 mL.

Application

BOND Primary Antibody Diluent is specifically for diluting concentrated primary antibodies for use on the automated BOND system. It is not intended for the reconstitution of lyophilized reagents.

BOND Primary Antibody Diluent.

BOND Enzyme Pretreatment Kit

FORMAT	CODE	USAGE	STATUS
1 Kit	AR9551	P	IVD

Components

- BOND Enzyme Concentrate, 1 mL
- BOND Enzyme Diluent, 200 mL
- 3 x BOND Open Containers, 7 mL

The enzyme is diluted before use in the BOND Open Containers supplied. The diluted enzyme solution is used for enzymatic digestion on the automated BOND system.

Application - Immunohistochemistry (IHC)

The BOND Enzyme Pretreatment Kit can be used for enzymatic digestion on formalin-fixed, paraffin-embedded tissue sections to assist in epitope exposure. Enzymatic pretreatment improves the staining of some antibodies by exposing epitopes within tissue that have been masked during fixation.

Application - *In situ* Hybridization (ISH)

The diluted enzyme solution can also be used for ISH. Enzymatic digestion of tissue assists in the penetration of probes and facilitates binding.

BOND Enzyme Pretreatment Kit.

BOND DAB Enhancer

FORMAT	CODE	USAGE	STATUS
30 mL	AR9432	P	IVD

Components

BOND DAB Enhancer is a heavy metal solution for use on the automated BOND system. The no-mix, ready-to-use format simplifies laboratory workflow.

Application

BOND DAB Enhancer changes the color of the DAB reaction deposit from golden to dark brown, providing an increase in contrast between chromogen-specific staining and the slide back drop. This can assist in qualitative identification of antigens.

BOND DAB Enhancer.

Anti-Fluorescein Antibody

FORMAT	CODE	USAGE	STATUS
3.75 mL	AR0833	P	IVD
15 mL	AR0222	P	IVD

Components

Anti-Fluorescein Antibody is a purified IgG fraction of a mouse monoclonal antibody. It is supplied ready-to-use.

Application

In situ hybridization (ISH) allows the detection and visualization of specific nucleic acids in tissues sections. ISH probes used for the detection of mRNA on BOND contain a fluorescein label. The Anti-Fluorescein Antibody allows linking of the oligonucleotide probe with the detection reagents, and consequently, visualization of a chromogenic product by light microscopy.

BOND Hybridization Solution

FORMAT	CODE	USAGE	STATUS
100 mL	AR9037	-	IVD
100 mL	AR9013	-	RUO

Application

BOND Hybridization Solution is intended to be used for the dilution of individual In situ hybridization (ISH) probes for use on the automated BOND system.

Restrictions

AR9037 is not available for sale in the US.

Anti-Biotin Antibody

FORMAT	CODE	USAGE	STATUS
7.5 mL	AR0584	P	IVD

Components

Anti-Biotin Antibody is a purified anti-biotin, IgG1 isotype.
It is supplied ready-to-use.

Application

In situ hybridization (ISH) allows the detection and visualization of specific nucleic acids in tissue sections. Some ISH probes used for detection of DNA on the BOND contain a biotin label. The Anti-Biotin Antibody allows the linking of the probe with the detection reagents and consequently visualization of a chromogenic product by light microscopy.

Anti-Biotin Antibody.

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F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Stringency Wash

FORMAT	CODE	USAGE	STATUS
3.75 mL	AR0633	P	IVD

Components

The Stringency Wash Solution is a formamide mixture used with the BOND DNA ISH Probes. This solution reduces non-specific hybridization of DNA probes.

Application

In situ hybridization (ISH) allows the detection and visualization of specific nucleic acids in tissue sections. The Stringency Wash Solution is intended for use with DNA probes to reduce non-specific DNA hybridization in formalin-fixed, paraffin-embedded tissue using the automated BOND system.

Stringency Wash.

BOND RNAscope Protease

FORMAT	CODE	USAGE	STATUS
12 mL	AR9773	P	GPR

Components

Total volume = 12 mL, sufficient for 60 tests.

BOND RNAscope Protease is ready to use. Reconstitution, mixing, dilution or titration of this reagent is not required.

Application

The BOND RNAscope Protease reagent is used for pretreatment of FFPE (formalin fixed, paraffin-embedded) tissue in conjunction with BOND reagents on the automated BOND-III system. The enzyme pretreatment permeabilizes the tissue and prepares the sample for hybridization with a target RNA specific oligonucleotide probe and subsequent detection using the BOND RNAscope Detection Reagents.

Immunohistochemistry Has Never Been Easier

ENHANCE LABORATORY PRODUCTIVITY

Name	Clone	7 mL	30 mL
ALK	5A4	PA0306	-
Alpha Fetoprotein	C3	PA0963	-
Alpha-Methylacyl-CoA Racemase (AMACR, p504s)	EPMU1	• PA0210	-
B Cell Specific Octamer Binding Protein-1 (BOB-1)	TG14	PA0558	-
Bcl-2 Oncoprotein	bcl-2/100/D5	PA0117	-
Bcl-6 Oncoprotein	LN22	PA0204	-
Beta-Catenin	17C2	PA0083	-
c-erbB-2 Oncoprotein (HER-2) Antibodies	CB11	PA0571 (13.5 mL)	-
CA19-9 (Sialyl Lewis[a])	C241:5:1:4	PA0424	-
CA125 (Ovarian Cancer Antigen)	Ov185:1	PA0539	-
Calcitonin	Polyclonal	PA0406	-
Calponin (Basic)	26A11	PA0416	-
Calretinin	CAL6	PA0346	-
Carcinoembryonic Antigen (CD66e)	COL-1	PA0848	-
Carcinoembryonic Antigen (CD66e)	II-7	PA0004	
CD1a	MTB1	PA0235	-
CD2 (LFA-2)	11F11	PA0271	-
CD3	LN10	PA0553	PA0122
CD4	4B12	PA0427	-
CD5	4C7	PA0168	-
CD7	LP15	PA0266	-
CD8	4B11	PA0183	-
CD10	56C6	PA0270	PA0131
CD11c	5D11	PA0554	-
CD13	38C12	PA0304	-
CD15	Carb-1	PA0039	-
CD15	MMA	PA0473	-
CD19	BT51E	PA0843	-
CD20	L26	PA0200	PA0359
CD20	MJ1	PA0906	
CD21	2G9	PA0171	-
CD22	FPC1	PA0249	-
CD23	1B12	PA0169	-
CD25	4C9	PA0305	-
CD30	1G12	PA0153	-
CD30	JCM182	PA0790	-

Name	Clone	7 mL	30 mL
CD31 (PECAM-1)	1A10	PA0250	-
CD31 (PECAM-1)	JC70A	PA0414	-
CD33	PWS44	PA0555	-
CD34 (Endothelial Cell Marker)	QBEnd/10	PA0212	PA0354
CD43	MT1	PA0938	-
CD45	X16/99	PA0042	-
CD45RO	UCHL1	PA0146	-
CD56 (NCAM)	CD564	PA0191	-
CD57	NK-1	PA0443	-
CD61 (GPIIIa)	2f2	PA0308	-
CD68	514H12	PA0273	-
CD79a	11E3	PA0192	-
CD79a	JCB117	PA0599	-
CD103	EP206	PA0374	-
CD117	EP10	PA0007	-
CD138 (Syndecan 1)	MI15	PA0088	-
CD163	10D6	PA0090	-
CDX2	EP25	PA0375	-
Chromogranin A	5H7	PA0515	-
Chromogranin A	5H7	PA0430	-
Cyclin D1	EP12	PA0046	-
Cytokeratin 5	XM26	PA0468	-
Cytokeratin 7	RN7	PA0942	PA0138
Cytokeratin 8	TS1	PA0567	-
Cytokeratin 14	LL002	PA0074	-
Cytokeratin 17	E3	PA0114	-
Cytokeratin 19	b170	PA0799	-
Cytokeratin 20	Ks20.8	PA0022	PA0037
Cytokeratin (8/18)	5D3	PA0067	-
Cytokeratin, Multi (1/5/10/14)	34BetaE12	PA0134	-
Cytokeratin, Multi (AE1/AE3)	AE1/AE3	PA0012	-
Cytokeratin, Multi (AE1/AE3)	AE1/AE3	PA0909	-
Desmin	DE-R-11	PA0032	-
DOG-1	K9	PA0219	-
E-Cadherin	36B5	PA0387	-
Epithelial Membrane Antigen	GP1.4	PA0035	-
Estrogen Receptor	6F11	PA0151	PA0009

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

1. LOAD
Simply place a registered container onto the BOND processing module along with the BOND Polymer Refine Detection.

2. SELECT
Select the antibody and BOND automatically sets the optimized staining and pretreatment protocol

3. RUN
"Click-and-Go" for immediate and delayed start runs.

4. REVIEW
Consistently high quality stains due to full automation, superior Novocastra clones and Compact Polymer Detection.

Name	Clone	7 mL	30 mL
EZH2 (Enhancer of Zeste Homolog 2 (Drosophila))	6A10	PA0575	-
Factor XIIIa (Blood Coagulation Factor XIIIa)	E980.1	PA0449	-
Fascin	IM20	PA0420	-
Galectin-3	9C4	PA0238	-
Gastrin	Polyclonal	PA0681	-
Glial Fibrillary Acidic Protein	GA5	PA0026	-
Granzyme B	11F1	PA0291	-
Gross Cystic Disease Fluid Protein-15	23A3	PA0708	-
Human Chorionic Gonadotrophin (beta)	Polyclonal	PA0014	-
Human Follicle Stimulating Hormone (beta 2) (HFSH)	INN-hFSH-60	PA0693	-
Human Growth Hormone (HGH)	Polyclonal	PA0704	-
Immunoglobulin D	DRN1C	PA0061	-
Immunoglobulin G	RWP49	PA0905	-
Immunoglobulin M	8H6	PA0278	-
Inhibin Alpha	R1	PA0488	-
Insulin	2D11-H5	PA0620	-
Kappa Light Chain	CH15	PA0606	-
Ki67 Antigen	MM1	PA0118	PA0410
Ki67 Antigen	K2	PA0230	-
Lambda Light Chain	SHL53	PA0570	-
Lysozyme (Muramidase)	Polyclonal	PA0391	-
Mammaglobin	EP249	PA0378	-
Mast Cell Tryptase	10D11	PA0019	-
Melan A	A103	PA0233	PA0044
Melanoma Marker (HMB45)	HMB45	PA0027	PA0625
Mesothelin	5B2	PA0373	-
Mismatch Repair Protein (MLH1)	ES05	PA0610	-
Mismatch Repair Protein (MSH2)	25D12	PA0048	-
Muc-2 Glycoprotein	Ccp58	PA0155	-
Multiple Myeloma Oncogene 1 (MUM-1)	EAU32	PA0129	-
Muscle Specific Actin	HHF35	PA0258	-
Myeloperoxidase	59A5	PA0491	-
Myogenin (Myf-4)	LO26	PA0226	-
Myoglobin	MYO18	PA0727	-
Myosin Heavy Chain Antibodies	S131	PA0493	-

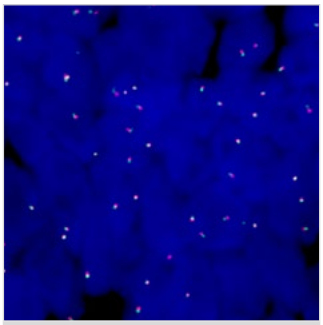
Name	Clone	7 mL	30 mL
Napsin A	IP64	PA0064	-
Negative Control (Mouse)	MOPC-21	PA0996	-
Negative Control (Rabbit)	n/a	PA0777	-
Neurofilament 200kD	N52.1.7	PA0371	-
Neuron Specific Enolase	22C9	PA0435	-
Oct-2	Oct-207	PA0532	-
Oct-3/4	N1NK	PA0193	-
Oct-3/4	N1NK	PA0934	-
p53 Protein	DO-7	PA0057	-
p63 Protein	7JUL	• PA0103	-
p120 Catenin	EP66	PA0379	-
Pax-5	1EW	PA0552	-
Placental Alkaline Phosphatase	8A9	PA0161	-
Progesterone Receptor	16	PA0312	-
Prostate Specific Antigen	35H9	PA0431	-
Prostatic Acid Phosphatase	PASE/4LJ	PA0006	-
Protein Gene Product 9.5	10A1	PA0286	-
S-100	Polyclonal	PA0900	-
Serotonin	Polyclonal	PA0736	-
SMA (Alpha Smooth Muscle Actin)	alpha sm-1	PA0943	-
Synaptophysin	27G12	PA0299	-
Tartrate-Resistant Acid Phosphatase (TRAP)	26E5	PA0093	-
Terminal Deoxynucleotidyl Transferase	SEN28	PA0339	-
Thyroid Stimulating Hormone	QB2/6	PA0776	-
Thyroid Transcription Factor-1	SPT24	PA0364	-
Tyrosinase	T311	PA0322	-
Vimentin	V9	PA0640	-
von Willebrand Factor (Factor VIII-related antigen)	36B11	PA0055	-
von Willebrand Factor (Factor VIII-related antigen)	36B11	PA0400	-
Wilms' Tumor	WT49	PA0562	-
Zap-70	L453R	PA0998	-

• Not available for sale in United States of America

PA0000 Previous Formulation

* Products in this catalog are subject to regulatory approval. Please consult your Leica Biosystems Sales Representative for availability in your region.

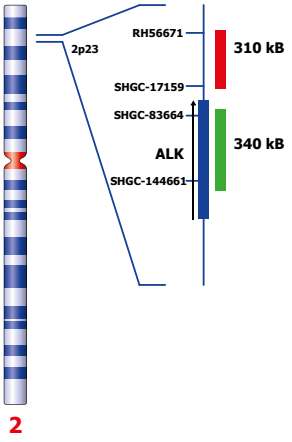
2p23 ALK (2p23) Break



Adenocarcinoma of the lung stained using Kreatech ALK (2p23) Break - XL probe for BOND (KBI-XL001)

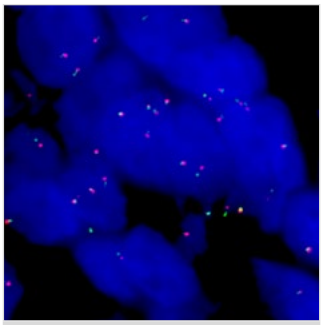
ALK (2p23) Break - XL for BOND FISH probe detects genomic translocations involving the ALK gene. ALK (2p23) Proximal - XL and ALK (2p23) Distal - XL probes are optimized to detect the genomic regions proximal and distal to break points in the ALK gene region.

When combined, both probes are used to detect translocations involving the ALK gene at 2p23.



Description	Code	Color	Format	US	ROW
ALK (2p23) Break	KBI-XL001	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

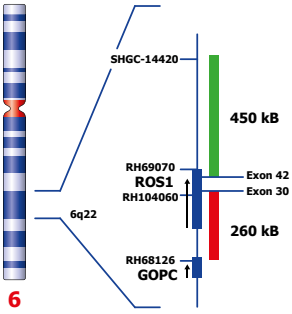
6q22 ROS1 (6q22) Break



Adenocarcinoma of the lung stained using Kreatech ROS1 (6q22) Break - XL probe for BOND (KBI-XL002)

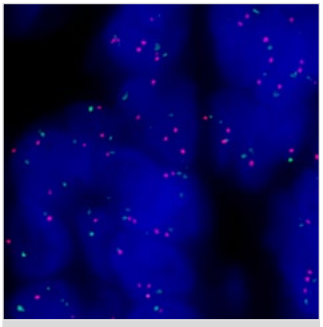
ROS1 (6q22) Break - XL for BOND FISH probe detects genomic translocations involving the ROS1 gene. ROS1 (6q22) Proximal - XL and ROS1 (6q22) Distal - XL probes are optimized to detect the genomic regions proximal and distal to break points in the ROS1 gene region.

When combined, both probes are used to detect translocations involving the ROS1 gene at 6q22.



Description	Code	Color	Format	US	ROW
ROS1 (6q22) Break	KBI-XL002	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

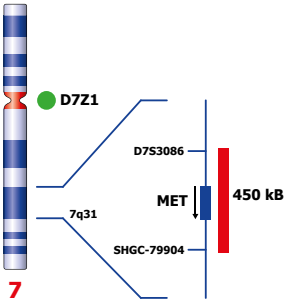
7q31 MET (7q31) / SE7 (D7Z1)



Adenocarcinoma of the lung stained using Kreatech MET (7q31) / SE7(D7Z1) - XL probe for BOND (KBI-XL003)

MET (7q31) / SE7 (D7Z1) - XL for BOND FISH probe detects genomic amplifications involving the MET gene. MET (7q31) - XL is optimized to detect copy numbers of the MET gene region at 7q31. SE7 (D7Z1) - XL is optimized to detect copy numbers of the chromosome 7 centromere.

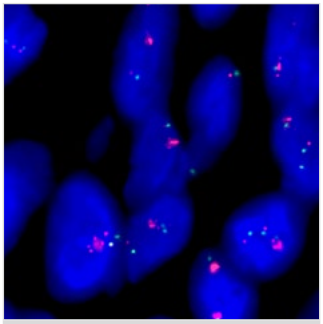
When combined, both probes are used to detect amplification of the MET gene at 7q31, using the centromeric probe as a control.



Description	Code	Color	Format	US	ROW
MET (7q31) / SE7 (D7Z1)	KBI-XL003	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

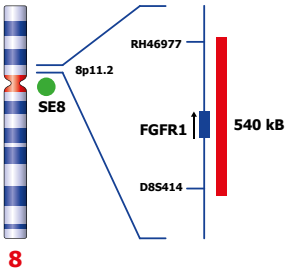
8p11 FGFR1 (8p11) / SE8 (D8Z1)



Squamous cell carcinoma of the lung stained using Kreatech FGFR1 (8p11)/SE8 (D8Z1) - XL probe for BOND (KBI-XL004)

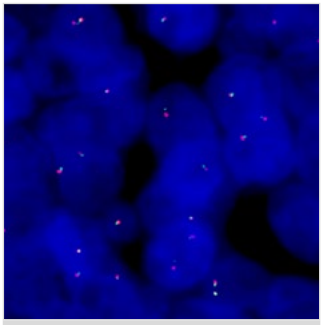
The FGFR1 (8p11) /SE8 (D8Z1) - XL for BOND probe detects genomic amplifications involving the FGFR1 gene. FGFR1 (8p11) - XL is optimized to detect copy numbers of the FGFR1 gene at 8p11. SE8 (D8Z1) - XL is optimized to detect copy numbers of the chromosome 8 centromere.

When combined, both probes are used to detect amplification of the FGFR1 gene at 8p11, using the centromeric probe as a control.



Description	Code	Color	Format	US	ROW
FGFR1 (8p11) / SE8 (D8Z1)	KBI-XL004	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

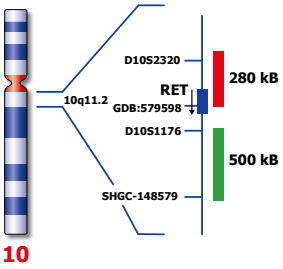
10q11 RET (10q11) Break



Adenocarcinoma of the lung stained using Kreatech RET (10q11) Break - XL probe for BOND (KBI-XL005)

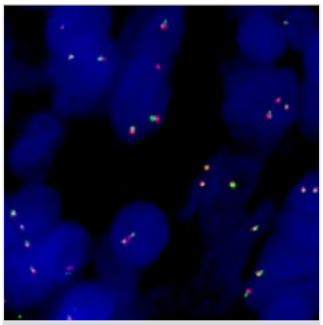
RET (10q11) Break - XL for BOND FISH probe detects genomic translocations involving the RET gene. RET (10q11) Proximal - XL and RET (10q11) Distal - XL probes are optimized to detect the genomic regions proximal and distal to break points in the RET gene region.

When combined, both probes are used to detect translocations involving the RET gene at 10q11.



Description	Code	Color	Format	US	ROW
RET (10q11) Break	KBI-XL005	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

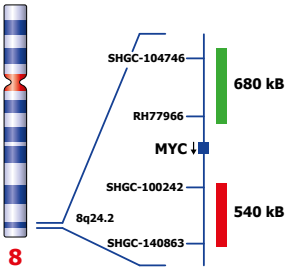
8q24 MYC (8q24) Break



Diffuse Large B-Cell Lymphoma stained using Kreatech MYC (8q24) Break - XL probe for BOND (KBI-XL006)

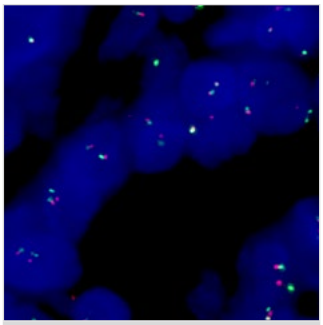
MYC (8q24) Break - XL for BOND FISH probe detects genomic translocations involving the MYC gene. MYC (8q24) Proximal - XL and MYC (8q24) Distal - XL are optimized to detect the genomic regions proximal and distal to break points in the MYC gene region.

When combined, both probes are used to detect translocations involving the MYC gene at 8q24.



Description	Code	Color	Format	US	ROW
MYC (8q24) Break	KBI-XL006	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

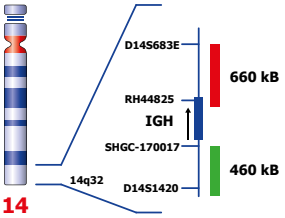
14q32 IGH (14q32) Break



Diffuse Large B-Cell Lymphoma stained using Kreatech IGH (14q32) Break - XL probe for BOND (KBI-XL007)

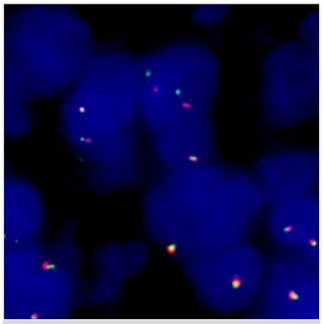
IGH (14q32) Break - XL for BOND FISH probe detects genomic translocations involving the IGH gene. IGH (14q32) Proximal - XL and IGH (14q32) Distal - XL probes are optimized to detect the genomic regions proximal and distal to break points in the IGH gene region.

When combined, both probes are used to detect translocations involving the IGH gene at 14q32.



Description	Code	Color	Format	US	ROW
IGH (14q32) Break	KBI-XL007	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

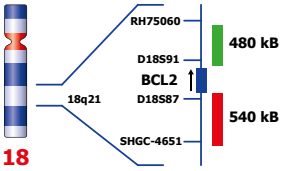
18q21 BCL2 (18q21) Break



Diffuse Large B-Cell Lymphoma stained using Kreatech BCL2 (18q21) Break - XL probe for BOND (KBI-XL008)

BCL2 (18q21) Break - XL for BOND FISH probe detects genomic translocations involving the BCL2 gene. BCL2 (18q21) Proximal - XL and BCL2 (18q21) Distal - XL probes are optimized to detect the genomic regions proximal and distal to break points in the BCL2 gene region.

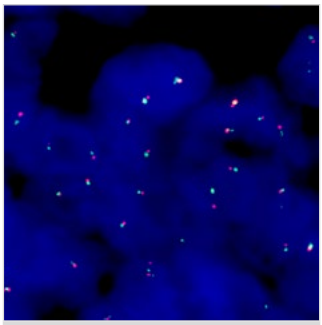
When combined, both probes are used to detect translocations involving the BCL2 gene at 18q21.



Description	Code	Color	Format	US	ROW
BCL2 (18q21) Break	KBI-XL008	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

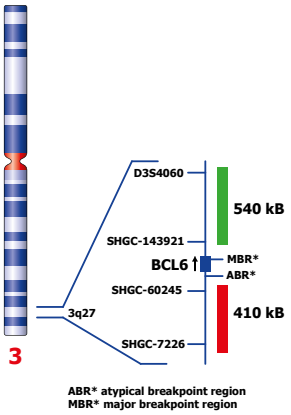
3q27 BCL6 (3q27) Break



Diffuse Large B-Cell Lymphoma stained using Kreatech BCL6 (3q27) Break - XL probe for BOND (KBI-XL009)

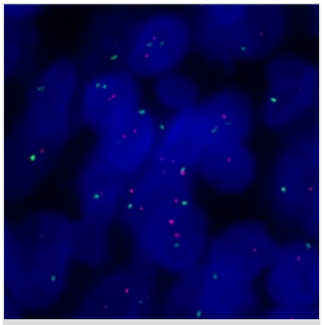
BCL6 (3q27) Break - XL for BOND FISH probe detects genomic translocations involving the BCL6 gene. BCL6 (3q27) Proximal - XL and BCL6 (3q27) Distal - XL probes are optimized to detect the genomic regions proximal and distal to break points in the BCL6 gene region.

When combined, both probes are used to detect translocations involving the BCL6 gene at 3q27.



Description	Code	Color	Format	US	ROW
BCL6 (3q27) Break	KBI-XL009	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

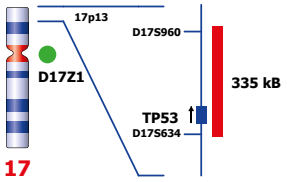
17p13 TP53 (17p13) / SE 17



Diffuse Large B-Cell Lymphoma stained using Kreatech TP53 (17p13) / SE17 - XL probe for BOND (KBI-XL0010)

TP53 (17p13) / SE 17 - XL for BOND FISH probe detects genomic deletions involving the TP53 gene. TP53 (17p13) - XL is optimized to detect copy numbers of the TP53 gene region at 17p13. SE 17 (D17Z1) - XL is optimized to detect copy numbers of the chromosome 17 centromere.

When combined, both probes are used to detect deletion of the TP53 gene at 17p13, with the centromeric probe as a control.



Description	Code	Color	Format	US	ROW
TP53 (17p13) / SE 17	KBI-XL010	Green/Red	2 x 1 mL (10 x concentrate)	-	IVD

BOND Kappa Probe

FORMAT	CODE	USAGE	STATUS
5.5 mL	PB0645	P	IVD

Background

Kappa Probe is used for the qualitative identification of Kappa light chain messenger RNA (mRNA) in formalin-fixed, paraffin-embedded tissue by *in situ* hybridization (ISH) using the automated BOND system.

Immunoglobulins are glycoproteins produced in mature B-cells against a specific antigen. Each individual immunoglobulin molecule comprises two heavy and two light polypeptide chains. There are five classes of immunoglobulin, determined by the type of heavy chain.

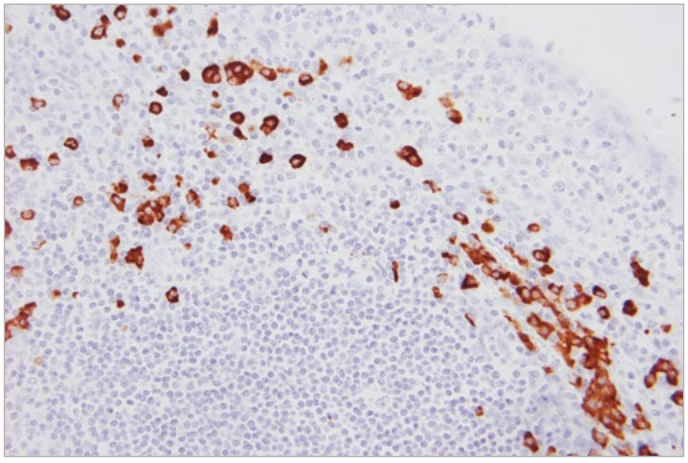
In contrast, there are only two types of light chain: Kappa or Lambda. Each individual immunogloblin molecule is composed of one of five classes of heavy chains and either Kappa or Lambda light chains. In normal human lymphoid populations, the ratio of Kappa to Lambda light chains is approximately 2:1.

B-cell neoplasms are thought to arise from a single transformed cell (monoclonal). In contrast, reactive states result in proliferation of a number of B-cells (polyclonal). Since immunoglobulins from the same B-cell contain either Kappa or Lambda light chains, light chain restriction or monoclonality can be used to make the distinction between reactive and neoplastic B cell proliferations.

Kappa Probe is used in conjunction with Lambda Probe for the detection of antibody producing B-cells in formalin-fixed, paraffin embedded tissue.

Restrictions

PB0645 is not available for sale in the US.



Human tonsil: *in situ* hybridization for Kappa mRNA using Kappa Probe, Anti-Fluorescein Antibody and BOND Polymer Refine Detection.

BOND Lambda Probe

FORMAT	CODE	USAGE	STATUS
5.5 mL	PB0669	P	IVD

Background

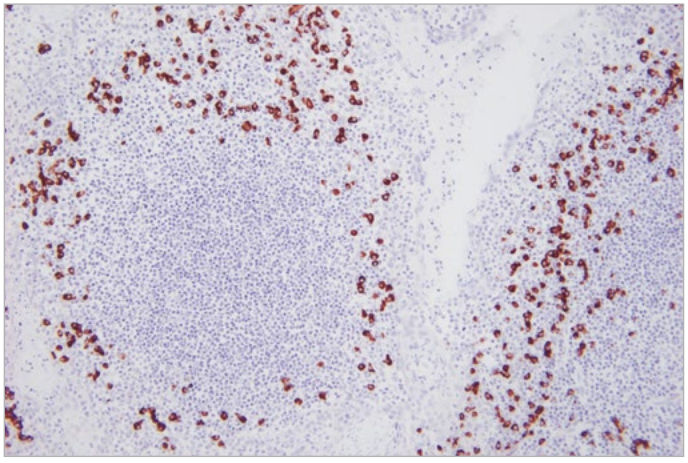
Lambda Probe is used in conjunction with Kappa Probe for the detection of antibody producing B cells in formalin-fixed, paraffin-embedded tissue.

B cell neoplasms are thought to arise from a single transformed cell (monoclonal), whereas reactive states result in proliferation of a number of B cells (polyclonal).

Since immunoglobulins from the same B cell contain either Kappa or Lambda light chains, light chain restriction or monoclonality can be used to make the distinction between reactive and neoplastic B cell proliferations.

Restrictions

PB0669 is not available for sale in the US.



Human tonsil: *in situ* hybridization for Lambda mRNA using Lambda Probe, Anti-Fluorescein Antibody and BOND Polymer Refine Detection.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

BOND EBER Probe

FORMAT	CODE	USAGE	STATUS
5.5 mL	PB0589	P	IVD

Background

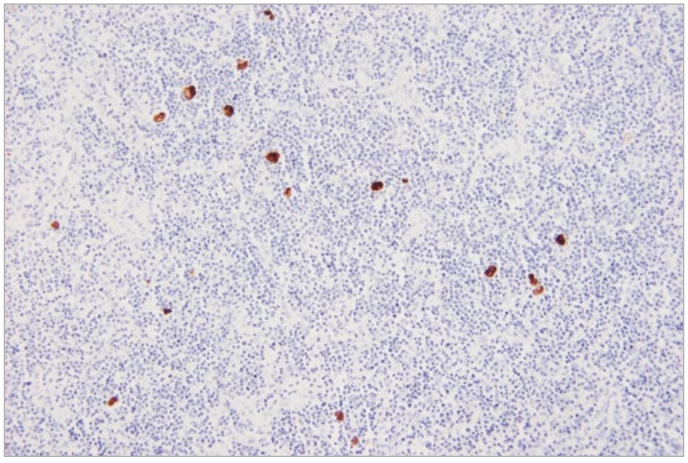
Epstein-Barr Virus (EBV) is a member of the Gamma Herpes Virus family. EBV can establish both lytic infection as well as latent infection.

Epstein-Barr Virus encoded RNA (EBER) is abundantly expressed in latent EBV infection and ISH is considered a sensitive method for the detection of latent EBV infection.

Latent EBV infection is associated with several conditions including: Hodgkin's Lymphoma, B cell Non Hodgkin's Lymphoma, nasopharyngeal carcinoma, lymphoproliferative disorders and lymphoma in the immunosuppressed, including transplant and AIDS patients, gastric cancer and some T cell lymphomas.

Restrictions

PB0589 is not available for sale in the US.



Hodgkin's lymphoma: *in situ* hybridization for Epstein-Barr virus (EBV) encoded mRNA using EBV Probe, Anti-Fluorescein Antibody and BOND Polymer Refine Detection.

BOND CMV Probe

FORMAT	CODE	USAGE	STATUS
5.5 mL	PB0614	P	IVD

Background

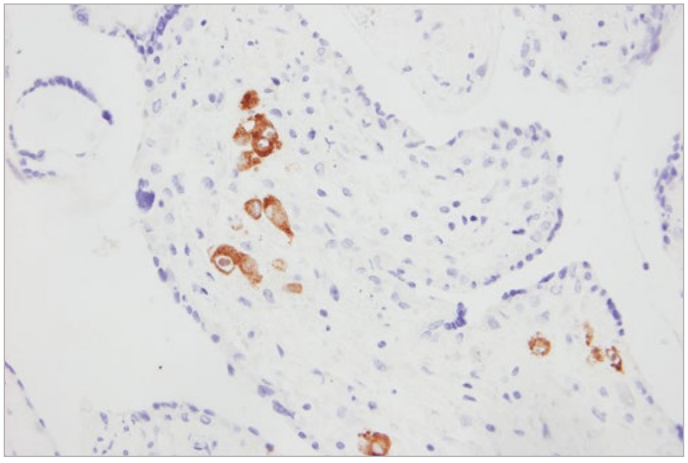
Cytomegalovirus (CMV) is a member of the Beta Herpes Virus family, transmitted via body fluids, and can establish primary infection, latent infection and subsequent viral reactivation.

CMV is a common opportunistic pathogen, capable of causing serious disease in immunocompromised individuals such as AIDS patients, transplant patients and in neonates.

Congenital CMV is a result of intrauterine infection and although the majority of children are asymptomatic, congenital CMV can result in sensorineural hearing loss, cognitive, motor and visual deficits and seizures.

Restrictions

PB0614 is not available for sale in the US.



Human placenta: *in situ* hybridization for Cytomegalovirus (CMV) mRNA using CMV Probe, Anti-Fluorescein Antibody and BOND Polymer Refine Detection.

BOND HPV (subtypes 6, 11) Probe

FORMAT	CODE	USAGE	STATUS
6.25 mL	PB0780	P	IVD

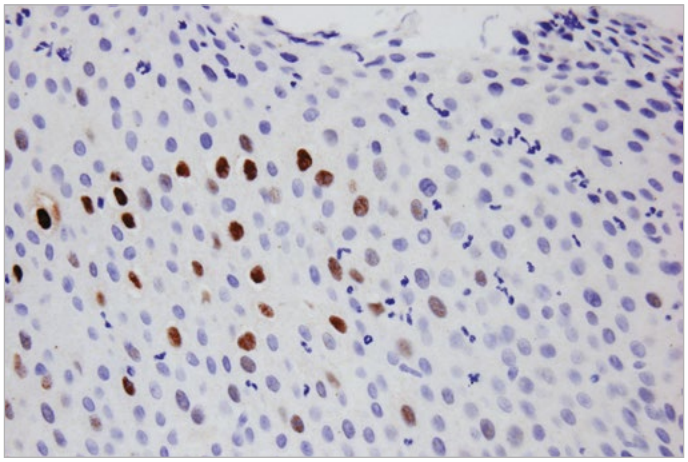
Background

HPV Probe (Subtypes 6,11) is used for the qualitative identification of the Human Papillomavirus (HPV) DNA in formalin-fixed, paraffin-embedded tissue by *in situ* hybridization (ISH) using the automated BOND system. This probe binds to HPV subtypes 6 and 11 and is biotin-conjugated.

There are over 100 known Human Papillomavirus types, but only about 40 are known to infect the anogenital epithelium. HPV is the most common sexually transmitted virus. HPV infections have been associated with a number of malignant and benign lesions, including genital warts, anogenital cancers and oral head and neck cancers. HPV subtypes have been associated with over 95% of cervical cancers. As a result, HPV subtypes are broadly classified as high or low risk, depending on the incidence they are associated with cervical malignant transformation (high risk) and benign lesion development (low risk). There are 12 HPV subtypes classified as low risk, including 6 and 11, which have a low association with cervical cancer progression.

Restrictions

PB0780 is not available for sale in the US.



Cervical tissue (CIN1): *in situ* hybridization for HPV, subtype 6 and 11 DNA using HPV (6,11) Probe, Anti-Biotin Antibody, Stringency Wash and BOND Polymer Refine Detection.

BOND HPV (subtypes 16, 18, 31, 33, 51) Probe

FORMAT	CODE	USAGE	STATUS
6.25 mL	PB0829	P	IVD

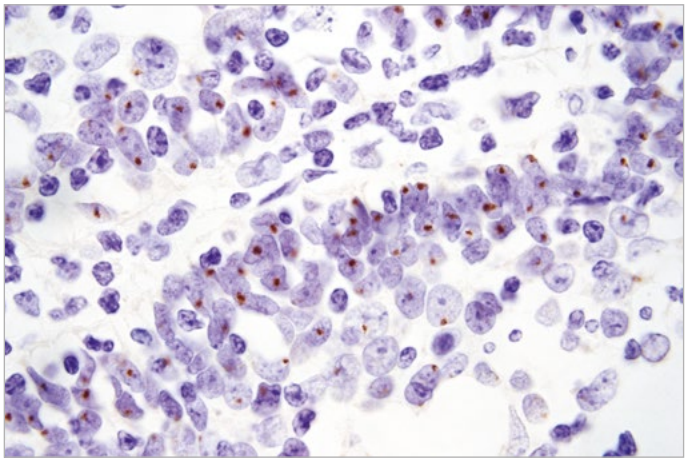
Background

HPV Probe (Subtypes 16, 18, 31, 33, 51) is used for the qualitative identification of the Human Papillomavirus (HPV) DNA in formalin-fixed, paraffin-embedded tissue by *in situ* hybridization (ISH) using the automated BOND system. This probe binds to HPV 16, 18, 31, 33 and 51 and is biotin-conjugated.

There are over 100 known Human Papillomavirus types, but only about 40 are known to infect the anogenital epithelium. HPV is the most common sexually transmitted virus. HPV infections have been associated with a number of malignant and benign lesions, including genital warts, anogenital cancers and oral head and neck cancers. HPV subtypes have been associated with over 95% of cervical cancers. As a result, HPV subtypes are broadly classified as high or low risk, depending on the incidence they are associated with cervical malignant transformation (high risk) and benign lesion development (low risk). There are 15 HPV subtypes classified as high risk, including 16, 18, 31, 33 and 51, but HPV subtypes 16 and 18 are the most frequent subtypes associated with cervical carcinogenesis and are detected in up to 71% of cervical cancers. It is now widely accepted that a HPV infection is necessary for cervical cancer progression; however, additional cellular events, such as HPV DNA integration status and viral load, are also key factors associated with cancer progression.

Restrictions

PB0829 is not available for sale in the US.



Cervical tissue, abnormal epithelia (CINII) stained with HPV (subtypes 16, 18, 31,33, 51) Probe Anti-Biotin Antibody, Stringency Wash and BOND Polymer Refine Detection.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

BOND DNA Positive Control

FORMAT	CODE	USAGE	STATUS
6.25 mL	PB0682	P	IVD

Background

Positive control probes should be run on patient tissue to validate reagent performance, to provide information on the preservation of nucleic acids in the tissue and to confirm accessibility of nucleic acids to the probe.

The DNA Positive Control Probe is intended for use as a positive control in formalin-fixed, paraffin-embedded tissue by DNA *in situ* hybridization (ISH) using the automated BOND system.

It is designed to specifically hybridize to the genomic ALU repeat sequences, which represent approximately 10% of the human genome. The DNA Positive Control Probe is biotin-labeled.

Restrictions

PB0682 is not available for sale in the US.

BOND DNA Negative Control

FORMAT	CODE	USAGE	STATUS
6.25 mL	PB0731	P	IVD

Background

The DNA Negative Control is intended for use as a negative control in formalin-fixed, paraffin-embedded tissue by DNA *in situ* hybridization (ISH) using the automated BOND system.

DNA Negative Control is used in place of the probe, to enable the identification of background staining resulting from non-specific interactions with the specimen sample under investigation.

Restrictions

PB0731 is not available for sale in the US.

BOND RNA Positive Control Probe

FORMAT	CODE	USAGE	STATUS
5.5 mL	PB0785	P	IVD

Background

RNA is very susceptible to degradation by RNases, therefore, the RNA Positive Control Probe is ideally used as a screening tool to detect the preservation of mRNA in cells.

Restrictions

PB0785 is not available for sale in the US.

BOND RNA Negative Control Probe

FORMAT	CODE	USAGE	STATUS
5.5 mL	PB0809	P	IVD

Background

RNA Negative Control Probe is intended for use in the identification of background staining resulting from non-specific interactions in formalin-fixed, paraffin-embedded tissue by *in situ* hybridization (ISH) using the automated BOND system.

RNA Negative Control Probe is a single oligonucleotide, designed from zebra fish DNA and analyzed using Basic Local Alignment Search Tool (BLAST) analysis to confirm that the sequence bears no homology with any human sequences. The RNA Negative Control Probe is generated with a fluorescein label using the same procedures as applied to other oligonucleotide probes used in the detection of RNA on BOND. Therefore, RNA Negative Control Probe is ideal as a negative control probe for RNA ISH on BOND.

Restrictions

PB0809 is not available for sale in the US.

BOND Aspirating Probe Cleaning System

FORMAT	CODE	USAGE	STATUS
15 Cleaning Cycles	CS9100	-	-

The BOND Aspirating Probe Cleaning System contains reagents optimized to clean the aspirating probe of residual DAB. Sold in a standard reagent tray, the system is loaded onto BOND where a predefined cleaning protocol ensures maximum wash efficiency.

BOND Mixing Stations

FORMAT	CODE	USAGE	STATUS
5 Pack	S21.1971	-	-

BOND Mixing Stations are reusable inserts with six vials for mixing and catalyzing chromogens prior to slide application. Fresh chromogen promotes high quality staining. Replacing the mixing stations at recommended intervals ensures that the mixed chromogen does not become contaminated.

BOND Mixing Stations.

BOND Open Containers 7 mL

FORMAT	CODE	USAGE	STATUS
10 Pack, Minimum 200 Tests/Container	OP79193	-	IVD

BOND Open 7 mL Containers allow the use of reagents from any source on the BOND system. Each container can be refilled until a total of 40 mL has been dispensed from it. They are ideal for reagents that are consumed intermittently and have a short shelf life.

BOND Open Containers 7 mL.

BOND Open Containers 30 mL

FORMAT	CODE	USAGE	STATUS
10 Pack, Minimum 200 Tests/Container	OP309700	-	IVD

BOND Open 30 mL Containers allow the use of reagents from any source on the BOND system. Each container holds 30 mL and can be refilled until a total of 40 mL has been dispensed from it. They are ideal for high throughput reagents that are consumed on a daily basis and their use can minimize reagent preparation time.

BOND Open Containers 30 mL.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

BOND Titration Kit

FORMAT	CODE	USAGE	STATUS
10 Titration Containers and 50 Titration Container Inserts	OPT9049	-	IVD

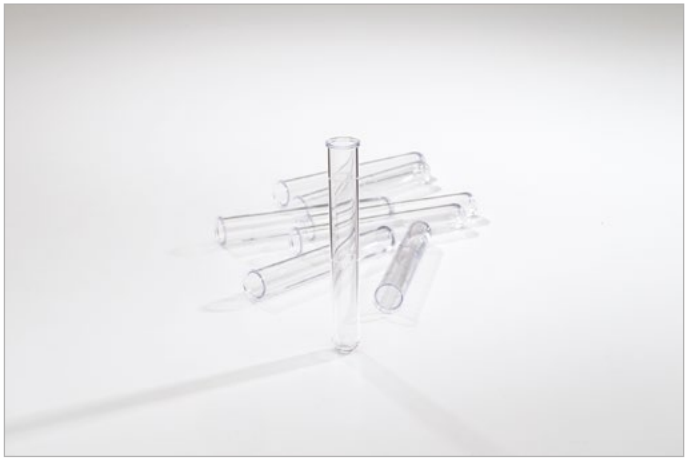
The BOND Titration Kit contains BOND Titration Container Inserts and BOND Titration Containers. The kit lets users optimize primary antibody concentrates on the BOND system. The kits can be re-used for different antibodies and are designed with minimal dead volume to preserve reagent.

BOND Titration Kit.

BOND Titration Container Inserts

FORMAT	CODE	USAGE	STATUS
50 Pack	OPT9719	-	IVD

BOND Titration Container Inserts are tubes that fit directly into the BOND Titration Containers. They enable safer use of up to 40 mL of reagent per titration container.



BOND Titration Container Inserts.

BOND Slide Label and Print Ribbon Kit

FORMAT	CODE	PRINTER	STATUS
1 Pack, 3000 Labels	S21.4564.A	Zebra	-
1 Pack, 3000 Labels	S21.4604.A	Cognitive	-
6 Pack, 18000 Labels	S21.4610.A	Cognitive	-

The BOND Slide Label and Print Ribbon Kit produces high-quality, solvent-resistant slide labels for use on the BOND system. This assists in preserving the integrity of slide identification and patient data records on BOND slides. The BOND Universal Slide labels adhere to slides for easy and secure identification.

BOND Slide Label and Print Ribbon Kit.

BOND Reagent Tray

FORMAT	CODE	USAGE	STATUS
1 Tray	S21.1003	-	-

Additional BOND Reagent Trays let laboratories setup reagents for upcoming runs while other reagent trays are in use. This reduces setup delays and improves laboratory workflow.

BOND Reagent Tray.

BOND Slide Labeler Cleaning Pen

FORMAT	CODE	USAGE	STATUS
1 Pen	S21.1913	-	-

The BOND Slide Labeler Cleaning Pen is used to clean the print head on the BOND Slide Labeler. Regular cleaning helps ensure labels are printed clearly and correctly.

BOND Slide Labeler Cleaning Pen.

BOND Slide Tray

FORMAT	CODE	USAGE	STATUS
1 Tray	S21.4586	-	-

This new slide tray offers keying cues to improve usability and Covertile placement. Additional BOND Slide Trays to allow laboratories to prepare slides while other trays are running. This reduces setup delays and improves laboratory workflow. This tray can be used with all BOND Covertiles, however for the full usability advantages the new Covertile (S21.4583) is required.

BOND Slide Tray.

BOND Syringe (for 8-Port Pump)

FORMAT	CODE	USAGE	STATUS
1 Syringe	S21.1926	-	-

The BOND Syringe precisely measures reagent volumes to be dispensed onto the slides. The syringes must be replaced if problems are found during scheduled fluidics checks. This part is for BOND-MAX instruments with a 8-Port valve.

BOND Syringe.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

BOND Syringe (for 9-Port Pump)

FORMAT	CODE	USAGE	STATUS
1 Syringe	S21.2131	-	-

The BOND Syringe precisely measures reagent volumes to be dispensed onto the slides. The syringe must be replaced at regular intervals as prompted by the software or if problems are found during scheduled fluidics checks. This part is for BOND-MAX instruments with a 9-Port valve.

BOND Syringe.

BOND-III Syringes

FORMAT	CODE	USAGE	STATUS
4 Syringes	S21.4565	P	IVD

The BOND-III syringes precisely measures reagent volumes to be dispensed onto the slides. The syringes must be replaced if problems are found during scheduled fluidics checks. This part is for all BOND-III instruments and includes the four syringes required for each instrument.

BOND Plus Slides

FORMAT	CODE	USAGE	STATUS
20 Boxes x 72 Slides/Box	S21.2113	P	IVD

BOND Plus Slides are positively charged glass microscopic slides designed for use on the BOND system. They include defined margins to enable the accurate placement of tissue for staining in the 100 µL and the 150 µL dispense modes, which helps in maintaining the integrity of staining quality.

Leica Microsystems Plus Slides.

BOND Covertile Cleaning Rack

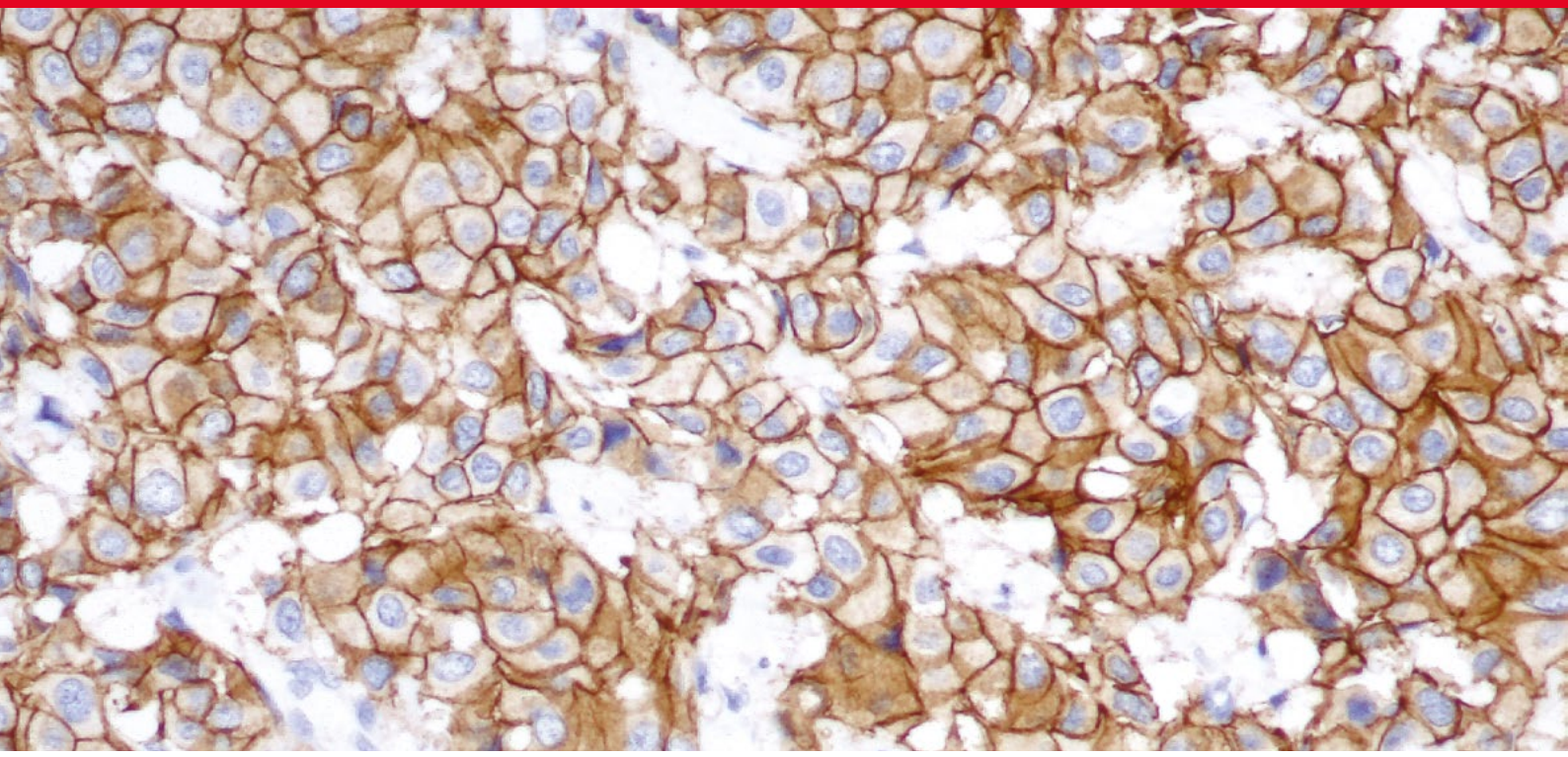
FORMAT	CODE	USAGE	STATUS
1 Rack	S21.4588	-	-

The BOND Covertile Cleaning Rack makes Covertile cleaning even easier. It is easy to load, securely locks the Covertiles in place, and sits either vertically or horizontally.

BOND Covertile Cleaning Rack.

Fully Automated HER2 IHC Testing

BOND ORACLE HER2 IHC SYSTEM

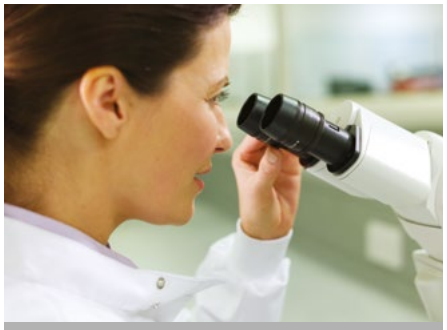


Bond Oracle HER2 IHC System	
Product code:	TA9145
Clone:	CB11
No. of tests:	60 tests (150 slides)

Contents:
HER2 Control Slides (x15)
HER2 Primary Antibody
HER2 Negative Control
Integrated DAB Detection System

With treatment decisions dependant on a stained slide, you need confidence that your HER2 IHC staining is consistent and accurate.

The Bond Oracle HER2 IHC system gives you the confidence that comes with demonstrated HER2 IHC FISH concordance and complete assay validation. With the Oracle system, you get the accurate results needed for effective patient management.



MAXIMIZE EFFICIENCY

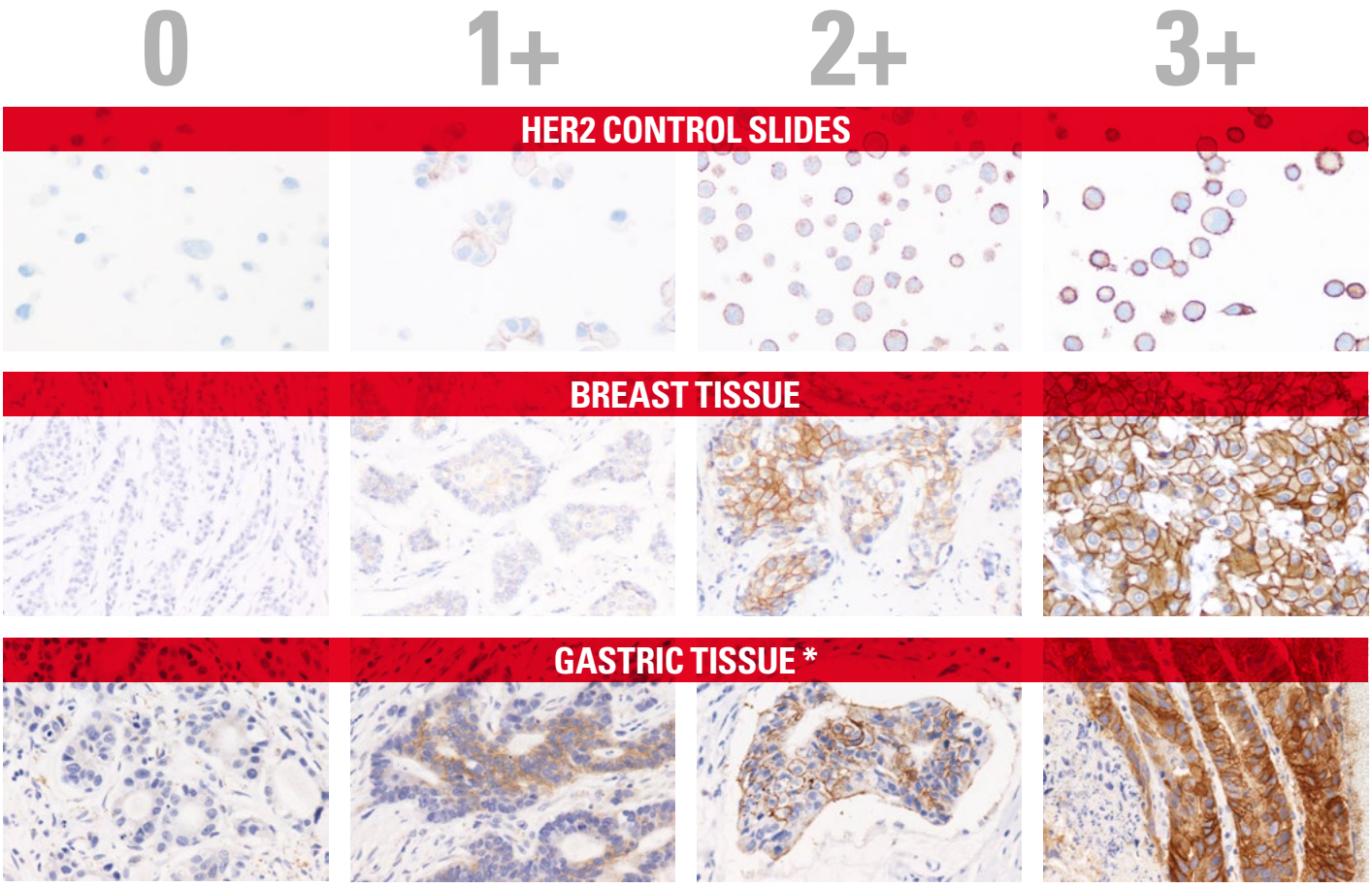
A complete solution of Ready-To-Use reagents, HER2 Control Slides, BOND automation and a validated, standardized protocol reduce the potential for repeat testing and free skilled staff for other high-value tasks.

DRIVE CONSISTENCY

A validated, standardized protocol for uniform staining consistency is supported by convenient e-learning which reinforces and tests consistent interpretation of Oracle HER2 IHC staining.

INCREASE CONFIDENCE

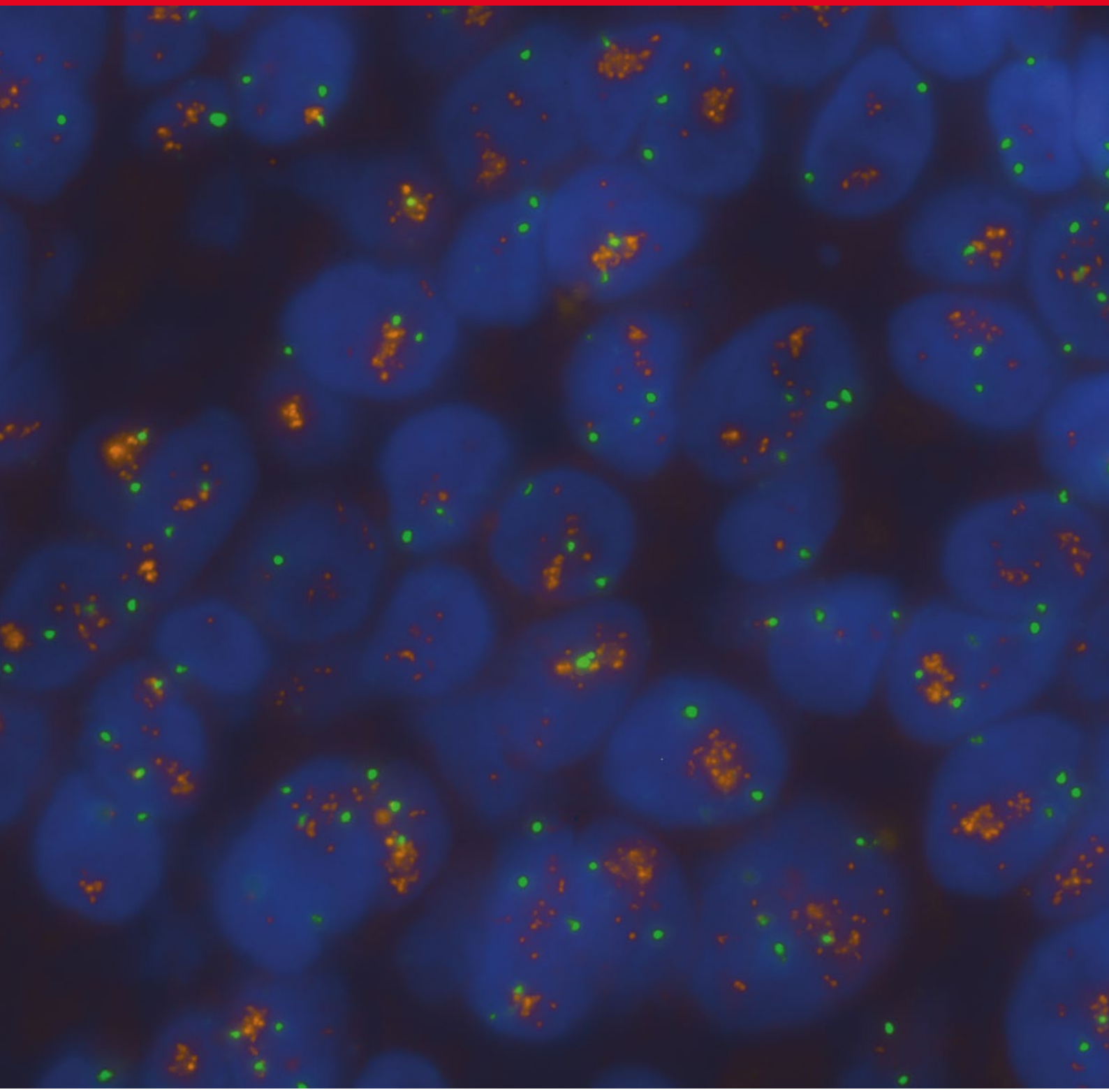
Confidence in HER2 testing is enhanced by HER2 control slides demonstrating 0, 1+ , 2+ and 3+ staining, and excellent FISH concordance.



* This product is not for use in gastric cancer in the USA.

Leica HER2 FISH System
Easy. Efficient. Accurate.

FULLY AUTOMATED LEICA HER2 FISH SYSTEM FOR BOND



Fully automated Leica HER2 FISH System: With 99.67% concordance to the Abbott PathVysion** DNA probe kit, you can now produce consistent, high quality HER2 FISH staining

Easy - Reduce errors and increase standardization

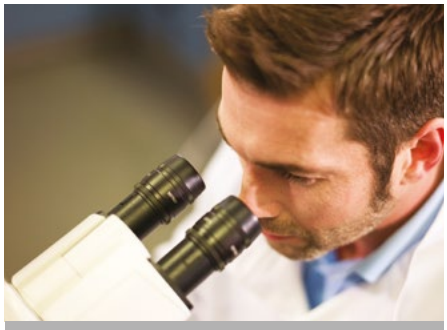
Eliminate complexity and reduce human errors that may compromise patient care.

The Leica HER2 FISH System uses familiar PathVysion LSI** HER2/CEP17** FISH probes supplied by Abbott Molecular Inc, Ready-To-Use on the BOND System.

With fully automated staining, laboratories will find it easy to produce the consistent, high-quality stained slides that pathologists rely on.

Efficient - Create a Lean workflow

Work smarter, increase efficiency and provide an improved service to your clinicians and customers. BOND automation brings optimized workflow to HER2 FISH staining. With automation, an optimized protocol and standardized Ready-To-Use reagents, the HER2 FISH System provides the flexibility, reduced hands-on time and reduced turnaround time that today's Lean workflow demands.



Accurate - Deliver accurate results for diagnostic confidence

The Leica HER2 FISH System provides a Total Solution. The system combines Abbott Molecular Inc's HER2 FISH probes with the industry-leading BOND automated platform. The reduction in variation delivers a high level of diagnostic confidence when combined with proprietary HER2 FISH Control Slides.

Leica HER2 FISH System	
Product code:	TA9217
No. of tests:	30 tests (30 slides)

Contents:
RTU LSI HER2/CEP17 dual probe
Post Hybridization Wash Solution 2
BOND Enzyme Diluent
BOND Enzyme Concentrate 2
BOND Open Containers

** PathVysion LSI and CEP is a trademark of Abbott Molecular Inc. All Rights Reserved. Used under License. This product is not for sale in the USA.

ThermoBrite

SLIDE DENATURATION/HYBRIDIZATION SYSTEM

This programmable system automates the denaturation and hybridization steps in slide-based FISH procedures, and provides walk-away convenience for clinical and research personnel. The low cost unit accepts a wide range of sample types, is easy to use, and reduces hands-on time by more than 50% while ensuring overall precision and accuracy in FISH assays.

USER PROGRAMMABLE SETTINGS

- 40 user defined protocols and 3 operating modes
- Easy to read backlit display
- Numeric keypad allows for easy programming
- Fixed temperature setting for slide baking

EASY TO USE

- Reduces hands-on time during ISH procedures
- Does not need to be fully loaded to maintain temperature accuracy
- Slide separator keeps slides in place and allows for one hand removal

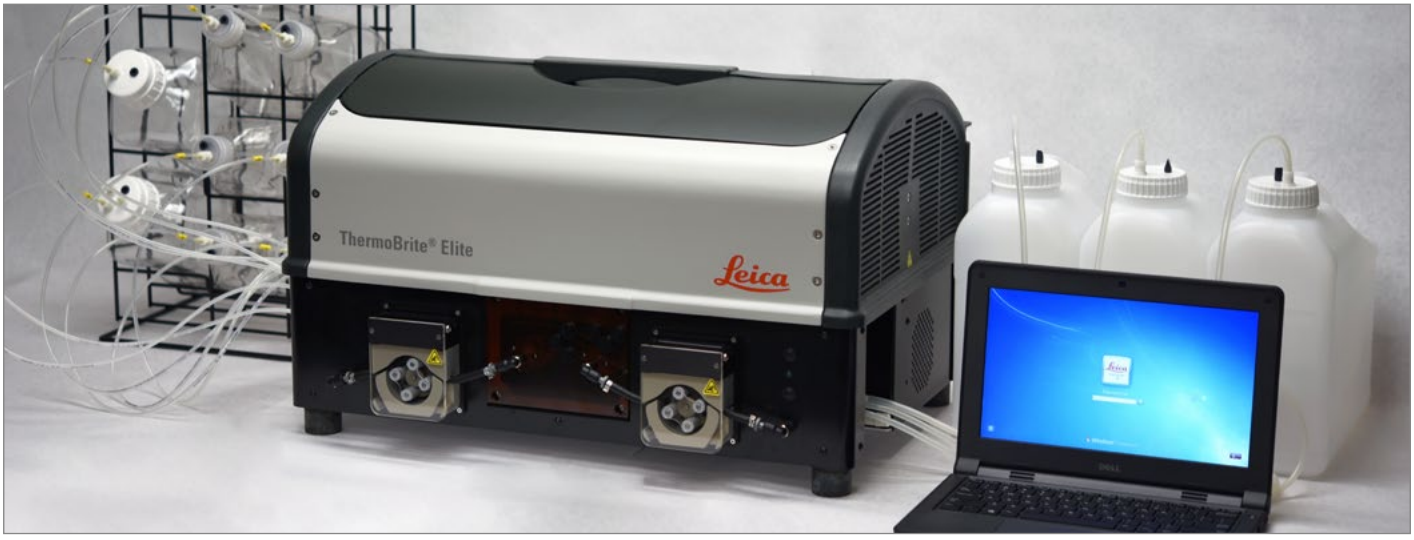
ADVANTAGES OVER MANUAL PROCESSING

- Replaces water bath and hybridization oven
- Superior temperature control compared to water bath
- No need to denature slides in toxic formamide
- No need to denature probes separately
- Eliminates many manual steps

Product Code	Product Description
ThermoBrite Slide Denaturation/Hybridization System 120V	3800-004852-001
ThermoBrite Slide Denaturation/Hybridization System 240V	3800-004852-002
Humidity Card, 10pk	3800-004970-001
ThermoBrite Temperature Verification Kit	3800-006418-001

ThermoBrite Elite

THE COMPLETE SOLUTION FOR FISH SAMPLE PREPARATION



The ThermoBrite Elite automates and standardizes the FISH slide preparation process including deparaffinization, pretreatment, denaturation/hybridization and post hybridization wash. Application of probe, counterstain and cover slipping are the only manual steps. Just load your slides and walk away. Minimal hands-on time frees up technologists for other important tasks.

The ThermoBrite Elite hybridizes with temperature controlled to +/- 1°C and can process up to twelve slides per run with the ability to adapt to smaller batches. For higher throughput, transfer slides to a standard ThermoBrite instrument to denature/hybridize and continue using your ThermoBrite Elite for new runs.

Interactive easy-to-use software

The included intuitive software enables users to run preload protocols for solid tumor/FFPE, urine, or to create up to 1,000 user defined protocols. The instrument can be programmed to work with nearly any probe or protocol, allowing the selection of up to ten input reagents and three separate waste paths.

FEATURES

- Small bench top unit
- Automated fluidic system
- Hybridization temperature precision to +/- 1°C
- Workflow based software navigation
- Open system—preloaded & custom protocols

SPEED & EFFICIENCY

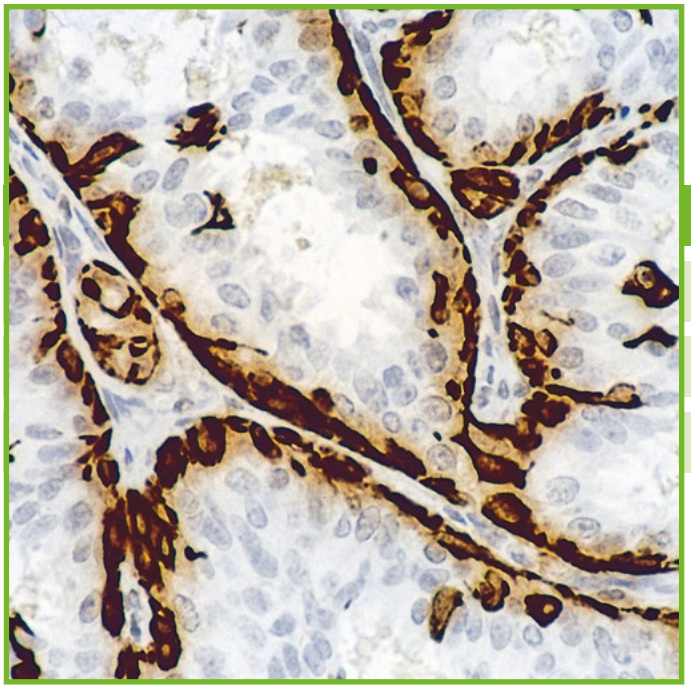
- Fast protocol setup and start of run
- Hands on time reduced to 3 steps from >30 (FFPE)
- Free up technologists for other tasks
- Flexible and easy-to-use
- Increases laboratory productivity

FLEXIBILITY

- Histology (solid tumor/FFPE specimens)
- Cytology (urine and other fluids)
- Hematology (blood/bone marrow)
- Cytogenetics (metaphase/ interphase, tissue)

Product Code	Product Description
ThemoBrite Elite 120V	3800-007000-001
ThemoBrite Elite 240 V	3800-007000-001
Peritubes 2 tubes	3800-010022-001
Peritubes 12 tubes	3801-010021-001
Pretreatment Solution A (250 mL)	LK-110B
TBE Wash buffer (250 mL 10x)	LK-141B

Manual IHC / FISH



MANUAL IHC/FISH

DETECTION - IHC

ANCILLARIES - IHC

ANCILLARIES - MOLECULAR

Novolink Polymer Detection Systems

Novolink Max Polymer Detection System

FORMAT	CODE	USAGE	STATUS
1, 250 Tests	RE7280-K	P	IVD

Novolink Polymer Detection System

FORMAT	CODE	USAGE	STATUS
500 Tests	RE7150-K	P	IVD

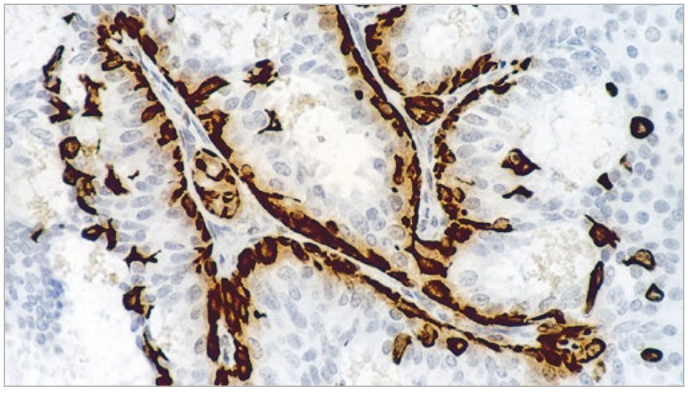
Novolink Polymer Detection System

FORMAT	CODE	USAGE	STATUS
250 Tests	RE7140-K	P	IVD

Novolink Min Polymer Detection System

FORMAT	CODE	USAGE	STATUS
50 Tests	RE7290-K	P	IVD

The Novolink Polymer Detection Systems utilize a novel Compact Polymer technology. Therefore, the problem of non-specific staining that can occur with Streptavidin/Biotin detection systems due to endogenous biotin does not occur. Novolink Polymer Detection Systems contain pre-diluted, reagents in color coded bottles for ease of use and ultimate convenience. These systems can be used for the visualization of mouse IgG, mouse IgM and rabbit IgG primary antibodies. These detection systems contain Peroxidase Block, Protein Block, Post Primary Block, Novolink Polymer, DAB Chromogen, Novolink DAB Substrate Buffer (Polymer) and Hematoxylin.



Novolink Polymer Detection System (RE7150-K) staining for Cytokeratin 5 with NCL-L-CK5 on breast carcinoma. Paraffin section.

Peroxidase Block

Blocking Reagent

FORMAT	CODE	USAGE	STATUS
25 mL	RE7101	P	IVD

Novocastra Peroxidase Block, RE7101, is intended for use in the peroxidase based immunohistochemical (IHC) staining procedures. The presence of pseudoperoxidase (erythrocytes) and endogenous peroxidase in paraffin sections to be stained by immunoperoxidase procedures, can result in nonspecific staining. A method for the blocking of pseudoperoxidase was described (StreefkerkJG, Journal of Histochemistry and Cytochemistry. 20: 829 (1972)). This product is used in a peroxidase based IHC procedure. Incubating sections with Novocastra Peroxidase Block, RE7101, can neutralize endogenous peroxidase activity. 25 mL of reagent is supplied.

Protein Block

Blocking Reagent

FORMAT	CODE	USAGE	STATUS
25 mL	RE7102	P	IVD

Novocastra Protein Block, RE7102, is intended for use in immunohistochemical (IHC) staining procedures. In immunohistochemistry, diffuse non-specific staining (background) may occur as a result of hydrophobic and ionic interactions between antibodies and tissue components. Novocastra Protein Block, RE7102, is a serum-free, protein blocker. 25 mL of reagent is supplied.

Novolink Polymer

FORMAT	CODE	USAGE	STATUS
1250 Tests	RE7260-K	P	IVD
250 Tests	RE7200-K	P	IVD

Novolink (Polymer), RE7200-K, is a two part ready-to-use kit comprising 25 mL of Novocastra Post Primary Block, RE7111, and 25 mL of Novolink Polymer, RE7112, sufficient to perform approximately 250 tests. The larger format Novolink Max (Polymer), RE7260-K, is a two-part ready-to-use kit comprising 125 mL of Novocastra Post Primary Block, RE7159, and 125 mL of Novolink Polymer, RE7161, sufficient to perform approximately 1250 tests.

Novolink DAB (Polymer)

FORMAT	CODE	USAGE	STATUS
1250 Tests	RE7270-K	P	IVD
250 Tests	RE7230-K	P	IVD

Novolink Max DAB (Polymer) RE7270-K is a two part DAB kit comprising 150 mL of Novolink Substrate Buffer (Polymer), RE7163, and 8 mL of Novocastra DAB Chromogen, RE7162, sufficient to perform approximately 1250 tests. Novolink DAB (Polymer), RE7230-K, is a two part DAB kit comprising 30 mL of Novolink DAB Substrate Buffer, RE7143, and 3 mL of Novocastra DAB Chromogen, RE7105, sufficient to perform approximately 250 tests.

Hematoxylin

FORMAT	CODE	USAGE	STATUS
25 mL	RE7107	P	IVD

Novocastra Hematoxylin, RE7107, is intended for use in immunohistochemical (IHC) staining procedures. Hematoxylin stains cell nuclei and has many uses in histology, the most common of which is the Hematoxylin and Eosin stain. In IHC procedures, hematoxylin can be used as a counterstain to aid the visualization and localization of the colored end product. 25 mL of the reagent is supplied.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Peroxidase Detection Systems (Ready-To-Use)

FORMAT	CODE	USAGE	STATUS
250 Tests	RE7110-K	P	IVD
500 Tests	RE7120-K	P	IVD

Novocastra Peroxidase Detection Systems (250 tests), RE7110-K, and (500 tests), RE7120-K, are for the visualization of mouse IgG, mouse IgM and rabbit IgG primary antibodies. Each detection system contains Novocastra Peroxidase Block, RE7101, Novocastra Protein Block, RE7102, Novocastra Biotinylated Secondary Antibody, RE7103, Novocastra Streptavidin-HRP, RE7104, Novocastra DAB Chromogen, RE7105, Novocastra DAB Substrate Buffer, RE7106, and Novocastra Hematoxylin, RE7107. The components in these kits are pre-diluted, ready-to-use reagents in color coded bottles for ease of use and ultimate convenience. Components of these Detection Systems are also available, separately.

Streptavidin-HRP

FORMAT	CODE	USAGE	STATUS
25 mL	RE7104	P	IVD

Streptavidin-HRP is a streptavidin-conjugated horseradish peroxidase reagent. It is supplied ready-to-use in a volume of 25 mL.

Avidin/Biotin Blocking System

FORMAT	CODE	USAGE	STATUS
2. 18 mL	RE7170-K	F P W	RUO

Some tissues may bind avidin, biotinylated horseradish peroxidase, biotinylated alkaline phosphatase or other Biotin/Avidin System components without prior addition of biotinylated antibody. This binding may be due to endogenous biotin or biotin-binding proteins, lectins or non-specific binding substances present in the section. If high background is present using Avidin Biotin Complex (ABC) reagents, or other avidin conjugates in the absence of biotinylated secondary antibody, the use of the Novocastra Avidin/Biotin Blocking System RE7170-K may be of benefit. 18 mL of each reagent is supplied.

NovoPen

FORMAT	CODE	USAGE	STATUS
1 Reagent Pen	NCL-PEN	F P	RUO

NovoPen is designed to minimize wastage of reagents by allowing the user to ring the tissue(s) or cells to be stained thereby localizing the staining reagents. The pen contains a light blue hydrophobic reagent which is soluble in commonly used clearing agents, eg xylene and xylene substitutes. It can be used in immunostaining techniques on paraffin sections, frozen sections and on cytology preparations and is insoluble in alcohol and acetone. NovoPen is compatible with enzyme or fluorescent-based detection systems. The pen is supplied as a single item together with a product datasheet.

Antibody Diluent

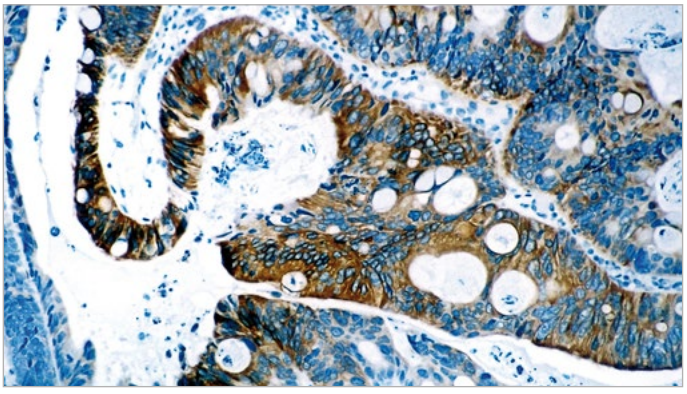
FORMAT	CODE	USAGE	STATUS
500 mL	RE7133	F P O	IVD

Novocastra IHC Diluent is intended for use as a diluent for Novocastra primary antibodies, Novocastra Concentrated Biotinylated Secondary Antibody, RE7108, and Novocastra Concentrated Streptavidin-HRP, RE7109, in immunohistochemical (IHC) procedures. Novocastra IHC Diluent is not intended for the reconstitution of lyophilized reagents.

Epitope Retrieval Solutions pH6

FORMAT	CODE	USAGE	STATUS
1 L pH6 (x10 Concentrate)	RE7113	P (HIER)	IVD

Novocastra Epitope Retrieval Solutions are intended for Heat Induced Epitope Retrieval (HIER) on formalin-fixed, paraffin-embedded tissue sections as part of an immunohistochemical procedure. HIER using an appropriate pH solution improves the staining of some antibodies by exposing epitopes within tissue that has been masked during fixation. The development of Epitope Retrieval using heat was first reported in 1991 by Shi S-R et al. , Journal of Histochemistry and Cytochemistry 39: 741-748 (1991). Since then numerous studies have been published looking at the effects of molarity, pH and heating methods on epitope retrieval. A universal HIER technique suitable for all epitopes does not exist. A combination of different heating methods and epitope retrieval solutions may be used to optimize unmasking of antigens where this technique is recommended. HIER is not recommended for all antibodies. Optimum conditions for epitope retrieval should be validated by the user, as these are dependent upon tissue, fixation and/or primary antibody. RE7113 is supplied as a 1 L volume, sufficient to prepare 10 L of working solution.



Colonic adenocarcinoma pre-treated with Epitope Retrieval Solution pH6 (RE7113). Staining for Cytokeratin 20 protein using NCL-L-CK20-561. Paraffin section.

Epitope Retrieval Solutions pH8

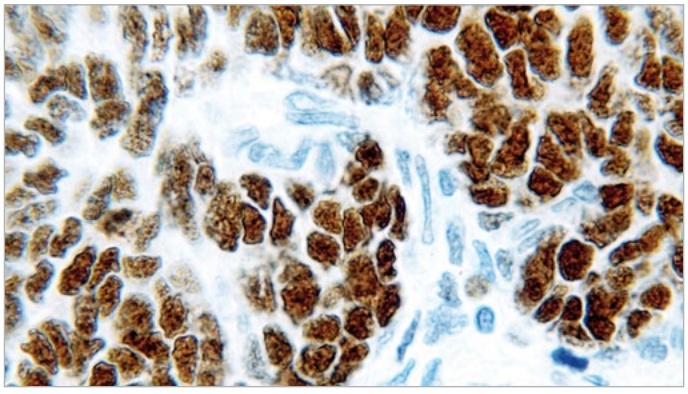
FORMAT	CODE	USAGE	STATUS
1 L pH8 (x10 Concentrate)	RE7116	P (HIER)	IVD

Novocastra Epitope Retrieval Solutions are intended for Heat Induced Epitope Retrieval (HIER) on formalin-fixed, paraffin-embedded tissue sections as part of an immunohistochemical procedure. HIER using an appropriate pH solution improves the staining of some antibodies by exposing epitopes within tissue that has been masked during fixation. The development of Epitope Retrieval using heat was first reported in 1991 by Shi S-R et al. , Journal of Histochemistry and Cytochemistry 39: 741-748 (1991). Since then numerous studies have been published looking at the effects of molarity, pH and heating methods on epitope retrieval. A universal HIER technique suitable for all epitopes does not exist. A combination of different heating methods and epitope retrieval solutions may be used to optimize unmasking of antigens where this technique is recommended. HIER is not recommended for all antibodies. Optimum conditions for epitope retrieval should be validated by the user, as these are dependent upon tissue, fixation and/or primary antibody. RE7116 is supplied as a 1 L volume, sufficient to prepare 10 L of working solution.

Epitope Retrieval Solutions pH9

FORMAT	CODE	USAGE	STATUS
1 L pH9 (x10 Concentrate)	RE7119	P (HIER)	IVD

Novocastra Epitope Retrieval Solutions are intended for Heat Induced Epitope Retrieval (HIER) on formalin-fixed, paraffin-embedded tissue sections as part of an immunohistochemical procedure. HIER using an appropriate pH solution improves the staining of some antibodies by exposing epitopes within tissue that has been masked during fixation. The development of Epitope Retrieval using heat was first reported in 1991 by Shi S-R et al. Journal of Histochemistry and Cytochemistry 39: 741-748 (1991). Since then numerous studies have been published looking at the effects of molarity, pH and heating methods on epitope retrieval. A universal HIER technique suitable for all epitopes does not exist. A combination of different heating methods and epitope retrieval solutions may be used to optimize unmasking of antigens where this technique is recommended. HIER is not recommended for all antibodies. Optimum conditions for epitope retrieval should be validated by the user, as these are dependent upon tissue, fixation and/or primary antibody. RE7119 is supplied as a 1 L volume, sufficient to prepare 10 L of working solution.



Kidney pre-treated with Epitope Retrieval Solution pH9 (RE7119). Staining for Wilms' Tumor protein using NCL-L-WT1-562. Paraffin section.

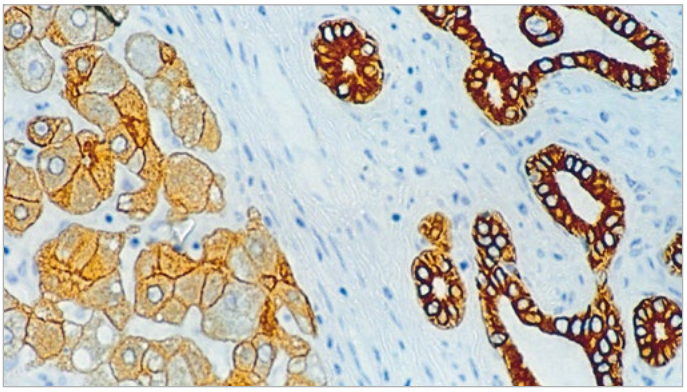
Enzyme Proteinase K (IHC)

FORMAT	CODE	USAGE	STATUS
100 mL	RE7160-K	P (Enzyme)	IVD

Enzyme pretreatment of formalin-fixed, paraffin-embedded tissue sections improves the staining of some antibodies by exposing epitopes within tissue that have been masked during fixation. The first proteolytic enzyme employed for epitope retrieval was trypsin. More recently, proteinase K which is commonly used in *in situ* hybridization techniques has been reported to be of use.

Product Specific Information

Novocastra Enzyme Proteinase K (IHC), RE7160-K, is intended for the enzymatic pretreatment of formalin-fixed, paraffin-embedded tissue sections prior to incubation with a primary antibody in an immunohistochemical (IHC) procedure. This product can be used for epitope retrieval with Novocastra antibodies for which trypsin is recommended, known exceptions to this are NCL-C-JEJUNI, NCL-BrdU, NCL-CYCLIN D1, NCL-COLL-IIp, and NCL-CYCLIN D1-GM. This two part kit comprises 0.75 mL of Enzyme Proteinase K Concentrate, RE7126, and 100 mL of Enzyme Proteinase K Buffer, RE7127, sufficient to produce 100 mL of working strength enzyme solution. This product is used in an IHC procedure, which allows the qualitative identification by light microscopy. Epitope retrieval by enzymatic pretreatment is recommended for a limited number of antibodies. Optimum conditions for epitope retrieval should be validated by the user as these are dependent upon tissue, fixation and/or primary antibody.

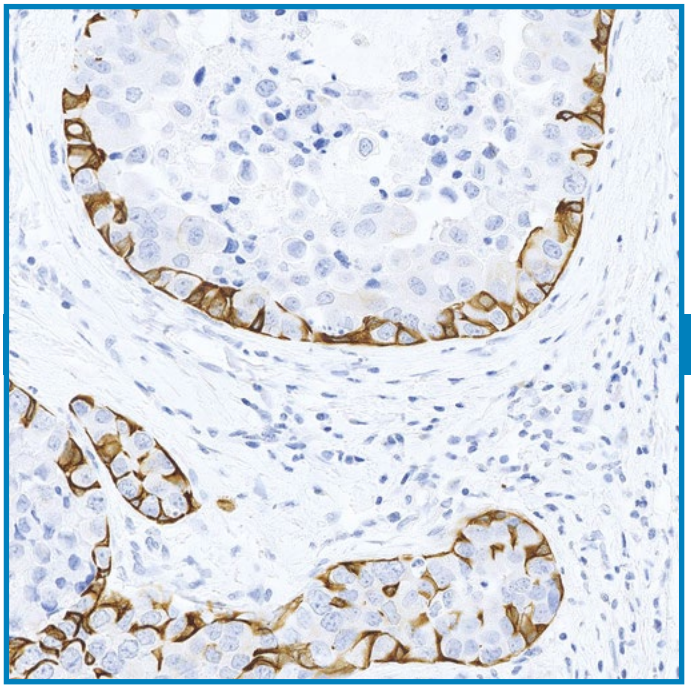


Liver pre-treated with Enzyme ProteinaseK (RE7160-K). Staining for Cytokeratin 8/18 using NCL-L-5D3. Paraffin section.

MANUAL ANCILLARIES - MOLECULAR

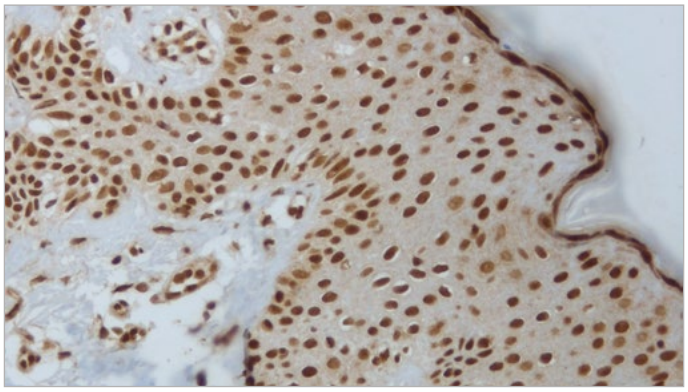
Product Name	Product Code	Content	Concentration	Classification
Whole Chromosome Buffer (WCB)	KBI-WCB	10 Test	RTU	GPR
Whole Chromosome Buffer (WCB)	KI-WCB	10 Test	RTU	GPR
Tissue Digestion Kit I	KBI-60007	Kit	-	IVD
Tissue Digestion Kit I	KI-60007	Kit	-	RUO
Tissue Digestion Kit II	KBI-60004	Kit	-	IVD
Tissue Digestion Kit II	KI-60004	Kit	-	RUO
FISH Reagent Kit	KBI-60005	Kit	-	IVD
FISH Reagent Kit	KI-60005	Kit	-	RUO
FISH Digestion Kit	KBI-60006	Kit	-	IVD
FISH Digestion Kit	KI-60006	Kit	-	RUO
KREAvital Prenatal Medium (Basal)	KBI-90010	90 mL	RTU	IVD
KREAvital Prenatal Medium (Supplement)	KBI-90011	10 mL	RTU	IVD
KREAvital Prenatal Medium (Complete)	KBI-90012	100 mL	RTU	IVD
KREAvital Prenatal Medium PLUS (Complete)	KBI-90013	100 mL	RTU	IVD
KREAvital Lymphocyte Karyotyping Medium (without PHA)	KBI-90020	100 mL	RTU	IVD
KREAvital Lymphocyte Karyotyping Medium (including PHA)	KBI-90021	5 mL	RTU	IVD
KREAvital Bone Marrow Karyotyping Medium	KBI-90030	100 mL	RTU	IVD
KREAvital Myeloid Cell Medium	KBI-90031	100 mL	RTU	IVD
Colchicine Solution (10µg/ mL, in PBS)	KBI-90050	25 mL	RTU	IVD
Colcemid Solution (10µg/ mL, in PBS)	KBI-90051	10 mL	RTU	IVD
Potassium Chloride (0. 075M)	KBI-90052	100 mL	RTU	IVD
Sodium Citrate Solution (0. 8%)	KBI-90054	500 mL	RTU	IVD
Phytohaemagglutinin liquid	KBI-90056	5 mL	RTU	IVD
KREAvital Prenatal Medium (Complete)	KBI-92012	500 mL	RTU	IVD
KREAvital Lymphocyte Karyotyping Medium (without PHA)	KBI-92020	500 mL	RTU	IVD
Trypsin EDTA 10X (EDTA 0. 2%, Trypsin 0. 5%, in saline solution)	KBI-92055	100 mL	RTU	IVD
Fixogum Rubber Cement	LK-071A	125 gr	-	GPR
Pretreatment Solution B	LK-100C	1 L	-	GPR
Wash Buffer V (10x)	LK-141B	250 mL	-	GPR
Wash Buffer V (10x)	LK-141C	1 L	-	GPR
Wash Buffer II	LK-103A	100 mL	-	GPR
Wash Buffer I	LK-102A	100 mL	-	GPR
Pepsin Solution	LK-101A	2. 5 mL	RTU	GPR
Counterstain Diluent (antifade)	LK-097A	1 mL	-	GPR
DAPI Counterstain (1 µg/ mL)	LK-096A	1 mL	-	GPR
DAPI Counterstain (0. 1 µg/ mL)	LK-095A	1 mL	-	GPR
Paraffin Tissue Buffer (PTB)	KBI-PTB	10 Test	RTU	GPR
Paraffin Tissue Buffer (PTB)	KI-PTB	10 Test	RTU	GPR
FISH Hybridization Buffer (FHB)	KBI-FHB	10 Test	RTU	GPR
FISH Hybridization Buffer (FHB)	KI-FHB	10 Test	RTU	GPR

Primary Antibodies



PRIMARY ANTIBODIES

Akt (Phosphorylated)



Human skin: immunohistochemical staining for Phosphorylated Akt. Akt (Phosphorylated): clone LP18

LP18

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-Akt-Phos	P(HIER)	IVD	IVD	IVD

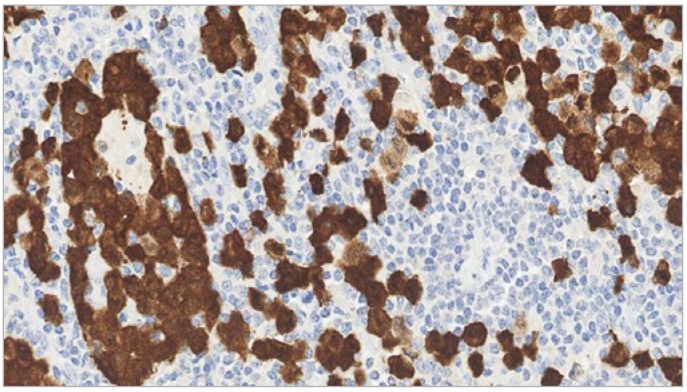
Antigen Background

Akt-1, also referred to as Protein Kinase B (PKB) or Rac alpha is a member of the Akt serin /threonine protein kinase family. It plays an important role in many biological responses including metabolism, cell survival and growth by phosphorylation and inactivating several targets including GSK 3 beta, caspase 9, BAD and the Forkhead transcription factor.

Product Specific Information

Akt-Phos is not recommended for use with PBS, since the use of PBS-based wash buffers and possibly PBS-based antibody diluents gives increased background staining and decreased staining intensity. Proprietary reagents from Leica Biosystems or TBS-based wash buffer and diluents are recommended.

ALK



Anaplastic large cell lymphoma: strong nuclear and cytoplasmic staining in the neoplastic cells. ALK: clone 5A4

5A4

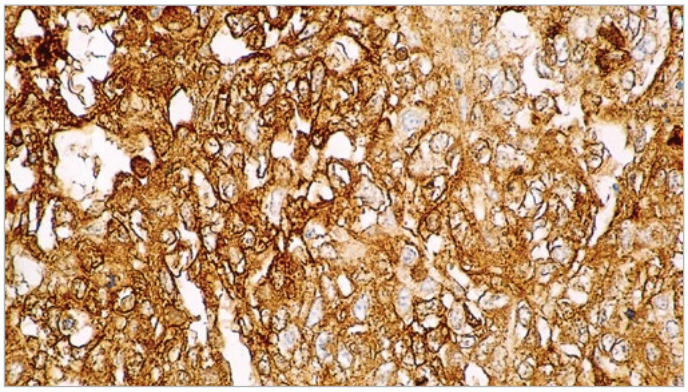
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0306	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-ALK	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Anaplastic large cell lymphoma (ALCL) is usually composed of large pleomorphic cells which are reported to express CD30 antigen and the epithelial membrane antigen (EMA). These tumor cells tend to occur in younger individuals and may be associated with cutaneous and extranodal involvement. A proportion of these cases contain a chromosomal translocation t(2;5) (p23;q35). This results in a hybrid gene encoding part of the nucleophosmin (NPM) gene joined to the cytoplasmic domain of the anaplastic lymphoma kinase (ALK) gene, giving rise to the protein, p80. Large cell lymphomas account for approximately 25 percent of all non-Hodgkin's lymphomas in children and young adults, of which one third carry the NPM-ALK gene translocation.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Alpha Fetoprotein



Immunohistochemical staining for Alpha Fetoprotein. Note cytoplasmic staining of hepatocytes. Alpha Fetoprotein: clone C3

C3

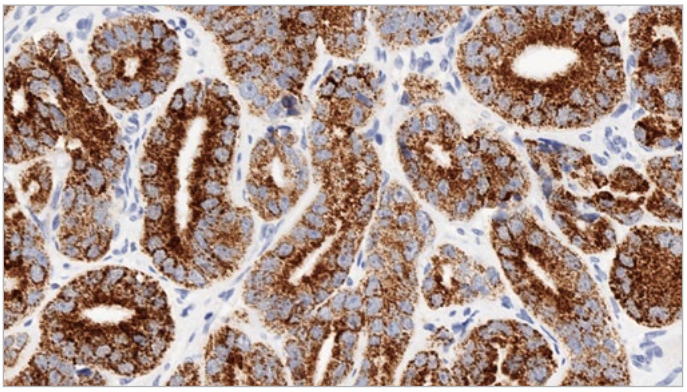
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0963	P	IVD	IVD	IVD
Liquid 1 mL	NCL-L-AFP	P	IVD	IVD	IVD

Antigen Background

Alpha Fetoprotein (AFP) is an oncofetal antigen of 70 kD found in body fluids, which if detected in high concentrations has clinical implications.

AFP is expressed in fetal liver but is not present under normal circumstances in healthy adult tissues. It is reported to be expressed in a proportion of germ cell tumors, with high frequency in yolk sac tumors.

Alpha-Methylacyl-CoA Racemase (AMACR, p504s)



Human prostatic adenocarcinoma: characteristic granular cytoplasmic staining of malignant cells. AMACR: clone EPMU1

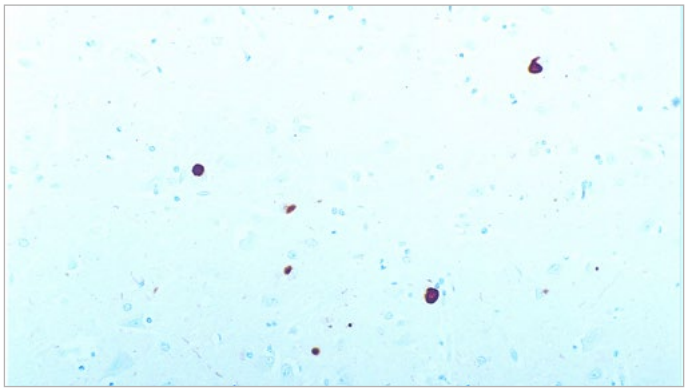
EPMU1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0210	P(HIER)	-	IVD	IVD
Liquid 1 mL	NCL-L-AMACR	P(HIER)	-	IVD	IVD

Antigen Background

Alpha-methylacyl-CoA racemase (AMACR), also known as p504s, is a mitochondrial and peroxisomal enzyme that is involved in bile acid biosynthesis and beta-oxidation of branched-chain fatty acids. AMACR is essential in lipid metabolism, and is expressed in normal liver (hepatocytes), kidney (tubular epithelial cells) and gall bladder (epithelial cells). Expression has also been found in lung (bronchial epithelial cells) and colon (colonic surface epithelium). Expression is granular and cytoplasmic. AMACR expression can also be found in hepatocellular carcinoma and kidney carcinoma. Past studies have also shown that AMACR is expressed in various colon carcinomas (well, moderately and poorly differentiated) and over expressed in prostate carcinoma.

Alpha-Synuclein



Human brain, Lewy body dementia: immunohistochemical staining for Alpha-Synuclein. Note staining of Alpha-Synuclein-containing Lewy bodies. Alpha-Synuclein: clone KM51

KM51

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-ASYN	P(HIER)	RUO	RUO	RUO

Antigen Background

Alpha-synuclein is a protein of 140 amino acids and a member of the synuclein family. It shares 61 percent sequence homology with beta-synuclein and is highly conserved between vertebrate species. It does not possess a signal sequence suggesting that it is an intracellular protein. All synucleins have an unusual organization based around the eleven residue repeating motif and an alpha-helical secondary structure resembling those found in the lipid-binding domain of exchangeable apolipoproteins, including Apo E. This homology suggests a direct interaction of alpha-synuclein with membranes consistent with its affinity for synaptosomes.

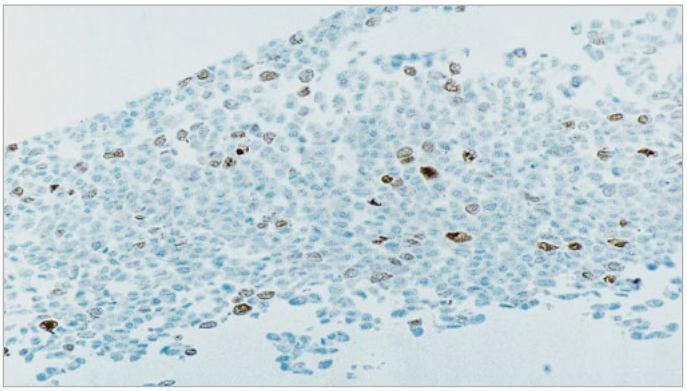
The function of alpha-synuclein may be to carry a target protein to the inner membrane of nerve terminals or to the outer surface of synaptic vesicles. Western Blot analyses of highly purified Lewy bodies from Lewy body dementia brain material has shown full-length, partially truncated and insoluble aggregates of alpha-synuclein.

Alpha-synuclein may be implicated in the formation of Lewy bodies and the selective degeneration of neurons in sporadic Parkinson's disease and Lewy body dementia.

Product Specific Information

Clone KM51 is specific for alpha-synuclein and is unreactive with beta-synuclein. Pretreatment of tissue sections with 98 to 100 percent formic acid is also recommended.

Aurora Kinase 2



Immunohistochemical staining for Aurora Kinase: clone JLM28

JLM28

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-AK2	-	ASR	RUO	RUO

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

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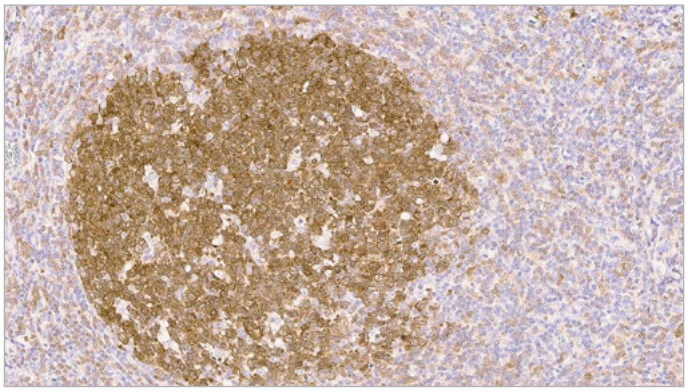
B Cell Specific Octamer Binding Protein-1 (BOB-1)



Immunohistochemical staining for B Cell Specific Octamer Binding Protein (BOB-1): clone TG14

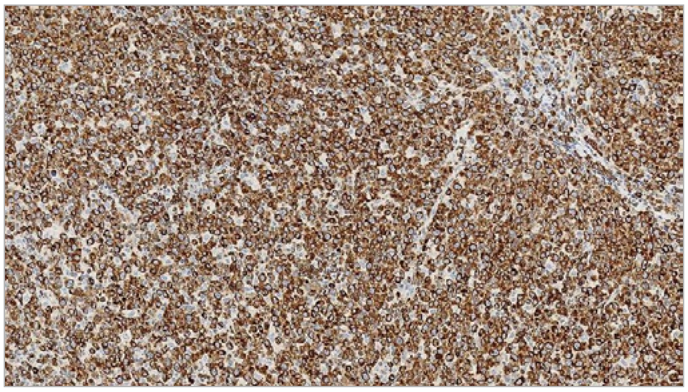
TG14

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0558	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-BOB-1	-	ASR	RUO	RUO

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

Bcl-2 Oncoprotein



Human follicular lymphoma: neoplastic cells show a moderate, predominantly cytoplasmic staining reaction. Bcl-2: clone bcl-2/100/D5

bcl-2/100/D5

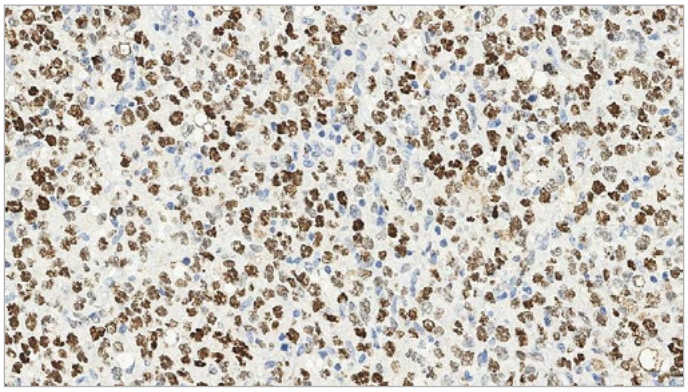
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0117	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-bcl-2	P (HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Bcl-2 is a member of a family of proteins that are involved in apoptosis. Bcl-2 is an integral inner mitochondrial membrane protein of 25 kD and has a wide tissue distribution. It is considered to act as an inhibitor of apoptosis. For this reason, bcl-2 expression is inhibited in germinal centers where apoptosis forms part of the B cell production pathway.

In 90% of follicular lymphomas a translocation occurs which juxtaposes the bcl-2 gene at 18q21, to an immunoglobulin gene. This t(14;18) translocation can deregulate gene expression and bcl-2 over-expression can be demonstrated immunohistochemically in the vast majority of follicular lymphomas.

Bcl-6 Oncoprotein



Human diffuse large B cell lymphoma: The majority of neoplastic cells show a moderate to strong nuclear staining reaction. Bcl-6: clone LN22

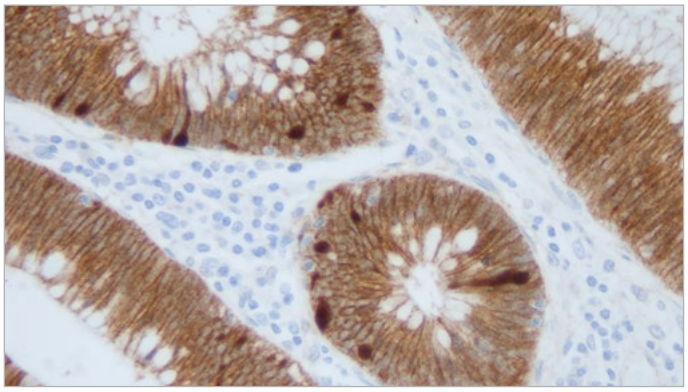
LN22

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0204	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-Bcl-6-564	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Bcl-6 is a proto-oncogene that encodes a Kruppel-type zinc-finger protein of 95 kD and shares homology with other transcription factors. Bcl-6 protein is mainly expressed in normal germinal center B cells and related lymphomas. It has been shown that the Bcl-6 proto-oncogene is involved in chromosome rearrangements at 3q27 in non-Hodgkin's lymphomas and Bcl-6 rearrangements have also been detected in 33 to 45 percent of diffuse large B cell lymphomas. Immunohistochemistry has been reported to show the Bcl-6 gene product to be detectable in follicular lymphomas, diffuse large B cell lymphomas, Burkitt's lymphomas and in nodular, lymphocyte predominant Hodgkin's disease.

Beta-Catenin



Colon polyp: immunohistochemical staining for Beta-Catenin. Note the abnormal translocation of the protein to the nucleus. Beta-Catenin: clone 17C2

17C2

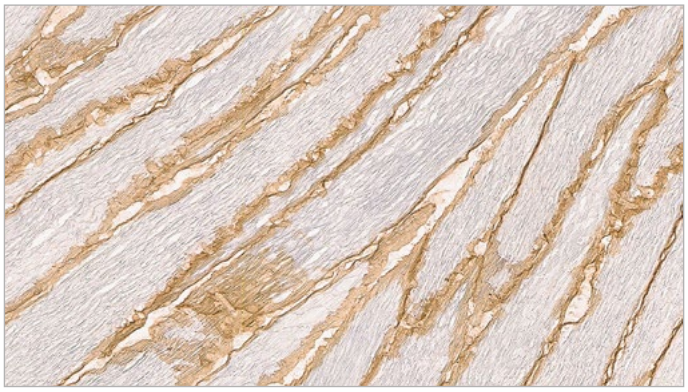
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0083	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-B-CAT	P(HIER)	IVD	IVD	IVD

Antigen Background

The catenins, (alpha, beta and gamma) are cytoplasmic proteins which bind to the highly conserved tail of the E-cadherin molecule. Beta-catenin is a component of the adherens junction, a multiprotein complex which supports Ca2+ -dependent cell-to-cell contact, which in itself is critical for adhesion, signal transmission and for anchoring the actin cytoskeleton. Beta-catenin's role is as a transcription effector of the wnt-signaling pathway. Immunohistochemistry is the best way to demonstrate nuclear expression of beta-catenin and wnt-pathway activation. This aberrant expression is observed in human tumorigenesis, and especially in colorectal cancer.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Beta-Dystroglycan



Immunohistochemical staining on a frozen longitudinal section of skeletal muscle. Staining is localized in the sarcolemma of the fibers. Beta-Dystroglycan: clone 43DAG1/8D5

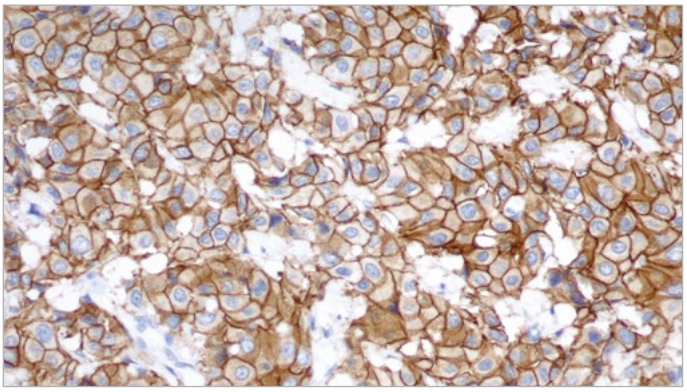
43DAG1/8D5

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-b-DG	F	IVD	IVD	IVD

Antigen Background

Dystrophin associated glycoproteins (DAGs) are involved in the attachment of dystrophin to muscle membranes. The biological significance of this dystrophin/glycoprotein complex is not fully understood, but it appears to form an essential linkage between actin on the inside of the muscle fiber and muscle laminin in the basal lamina which surrounds the fiber. Beta-dystroglycan spans the sarcolemma and it has been suggested that it is the member of the complex which binds directly to dystrophin.

c-erbB-2 Oncoprotein (HER-2) Antibodies



Breast: invasive ductal carcinoma; immunohistochemical staining for c-erbB-2 Oncoprotein (HER-2): clone CB11.

CB11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 13.5 mL	PA0571	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CB11	P	-	IVD	IVD

10A7

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CBE-356	P	-	IVD/RUO	IVD/RUO

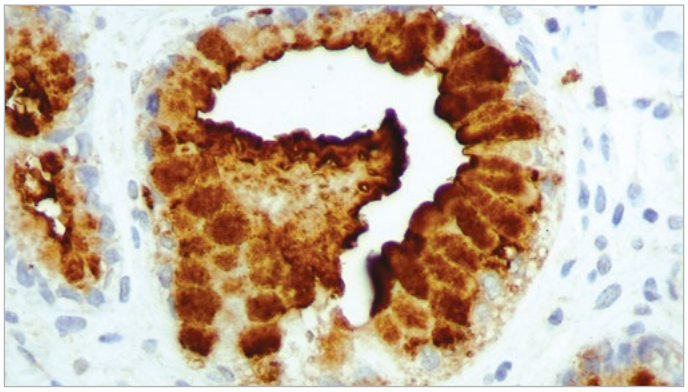
Antigen Background

The c-erbB-2 oncoprotein is closely-related in structure to the epidermal growth factor receptor and is a member of a large family of cell surface growth factor receptors. c-erbB-2 oncoprotein is reported to be detectable in a proportion of breast and other adenocarcinomas as well as transitional cell carcinomas. c-erbB-2 oncoprotein is present in a wide variety of cell types in a range of normal human fetal and adult tissues, including breast, stomach and ovary. CB11 detects the internal domain of the c-erbB-2 oncoprotein. CBE-356 detects the external domain of the c-erbB-2 oncoprotein.

Product Specific Information

CB11 is effective with no pretreatment on fixed, paraffin-embedded tissue but the use of the heat induced epitope retrieval (HIER) technique may enhance staining in some cases.

CA19-9 (Sialyl Lewis[a])



Colonic adenocarcinoma: immunohistochemical staining for Sialyl Lewis antigen. Note the enhancement of the luminal membrane staining of colonic epithelial cells. CA19-9: clone C241:5:1:4

C241:5:1:4

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0424	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CA19-9	P (HIER)	RUO	RUO	RUO

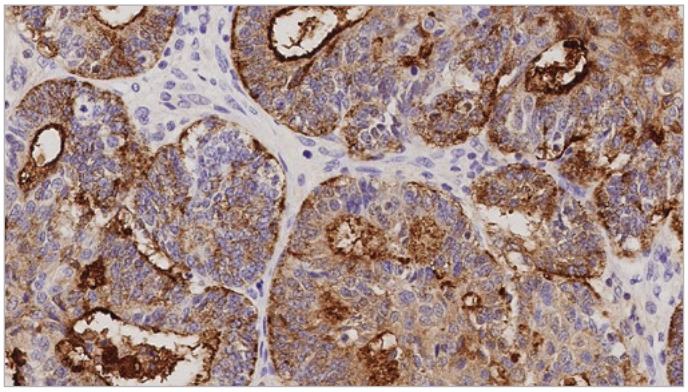
Antigen Background

CA19-9 is an epitope on the sialylated Lewis[a] carbohydrate structure. Sialylated Lewis[a] plays a role in cell adhesion by acting as a functional ligand for the inducible adhesion molecule E-selectin. CA19-9 and CA50 (carcinoma associated mucin antigen) are useful serum markers in the diagnosis and follow up of gastrointestinal and pancreatic cancers. In carcinoma of the pancreas, it is reported that the immunohistochemical expression of both CA19-9 and CA50 correlates with tumor differentiation, where the strongest staining is observed in well-differentiated tumors. These two markers are also reported in a number of benign lesions such as chronic pancreatitis.

Product Specific Information

Clone C241:5:1:4 reacts specifically with Sialyl Lewis[a] - containing glycolipids, showing no crossreaction with Lewis[a], Lewis[b], or other structurally related molecules. The epitope recognized by NCL-L-CA19-9 is designated CA19-9 and is similar to CA50 (carcinoma associated mucin antigen).

CA125 (Ovarian Cancer Antigen)



Human adenocarcinoma of endometrium: cytoplasmic and extracellular staining of malignant glandular endometrial cells. CA125: clone Ov185.1

Ov185:1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0539	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CA125	P (HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CA125 antigen is usually associated with ovarian epithelial malignancies. Serum assays are widely used to detect this protein in the monitoring of ovarian cancers. CA125 antigen may also be detected by immunohistochemistry and expression has been found in neoplasms such as seminal vesicle carcinoma and anaplastic lymphoma. CA125 antigen is not found exclusively in malignant tumors. CA125 is also known as MUC16.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
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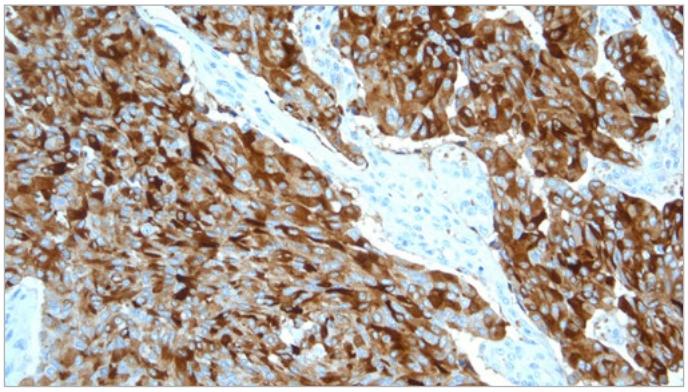
Calcitonin



Human medullary thyroid carcinoma: immunohistochemical staining for Calcitonin. Calcitonin: clone CL1948

CL1948

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CALCITONIN	P(ENZYME)	IVD	IVD	IVD

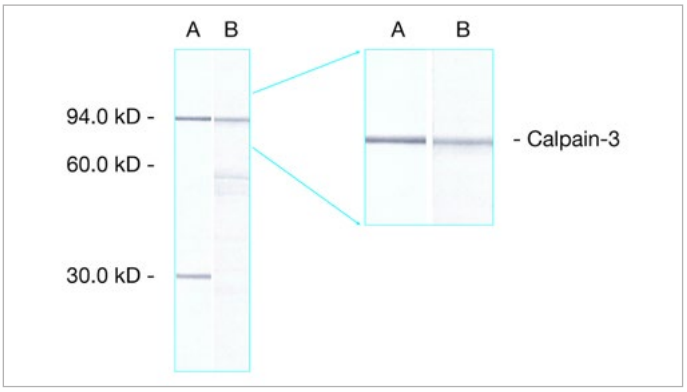
Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0406	P(ENZYME)	IVD	IVD	IVD

Antigen Background

Calcitonin (CT) is a 32 amino acid peptide synthesized by the parafollicular C cells of the thyroid. It acts through its receptors to inhibit osteoclast mediated bone resorption, decrease calcium resorption by the kidney and decrease calcium absorption by the intestines. The action of calcitonin is therefore to cause a reduction in serum calcium, an effect opposite to that of parathyroid hormone. The calcitonin gene transcript also encodes the calcitonin gene-related peptide (CGRP), which is thought to be a potent vasodilator. The tissue specificity of the transcript produced depends on alternative splicing of the CT/CGRP gene transcript. In the parafollicular cells of the thyroid 95 percent of the CT/CGRP is processed and translated to produce CT, however, in neuronal cells 99 percent of the CT/CGRP RNA is translated into CGRP. The C cells of the thyroid give rise to an endocrine tumor, medullary thyroid carcinoma (MTC), which occurs in a sporadic (75 percent of cases) and hereditary form (25 percent of cases). Familial MTC is associated with C cell hyperplasia (CCH), whereas sporadic MTC is thought not to be. However, in the general population CCH is present in 20-30 percent of thyroid glands, either with normal histology, thyroiditis or follicular tumors.

Calpain Antibodies



Western Blot: analysis of human skeletal muscle showing detection of Calpain proteins. Lane A, calpain 3 bands at 94 and 30 kD detected with NCL-CALP-2C4. Lane B, Calpain 3 bands at 94 and approximately 60 kD detected with NCL-CALP-12A2. Calpain: clone CALP3d/2C4 Calpain: clone Calp3c/12A2

Calp3c/12A2

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 2.5 mL	NCL-CALP-12A2	W	RUO	RUO	RUO

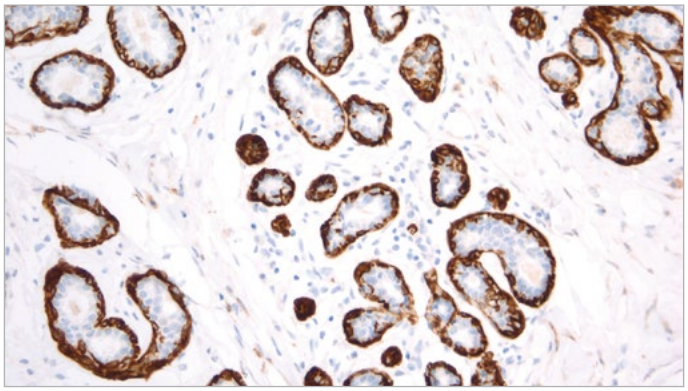
Calp3d/2C4

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 2.5 mL	NCL-CALP-2C4	W	RUO	RUO	RUO

Antigen Background

The gene responsible for LGMD2A has been identified as the chromosome 15q15-encoded muscle-specific calcium-activated neutral protease, calpain 3. Calpain 3 enzyme is only stable in human muscle when homogenized in treatment buffer immediately after harvest (Anderson LVB et al. Am. J. of Pathol. 153(4), 1169-1179 (1998)), and in homogenates containing SDS and is therefore well suited for analysis by Western Blot. CALP-2C4 reacts with the full-size calpain 3 (94kD) and an additional fragment (30kD) in human skeletal muscle. CALP-12A2 reacts with full-size protein plus apparent degradation products at approximately 60kD.

Calponin (Basic)



Immunohistochemical staining of Calponin (Basic): clone 26A11

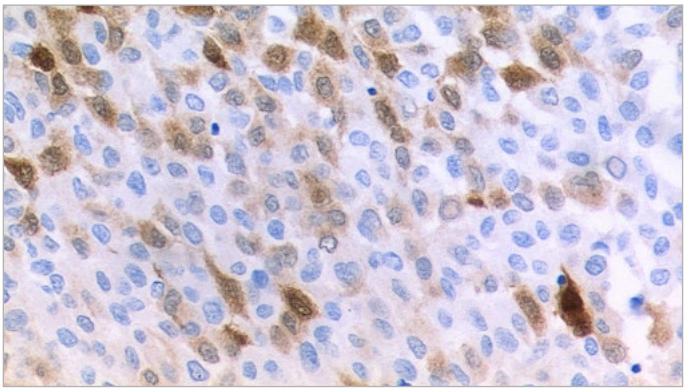
26A11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0416	P(HIER)	IVD	IVD	IVD

Antigen Background

Basic calponin (calponin-h1) is a 34 kD protein which exhibits a high degree of homology to acidic and neutral calponins at its N-terminal region. It is an actin, tropomyosin and calmodulin binding protein thought to be involved in the regulation of smooth muscle contraction. The expression of basic calponin is reported to be restricted to smooth muscle cells and is a marker of the differentiated contractile phenotype of developing smooth muscle. Vascular smooth muscle cells convert to a synthetic dedifferentiated phenotype when this protein is lost and this is a key stage in both atherosclerosis and restenosis of coronary arteries after balloon angioplasty. It is thought that basic calponin exerts its effect via the cortical actin cytoskeleton, and therefore influences proliferation, the transformed phenotype and the metastatic potential of tumor cells. Basic calponin mRNA is expressed in smooth muscle of prostate, bowel and aorta, whereas neutral and acidic calponin mRNAs are expressed in non-smooth muscle tissues such as heart, placenta, lung, kidney, pancreas, spleen, testis and ovary as well as in smooth muscle-containing tissues.

Calretinin



Human mesothelioma: cytoplasmic staining of malignant cells. Calretinin: clone CAL6

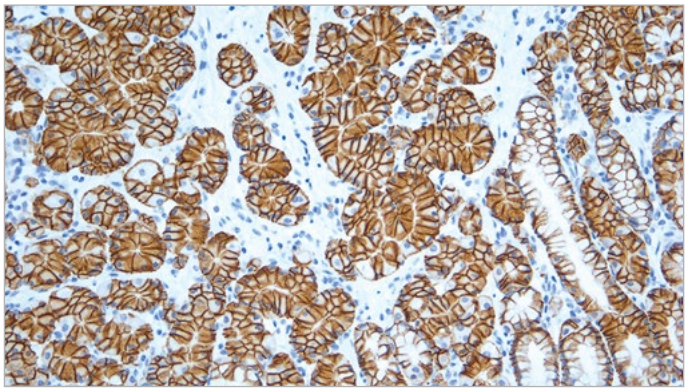
CAL6

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0346	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CALRET-566	P(HIER)	IVD	IVD	IVD

Antigen Background

Calretinin is a calcium-binding protein of 29 kD that is a member of the family of so-called EF-hand proteins that also includes S-100 proteins. Calretinin is reported to be abundantly expressed in neurons. Outside the nervous system, calretinin is reported to be expressed in a range of cell types including mesothelial cells, steroid producing cells, (for example adrenal cortical cells, Leydig cells, ovarian theca interna cells, Sertoli cells, some neuroendocrine cells, eccrine sweat glands) and other cell types.

Carbonic Anhydrase IX



Human stomach: immunohistochemical staining for Carbonic Anhydrase IX. Note intense membrane and cytoplasmic staining of the deep glands. Carbonic Anhydrase IX: clone TH22

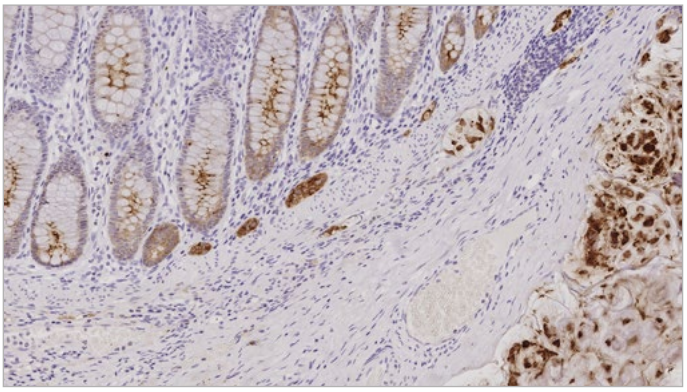
TH22

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CAIX	P(HIER)	IVD	IVD	IVD

Antigen Background

Carbonic anhydrase (CA) is an enzyme that assists rapid interconversion of carbon dioxide and water into carbonic acid, protons, and bicarbonate ions. Originally named MN/G250, carbonic anhydrase IX (CAIX) is a cell surface transmembrane protein, which is predominantly found in the gastrointestinal tract and gallbladder. The glandular regions of normal colon are reported to be negative, but in the case of adenocarcinoma, the glands are positive. CAIX is also reported to be expressed in common epithelial tumors such as carcinomas of the esophagus, lung, colon, kidney, cervix and non-small cell lung carcinoma.In breast carcinomas, CAIX expression has been reported to be associated with malignant tissue. Expression of CAIX is reported to be absent in normal kidney, chromophobe carcinomas or oncocytomas; however, it is specifically expressed in clear cell renal carcinomas.

Carcinoembryonic Antigen (CD66e)



Immunohistochemical staining of a colon adenocarcinoma with localization of CEA/CD66e in the epithelial cells. Carcinoembryonic Antigen: clone COL-1

COL-1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0848	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CEA-609	P(HIER)	IVD	IVD	IVD

II-7

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0004	P(HIER)	-	IVD	IVD

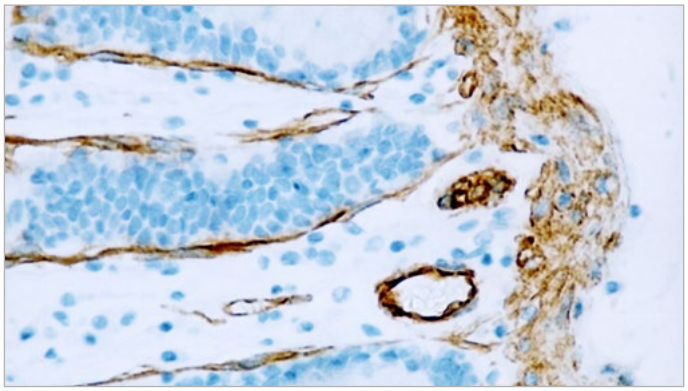
12-140-10

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CEA-2	P(ENZYME)	IVD	RUO	RUO

Antigen Background

Carcinoembryonic antigen (CEA) is a heterogeneous cell surface glycoprotein produced by cells of fetal colon. Low levels are also found on normal mucosal epithelia of the adult colon and a variety of other normal tissues. CEA is encoded by the CEA gene, which is located on chromosome 19. It is a member of the CEA gene family, which in turn is a subfamily of the immunoglobulin superfamily. Cell adhesion properties are now well recognized for CEA. It is believed that the expression of this glycoprotein in conjunction with other known adhesion molecules will influence the cell-cell interaction.

Caveolin-1



Normal human colon: immunohistochemical staining for Caveolin-1. Note cytoplasmic staining of smooth muscle and endothelium. Caveolin-1: clone 4D6

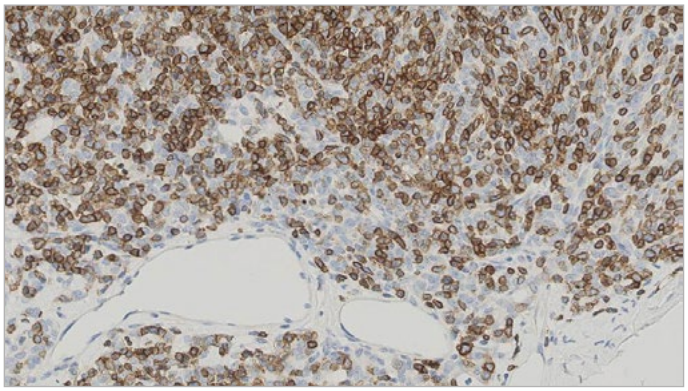
4D6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-Caveolin-1	P(HIER)	RUO	RUO	RUO

Antigen Background

Caveolin-1 is a major structural component of caveolae, which are vesicular invaginations present on the plasma membrane of different cell types. It plays a regulatory role in several signaling pathways and is reported to be most abundantly expressed in terminally differentiated mesenchymal cells such as smooth muscle cells, adipocytes and endothelial cells. High levels are also reported in fibroblasts where a fine granular membranous and diffuse cytoplasmic staining pattern is described.

CD1a



Human thymoma: neoplastic cells show a moderate to strong and distinct membrane staining reaction. CD1a: clone MTB1

MTB1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0235	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD1a-235	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD1a-235	P(HIER)	IVD	IVD	IVD

Antigen Background

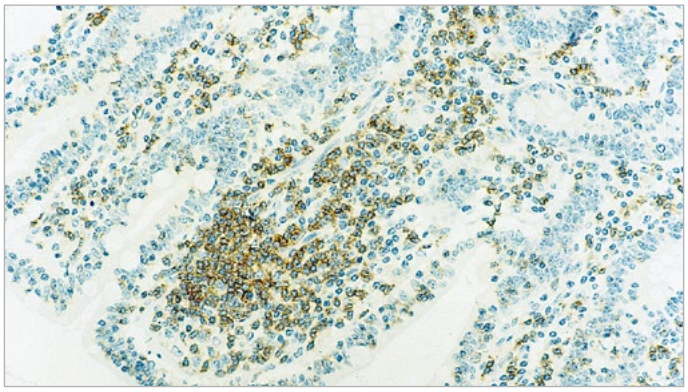
CD1a is a protein of 43 to 49 kD expressed on dendritic cells and cortical thymocytes. CD1a antigen expression has been shown to be useful in differentiating Langerhans cells, powerful antigen presenting cells present in skin and epithelia, from interdigitating cells. Immunohistochemical studies for CD1a antigen have reported a reduction in epidermal Langerhans cells in graft versus host disease and the participation of CD1a antigen-positive dendritic cells in atherosclerotic lesion formation and asthmatic inflammation.

Product Specific Information

Clone MTB1 detects cortical thymocytes, Langerhans cells in epidermis, interdigitating cells of dermis and interdigitating cells of stratified squamous epithelium of tonsil. Clone MTB1 may also detect small focal groups of lymphocytes outside the germinal centers of tonsil indicating a cross-reaction with CD1b antigen.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

CD2 (LFA-2)



Human small intestine: immunohistochemical staining for CD2 antigen. Note: intense membrane staining of T lymphocytes. CD2: clone 11F11

11F11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0271	P(HIER)	IVD	IVD	IVD

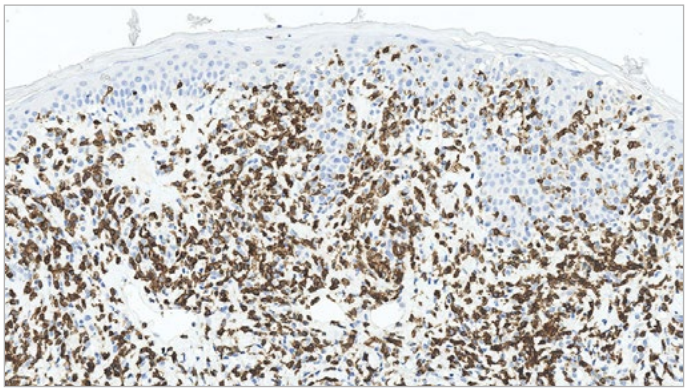
AB75

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD2-271	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD2 antigen (LFA-2) is a monomeric 45 to 58 kD glycoprotein. It is an accessory molecule important in mediating the adhesion of activated T cells and thymocytes with antigen-presenting cells and target cells.

CD3



Human skin, mycosis fungoides: extensively infiltrated with CD3 positive cells. CD3: clone LN10

LN10

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0553	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0122	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD3-565	P(HIER)	IVD	IVD	IVD

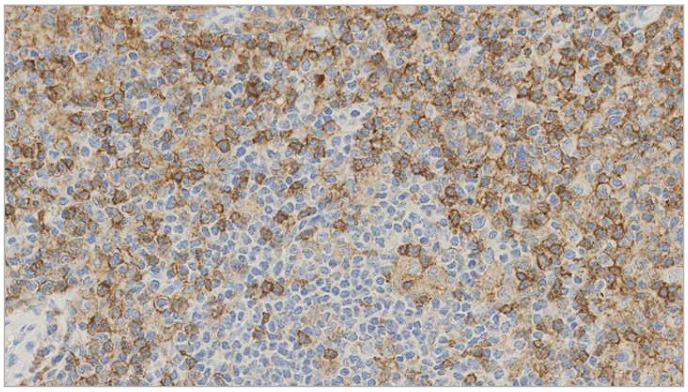
Antigen Background

The CD3 molecule consists of five different polypeptide chains with molecular weights ranging from 16 to 28 kD. The CD3 antigen is first detected in early thymocytes and its appearance probably represents one of the earliest signs of commitment to the T cell lineage.

Product Specific Information

Clone LN10 is specific for the non-glycosylated epsilon chain of the human CD3 molecule. Clone LN10 recognizes T cells in thymus, bone marrow, peripheral lymphoid tissue and blood and is a pan T cell marker.

CD4



T cell lymphoma: membrane staining of tumor cells. CD4: clone 4B12

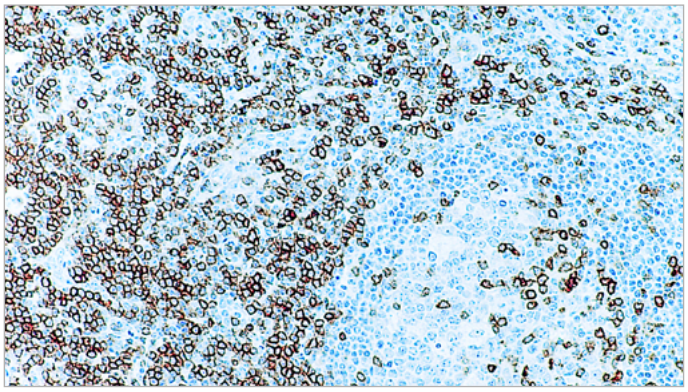
4B12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0427	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD4-368	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD4-368	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD4 molecule (T4) is a single chain transmembrane glycoprotein with a molecular weight of 59 kD. The CD4 antigen is expressed on a T cell subset (helper/inducer) representing 45 percent of peripheral blood lymphocytes and at a lower level on monocytes and germinal center macrophages. Most cases of cutaneous T cell lymphoma, including mycosis fungoides, express the CD4 antigen and HTLV- 1 associated adult T cell leukemia/lymphoma is also generally CD4 positive.

CD5



Human mantle cell lymphoma: tumor cells show a strong membrane staining reaction. CD5: clone 4C7

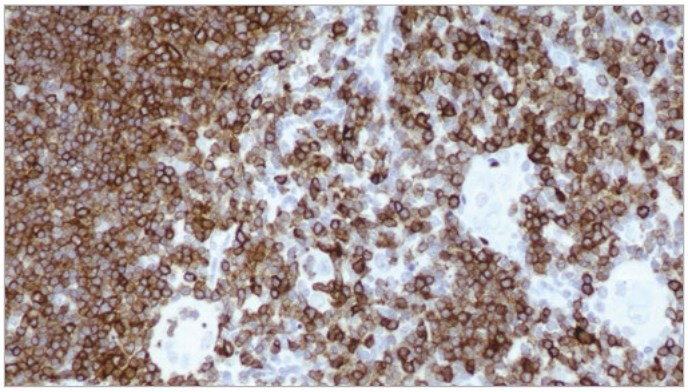
4C7

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0168	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD5-4C7	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD5-4C7	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD5 antigen is reported to be expressed on 95 percent of thymocytes and 72 percent of peripheral blood lymphocytes. In lymph nodes, the main reactivity is observed on T cells. CD5 antigen is also expressed by many T cell leukemias, lymphomas, activated T cells and on a subset of B cells located primarily in the mantle zones of normal lymph nodes. CD5 antigen expression is also reported in T cell acute lymphocytic leukemias (T-ALL), some B cell chronic lymphocytic leukemias (B-CLL) as well as B and T cell lymphomas.

CD7



T cell lymphoma: intense membrane staining of tumor cells. CD7: clone LP15

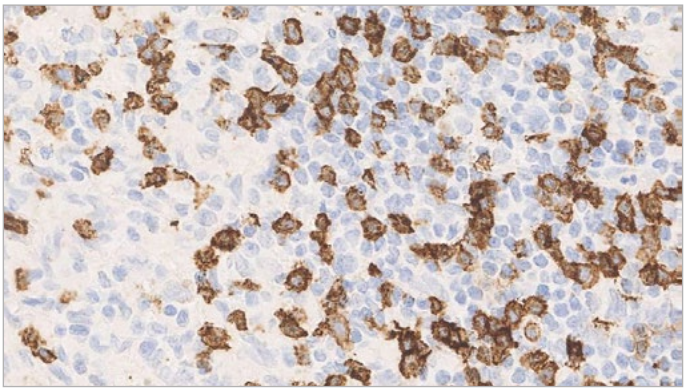
LP15

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0266	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD7-580	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD7 molecule is a membrane-bound glycoprotein of 40 kD and is the earliest T cell specific antigen to be expressed in lymphocytes. CD7 antigen is also the only early marker to persist throughout differentiation. The function and role of the CD7 molecule has not yet been fully identified, although the activation of T cells with gamma/delta receptors has been proposed based on mAb-induced activation. CD7 antigen is reported to be found on the majority of peripheral blood T cells, most natural killer cells and thymocytes.

CD8



Human lymph node, T cell lymphoma: neoplastic cells show a moderate to strong, distinct membrane staining reaction. CD8: clone 4B11

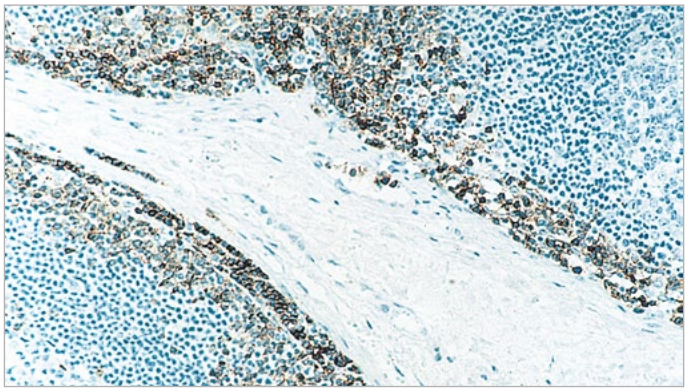
4B11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0183	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD8-4B11	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD8-4B11	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD8 molecule is composed of two chains and has a molecular weight of 32 kD. It is found on a T cell subset of normal cytotoxic/suppressor cells which make up approximately 20 to 35 percent of human peripheral blood lymphocytes.The CD8 antigen is reported to be detected on natural killer cells, 80 percent of thymocytes, on a subpopulation of 30 percent of peripheral blood null cells and 15 to 30 percent of bone marrow cells.

CD10



Human lymphoblastic lymphoma: intense membrane staining of neoplastic lymphoid cells. CD10: clone 56C6

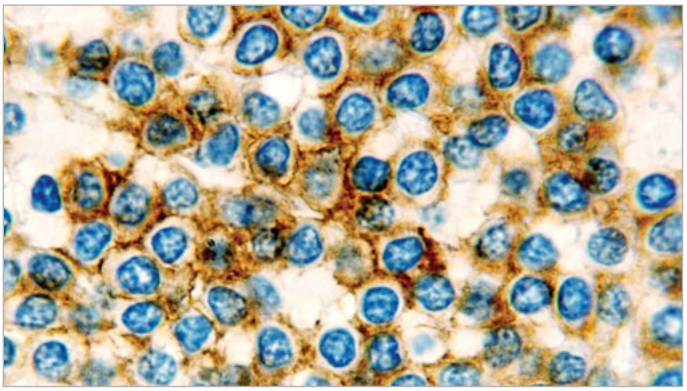
56C6

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0270	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0131	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD10-270	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD10 antigen, also called neprilysin, is a 100 kD cell surface metalloendopeptidase which inactivates a variety of biologically active peptides. It was initially identified as the common acute lymphoblastic leukemia antigen (CALLA) and was thought to be tumor-specific. Subsequent studies, however, have shown that CD10 antigen is expressed on the surface of a wide variety of normal and neoplastic cells. In other lymphoid malignancies, CD10 antigen is reported to be expressed on cells of lymphoblastic, Burkitt's and follicular lymphomas. CD10 antigen has been identified on the surface of normal early lymphoid progenitor cells, immature B cells within adult bone marrow and germinal center B cells within lymphoid tissue. It is also expressed in various non-lymphoid cells and tissues, such as breast myoepithelial cells, bile canaliculi, fibroblasts, with especially high expression on the brush border of kidney and gut epithelial cells. (G. McIntosh et al. American Journal of Pathology. 154(1): 77-82 (1999)).

CD11c



Human hairy cell leukemia: membrane and cytoplasmic staining of malignant cells. CD11c: clone 5D11

5D11

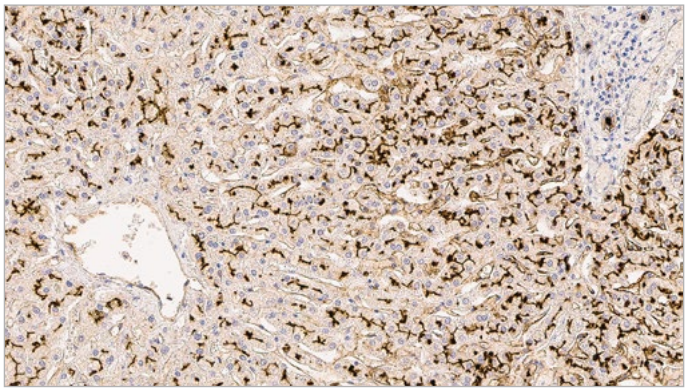
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0554	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD11c-563	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD11c is a member of the leukocyte integrin family of adhesion proteins. It is reported to be expressed in normal tissues, mainly on myeloid cells, for example, in bone marrow myelocytes, premyelocytes, metamyelocytes, non-segmented and segmented neutrophils with high levels reported on tissue macrophages and monocytes and with lowest levels in granulocytes. It is also reported to be expressed on NK cells, activated T cells, lymphoid cell lines, including hairy cell leukemias and a proportion of interdigitating dendritic cells.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

CD13



Staining of CD13 in the canaliculi of the liver. CD13: clone 38C12

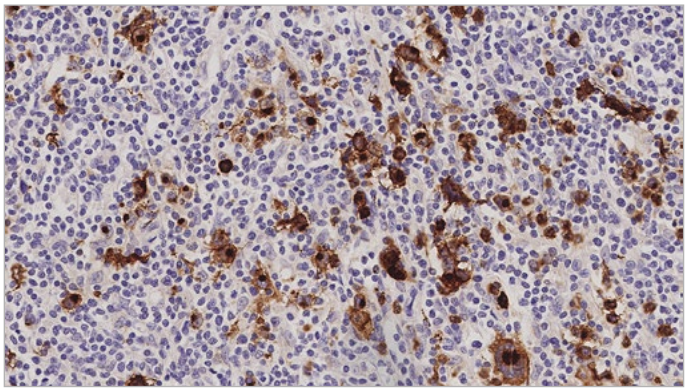
38C12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0304	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD13-304	P(HIER)	IVD	IVD	IVD

Antigen Background

CD13 antigen, also known as aminopeptidase N, is a member of type II integral membrane metalloproteases, which also includes the leukocyte antigens CD10, CD26, CD73 and BP-1. CD13 antigen is a receptor for the coronaviruses which cause respiratory disease in humans and several animal species. The antigen functions as a zinc-binding metalloprotease which plays a role in cell surface antigen presentation by trimming the N-terminal amino acids from MHC class II-bound peptides. CD13 antigen is reported to be expressed on granulocytes, monocytes and their precursors, most acute myeloid leukemias and a smaller proportion of acute lymphoid leukemias. Non-hematopoietic cells which express CD13 antigen include epithelial cells, renal proximal tubules, intestinal brush border, endothelial cells, fibroblasts, brain cells, bone marrow, osteoclasts and cells lining the bile canaliculi.

CD15



Hodgkin's disease, mixed cellularity: mixed cellular membrane staining and characteristic staining of paranuclear hofs of Reed Sternberg cells. CD15: clone MMA

MMA

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0473	P(HIER)	IVD	IVD	IVD

BY87

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 7 mL	RTU-CD15	P(HIER)	IVD	IVD/RUO	IVD/RUO

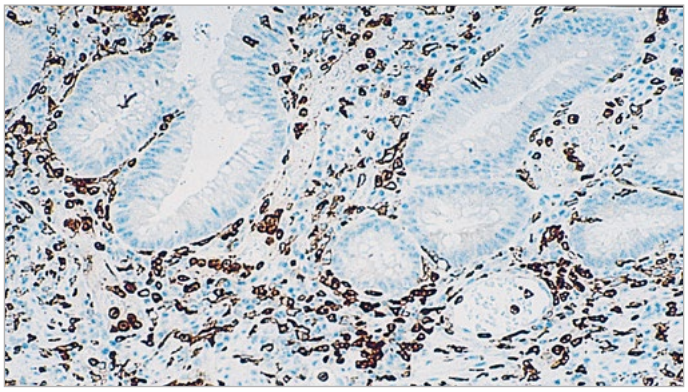
Carb-1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0039	P(HIER)	IVD	IVD	IVD

Antigen Background

CD15 antigen, also known as X-hapten, is reported to be expressed on 90 percent of circulating human granulocytes, 30 to 60 percent of circulating monocytes and is absent from normal lymphocytes. The CD15 antigen is also expressed on Reed Sternberg cells of Hodgkin's disease and some leukemias.

CD16



Human colon, ulcerative colitis: immunohistochemical staining for CD16. Note intense membrane staining of infiltrating natural killer cells, granulocytes and activated macrophages. CD16: clone 2H7

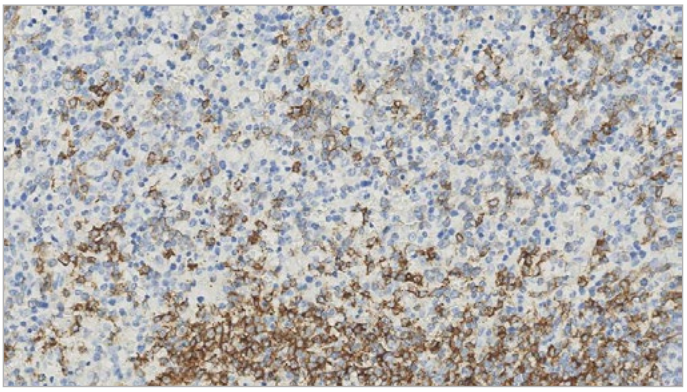
2H7

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD16	P(HIER)	IVD	IVD	IVD

Antigen Background

CD16 antigen has a molecular weight of 50 to 70 kD and is a low affinity Fc receptor for complexed IgG, Fc/gamma RIII, expressed on natural killer (NK) cells, granulocytes, activated macrophages and a subset of T cells expressing alpha-beta or gamma-delta T cell antigen receptors. The CD16 antigen exists both as a glycosyl-phosphatidylinositol (GPI)-anchored protein in polymorphonuclear cells and as a transmembrane protein in NK cells.

CD19



Pre B acute lymphoblastic lymphoma: neoplastic cells show a moderate to strong predominantly membrane staining reaction. CD19: clone BT51E

BT51E

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0843	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD19-163	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD19-163	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD19 is a member of the immunoglobulin superfamily and has two Ig like domains. It is a single chain glycoprotein present on the surface of B lymphocytes and follicular dendritic cells of the hematopoietic system. CD19 is a crucial regulator in B cell development, activation and differentiation. On B cells, CD19 associates with CD21, CD81 and CD225 (Leu-13) forming a signal transduction complex. CD19 is expressed from the earliest recognizable B cell lineage stage, through development to B cell differentiation but is lost on maturation to plasma cells.

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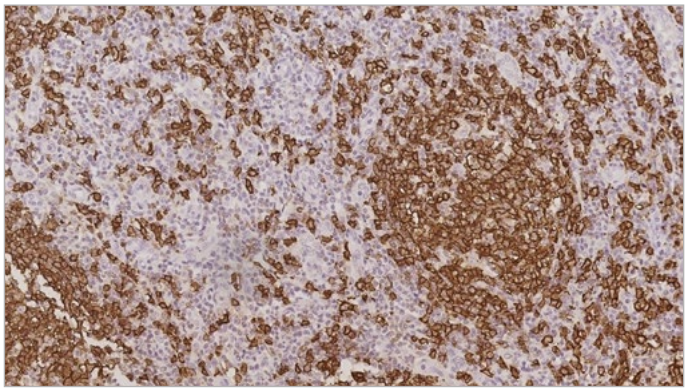
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

CD20



Follicular B cell lymphoma showing a strong membranous staining reaction. CD20: clone L26

L26

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0200	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0359	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD20-L26	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD20-L26	P(HIER)	IVD	IVD	IVD

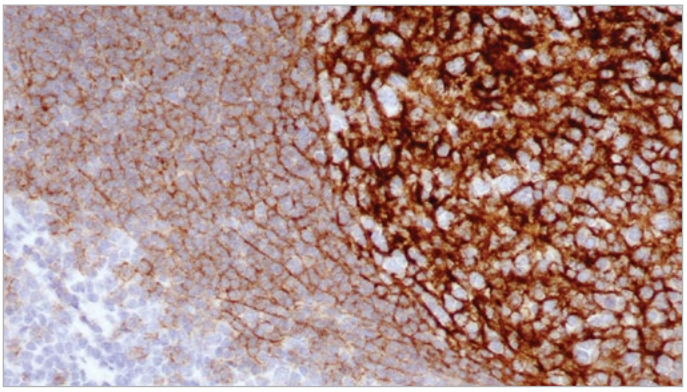
MJ1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0906	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD20 antigen is a non-glycosylated phosphoprotein of approximately 33kD which is expressed on normal and malignant human B cells and is thought to act as a receptor during B cell activation and differentiation. CD20 antigen has been reported to be expressed on normal B cells from peripheral blood, lymph node, spleen, tonsil, bone marrow, acute leukemias and chronic lymphocytic leukemias.

CD21



Human tonsil: immunohistochemical staining for CD21 antigen. Note intense membrane staining of follicular dendritic cells. CD21: clone 2G9

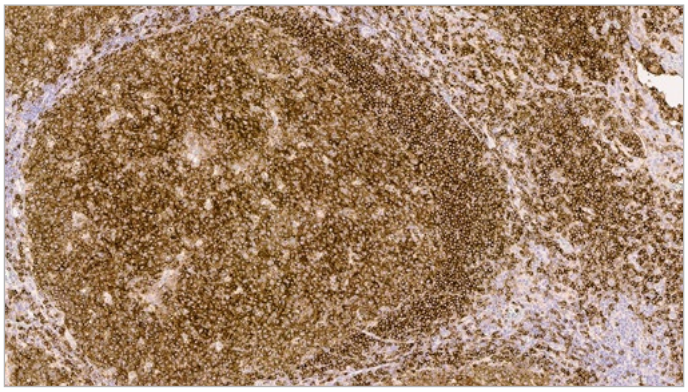
2G9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0171	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD21-2G9	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD21 antigen is a type I integral membrane glycoprotein of molecular weight 140 kD, which functions as the receptor for the C3d fragment of the third complement component. The CD21 molecule, present on mature B cells, is involved in transmitting growth-promoting signals to the interior of the B cell and acts as a receptor for Epstein-Barr virus. CD21 antigen is reported to be found in B cell chronic lymphocytic leukemias and in a subset of T cell acute lymphocytic leukemias but is absent on T lymphocytes, monocytes and granulocytes. CD21 antigen is also reported to be expressed in follicular dendritic cells and in follicular and mantle cell lymphomas, mature leukemias and lymphomas.

CD22



Human tonsil: immunohistochemical staining for CD22. Note the mantle zone is staining stronger than the germinal centre. CD22: clone FPC1

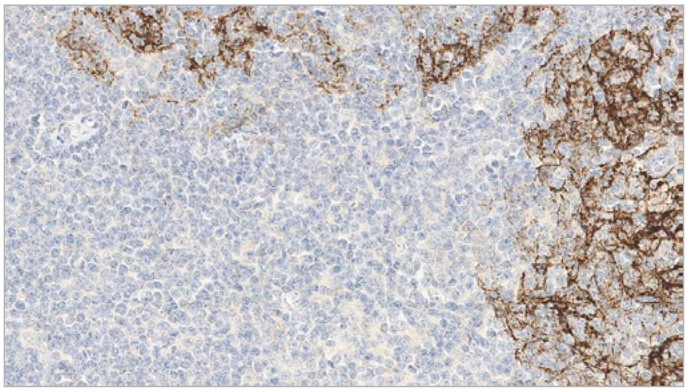
FPC1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0249	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD22 antigen (BL-CAM) is a type 1 integral membrane glycoprotein with a molecular weight of 130 to 140 kD. It is a heterodimer of two independently expressed glycoprotein chains present both on the membrane and in the cytoplasm of B lymphocytes. Expression of the CD22 antigen is reported to appear early in B cell lymphocyte differentiation at approximately the same stage as that of the CD19 antigen expression. Surface antigen expression is variable and may be lost upon differentiation. CD22 antigen is also reported to be weakly expressed on myeloid leukemias and non-T cell acute lymphoblastic leukemias and is strongly expressed on hairy cell leukemias. It is absent on peripheral blood T cells, T cell leukemias, granulocytes and monocytes.

CD23



Immunohistochemical staining for CD23: clone 1B12

1B12

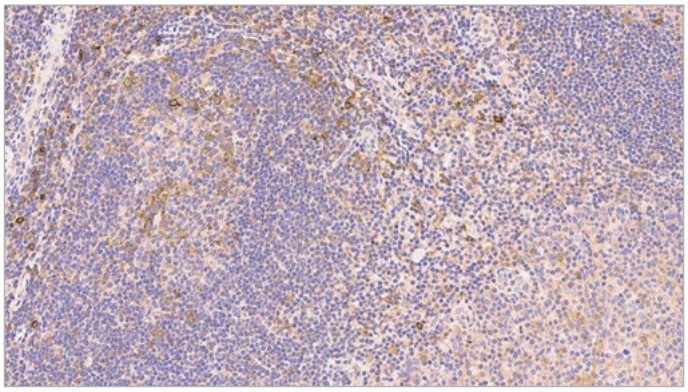
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0169	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CD23-1B12	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CD23-1B12	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD23 molecule is the low affinity IgE receptor found on B cells. It is a membrane glycoprotein of 45 kD and is reported to be found on a a sub-population of peripheral blood cells, B lymphocytes and on EBV-transformed B lymphoblastoid cell lines. Expression of CD23 antigen has been reported on monocytes and dendritic cells.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

CD25



CD25 demonstrated in activated lymphocytes of tonsil. CD25: clone 4C9

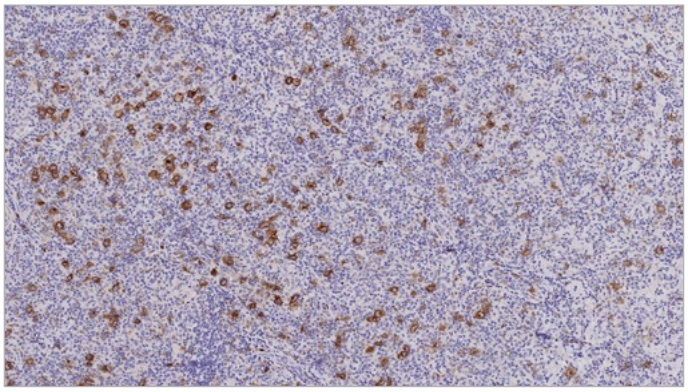
4C9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0305	P(HIER)	IVD	IVD	IVD

Antigen Background

CD25 antigen, the alpha subunit of interleukin-2 receptor, is a single-chain glycoprotein with a molecular weight of 55 kD. Following the activation of T cells interleukin-2 (IL-2) is rapidly synthesized and secreted. In response to this a subpopulation of T cells expresses high affinity receptors for IL-2. These cells proliferate, expanding the T cell population which is capable of mediating helper, suppressor and cytotoxic functions. IL-2 receptor is not exclusively found on T cells, and is reported to be expressed on HTLV-transformed T and B cells, EBV-transformed B cells, myeloid precursors and oligodendrocytes. It is absent on thymocytes, resting T cells, non-activated B cells and null cells. IL-2 receptor expression is reported to be associated with inflammatory and malignant conditions, lymphoid neoplasia, auto-immune diseases and allograft rejection.

CD30



Hodgkin's lymphoma: neoplastic cells show a moderate and distinct predominantly membrane staining reaction. CD30: clone JCM182

JCM182

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0790	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD30-591	P(HIER)	IVD	IVD/RUO	IVD/RUO

1G12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0153	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD30	P(HIER)	IVD	IVD/RUO	IVD/RUO

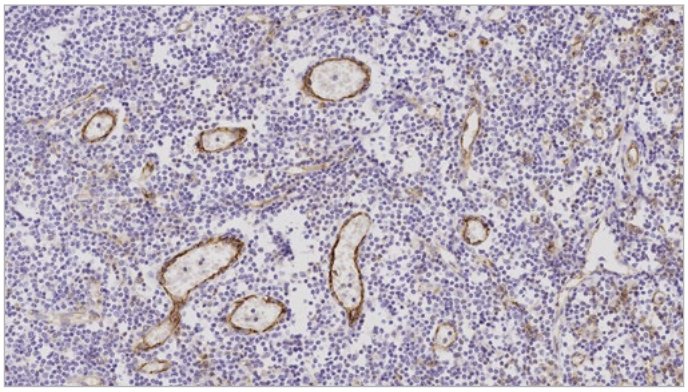
Antigen Background

The CD30 antigen is a single chain glycoprotein with a molecular weight of 120 kD. CD30 antigen is known to act as a receptor for a cytokine ligand, CD30L, and may also play a role in the regulation of cellular growth and transformation. CD30 antigen is reported to be expressed on the surface of multinucleated Reed Sternberg cells, mononuclear Hodgkin's cells and in the majority of anaplastic large cell lymphomas. The CD30 antigen is expressed in non-Hodgkin's lymphoma and virally transformed cells, for example, EBV-transformed B cells.

Product Specific Information

Using retrieval solutions other than that recommended for clone JCM182 in the datasheet may increase background reactivity.

CD31 (PECAM-1)



Human lymphoma: membrane staining of endothelial cells. CD31: clone JC70A

JC70A

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0414	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD31-607	P(HIER)	IVD	IVD	IVD

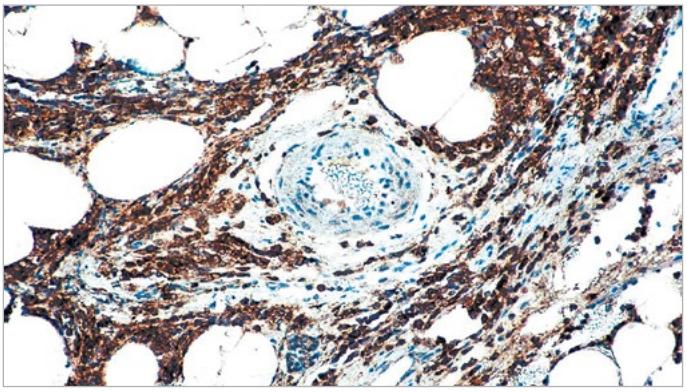
1A10

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0250	P(HIER)	IVD	IVD	IVD

Antigen Background

CD31 antigen (PECAM-1) is a single chain transmembrane glycoprotein with a molecular weight of 130 to 140 kD. The CD31 molecule is expressed on the surface of platelets, monocytes, granulocytes, B cells and at the endothelial intracellular junction. The molecule has an extracellular domain that contains six Ig-like homology units of C2 subclass, typical of cell to cell adhesion molecules. This domain mediates endothelial cell to cell adhesion, plays a role in endothelial contact and may serve to stabilize the endothelial cell monolayer. The CD31 molecule also has a cytoplasmic domain with potential sites for phosphorylation after cellular activation. The properties of CD31 antigen suggest that it is involved in interactive events during angiogenesis, thrombosis and wound healing. Angiogenesis is essential for tumor growth and metastases.

CD33



Acute myeloid leukemia: neoplastic cells show a moderate and distinct predominantly membrane staining reaction. CD33: clone PWS44

PWS44

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0555	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD33	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD33 antigen is reported to appear on myelomonocytic precursor cells after CD34 antigen expression. It then continues to be expressed on both the myeloid and monocyte lineages, although it is reported to be absent on granulocytes. It has been reported that expression of CD33 is restricted to monocytes, premyelocytes, myeloid blasts, some acute undifferentiated leukemias and acute lymphoblastic leukemias.

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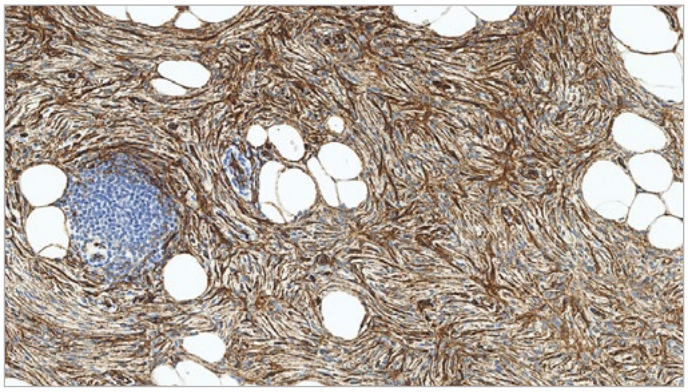
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

CD34 (Endothelial Cell Marker)



Dermatofibrosarcoma protuberans: staining of neoplastic spindle cells. CD34: clone QBEnd/10

QBEnd/10

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0212	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0354	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-END	P(ENZYME)	RUO	RUO	RUO
Liquid 1 mL	NCL-L-END	P(ENZYME)	IVD	IVD/RUO	IVD/RUO

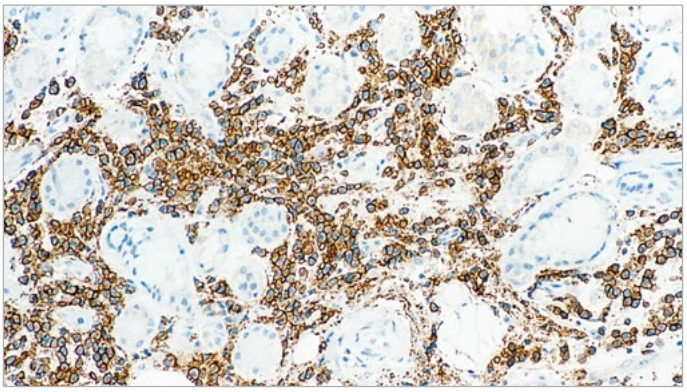
Antigen Background

The CD34 antigen is a single chain transmembrane glycoprotein with a molecular weight of 110 kD. The CD34 protein is selectively expressed on human lymphoid and myeloid hemopoietic progenitor cells. The CD34 antigen is also expressed on vascular enothelium.

Product Specific Information

Enzyme digestion of paraffin sections is recommended with clone QBEnd/10 in preference to heat induced epitope retrieval as it produces stronger staining and reduces background elastin staining.

CD38



Chronically inflamed human bronchus: immunohistochemical staining for CD38 antigen using CD38, clone SPC32. Note intense membrane staining of infiltrating activated T lymphocytes. CD38: clone SPC32

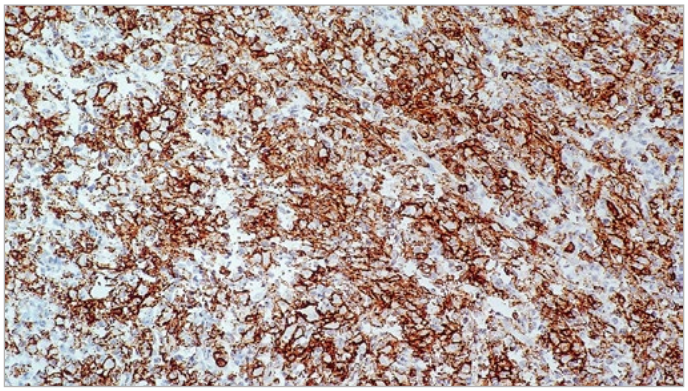
SPC32

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD38-290	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD38 molecule is a type II single transmembrane glycoprotein with a molecular weight of 46 kD. It is an ectoenzyme with the activities of ADP-ribosyl cyclase, cyclic ADP-ribose hydrolase, NAD glycohydrolase and is involved in both the formation and hydrolysis of cADPR, a second messenger that regulates the mobilization of intracellular Ca2+ ions. Although the CD38 molecule was originally identified as a T lymphocyte differentiation antigen, it is reported to be expressed in a wide range of cells and tissues. CD38 antigen can deliver potent growth and differentiation signals to lymphoid and myeloid cells. It is found on immature cells of the B and T cell lineages but not on most mature resting peripheral lymphocytes. It is also present on thymocytes, pre-B cells, germinal center B cells, mitogen-activated T cells, Ig-secreting plasma cells, monocytes, NK cells, erythroid and myeloid progenitors in the bone marrow and brain cells. CD38 antigen has also been reported in neurofibrillary tangles, the pathological indicator of Alzheimer's disease that occurs in the neuronal perikarya and proximal dendrites.

CD43



Diffuse large B cell lymphoma: intense staining of malignant CD43: clone MT1

MT1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0938	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MT1	P	IVD	RUO	RUO

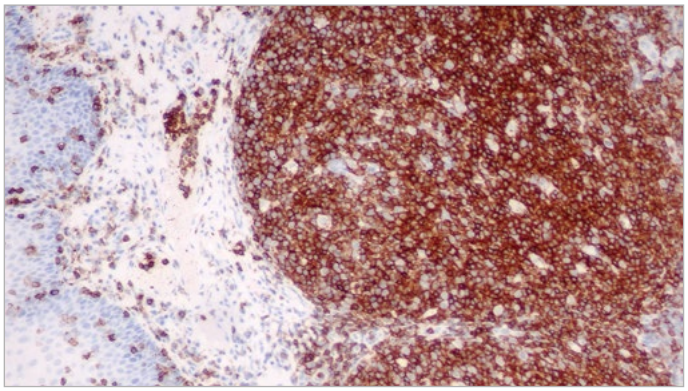
Antigen Background

The CD43 antigen is expressed on the membrane and in the cytoplasm of T cells and cells of myeloid lineage. The molecule itself exhibits molecular weight heterogeneity with bands of 90 to 140 kD observed on SDS-PAGE between different cell lines. Cells expressing the CD43 antigen are reported to include normal and neoplastic T cells. A small proportion of B cell chronic leukemias and diffuse large B cell lymphomas are also reported to express CD43 antigen.

Product Specific Information

Enzyme pretreatment may enhance staining in some cases.

CD45



Human tonsil: immunohistochemical staining of CD45 or leukocyte common antigen (LCA) in various hematolymphoid cells. CD45: clone X16/99

X16/99

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0042	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-LCA	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-LCA	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD45 antigen (leukocyte common antigen) is a family of five or more high molecular weight glycoproteins present on the surface of the majority of the human leukocytes (including lymphocytes, monocytes and eosinophils) but absent from erythrocytes and platelets. Various isoforms of CD45 are generated by alternative splicing of three exons. Expression of CD45 is necessary for signaling through the T cell receptor.

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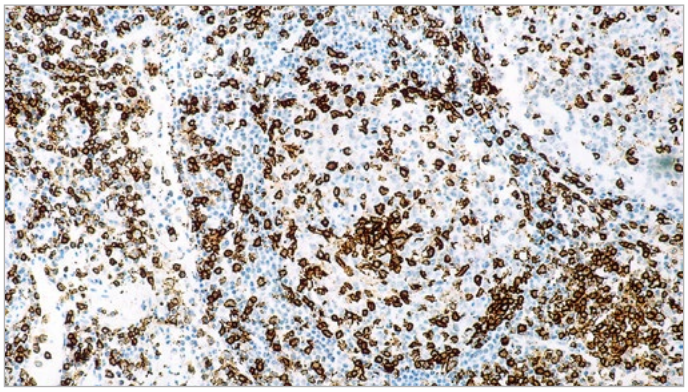
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

CD45RO



Human tonsil: immunohistochemical staining with CD45RO: clone UCHL1

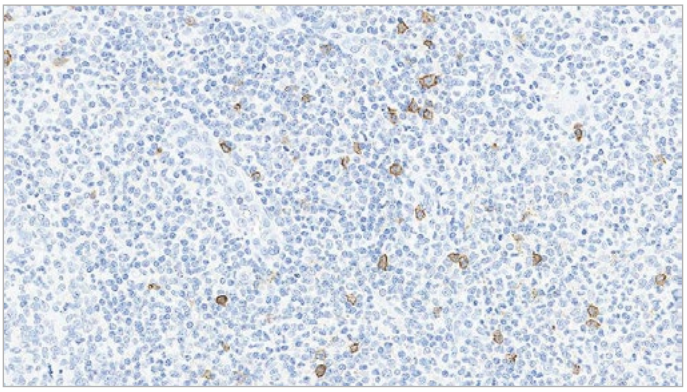
UCHL1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0146	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-UCHL1	F; P(HIER)	RUO	RUO	RUO

Antigen Background

The CD45RO molecule, a 180 kD isoform of CD45, is reported to be expressed on 48 percent of peripheral blood T lymphocytes, 37 percent of CD4 positive lymphocytes, 80 percent of thymocytes and on the majority of T cell malignancies. Monocytes and granulocytes show surface expression of the antigen whereas tissue macrophages exhibit cytoplasmic expression.

CD56 (NCAM)



Human tonsil: NK cells and CD4/CD8 double positive T cells show a weak to moderate and distinct membrane staining reaction while the majority of lymphocytes are unstained. CD56: clone CD564

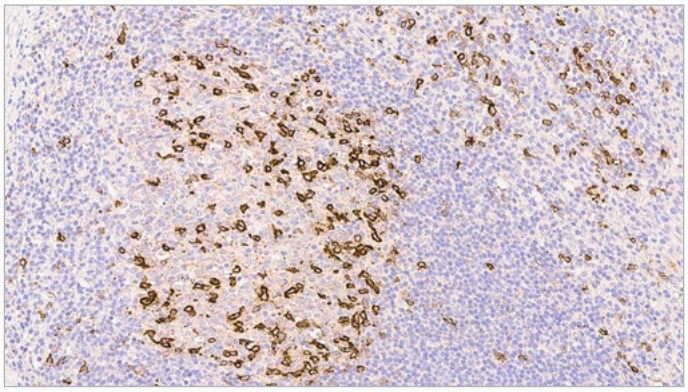
CD564

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0191	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD56-504	P(HIER)	IVD	IVD	IVD

Antigen Background

The neural cell adhesion molecules are a family of closely-related cell surface glycoproteins thought to play a role in embryogenesis, development and contact-mediated interactions between neural cells. The CD56 antigen (NCAM) consists of four major isoforms generated by differential splicing of the RNA transcript from a single gene located on chromosome 5. The CD56 antigen is expressed on neurons, astrocytes, Schwann cells, NK cells and a subset of activated T lymphocytes.

CD57



Immunohistochemical staining of CD57 in T lymphocytes of tonsil. CD57: clone NK-1

NK-1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0443	P(HIER)	IVD	IVD	IVD

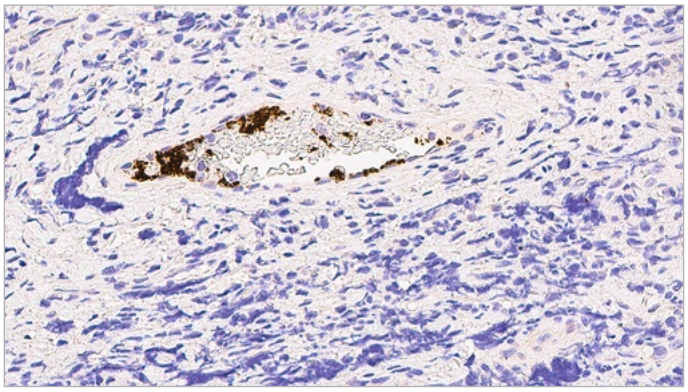
Antigen Background

The CD57 glycoprotein, also known as HNK-1, has a molecular weight of 110 kD. It is found on a subset of mononuclear cells with natural killer activity and on neuroectodermal cells expressing myelin-associated glycoprotein. Many cells which co-express CD57 and CD8 proteins are a subset of suppressor/cytotoxic T cells. These cells play a role in the rejection of grafts in acute graft versus host disease. The CD57 molecule is not expressed on erythrocytes or platelets.

Product Specific Information

Enzyme pretreatment may enhance staining in some cases.

CD61 (GPIIIa)



Immunohistochemical staining of CD61 antigen (GPIIIa) on platelets within the blood vessel of a tonsil. CD61 (GPIIIa): clone 2f2

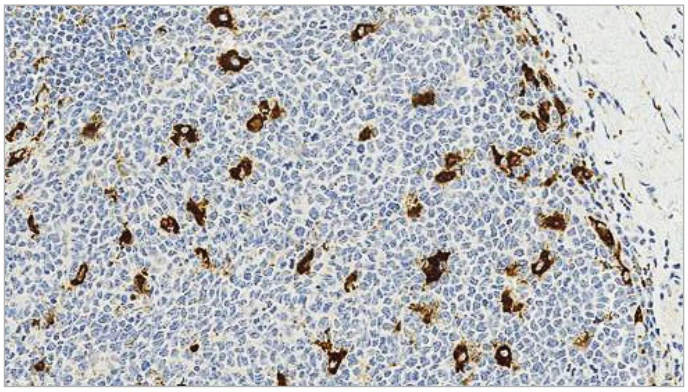
2f2

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0308	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD61 antigen, also known as GPIIIa, is a glycoprotein of 105 kD found on platelets, monocytes, endothelial cells, smooth muscle cells, B cells, macrophages, mast cells and fibroblasts. CD61 antigen plays a role in platelet aggregation and also as a receptor for fibrinogen, fibronectin, von Willebrand factor and vitronectin. Individuals with Glanzmann's thrombasthenia are reported to express little or no CD61 antigen. CD61 antigen is also reported to be expressed in most cases of megakaryocytic leukemias.

CD68



Human tonsil: germinal centre macrophages show a strong cytoplasmic staining reaction, while the interfollicular macrophages show correct weak to moderate staining reaction. CD68: clone 514H12

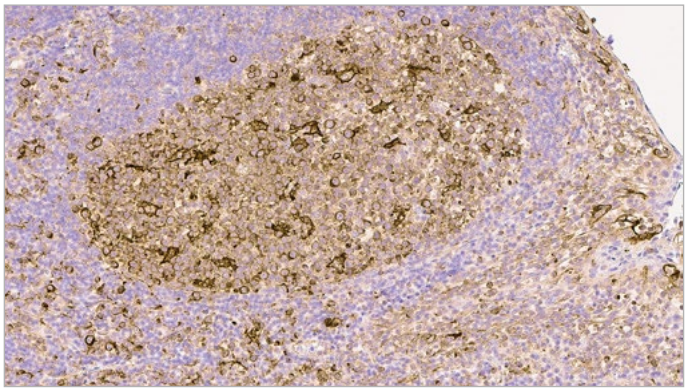
514H12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0273	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD68	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD68 molecule is a 110 kD intracellular glycoprotein primarily reported to be associated with cytoplasmic granules and to a lesser extent the membranes of macrophages. Markers to CD68 antigen are the most frequently used for the identification of macrophages in immunohistochemistry; however, CD68 is also found in monocytes, neutrophils, basophils and large lymphocytes. The function of the CD68 molecule is not certain but these lysosomal membrane proteins are major components and may protect the membranes from attack by acid hydrolases. It is unclear if the surface-associated CD68 protein is functionally significant or due to leakage from the lysosomes. CD68 protein expression has been demonstrated in stimulated T cells and NK cells and non-hematopoietic tissues such as liver and renal tubules.

CD71



Immunohistochemical staining of CD71 in activated lymphocytes and macrophages of the tonsil. CD71: clone 10F11

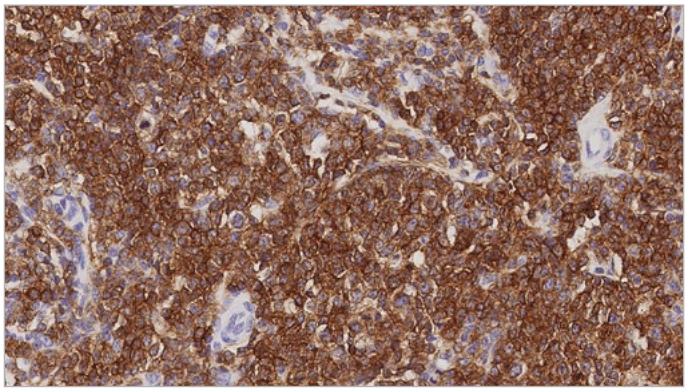
10F11

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD71-309	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD71 molecule is a type II membrane glycoprotein with a molecular weight of approximately 180 kD. It is known as the transferrin receptor and is composed of two disulfide-bonded 90 kD subunits. The CD71 molecule plays a critical role in cell proliferation by controlling the supply of iron, an essential component for many metabolic pathways, through the binding and endocytosis of transferrin, the major iron-carrying protein. CD71 protein is reported to be expressed on activated B and T cells, macrophages, proliferating cells and metabolically active cells, for example, neurons.

CD79a



Human diffuse large B cell lymphoma: membrane staining of tumor cells. CD79a: clone JCB117

JCB117

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0599	P(HIER)	IVD	IVD	IVD

11D10

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD79a-192	F;P(HIER)	RUO	RUO	RUO

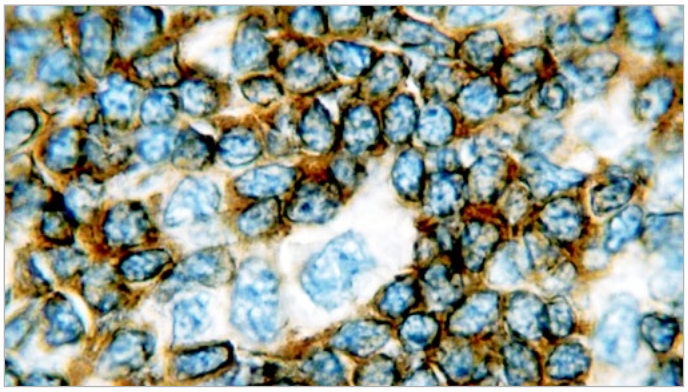
11E3

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0192	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD79a-225	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD79 complex is a disulfide-linked heterodimer which is non-covalently associated with membrane-bound immunoglobulins on B cells. This complex of polypeptides and immunoglobulin constitute the B cell antigen receptor. The two components of this complex are designated CD79a and CD79b. The CD79a antigen is reported to first appear at the pre-B cell stage, early in maturation, and persist until the plasma cell stage where it is found as an intracellular component. It is not present in myeloid or T cell lines.

CD79b



Human tonsil: immunohistochemical staining for CD79b. Note intense membrane staining of B cells. CD79b: clone JS01

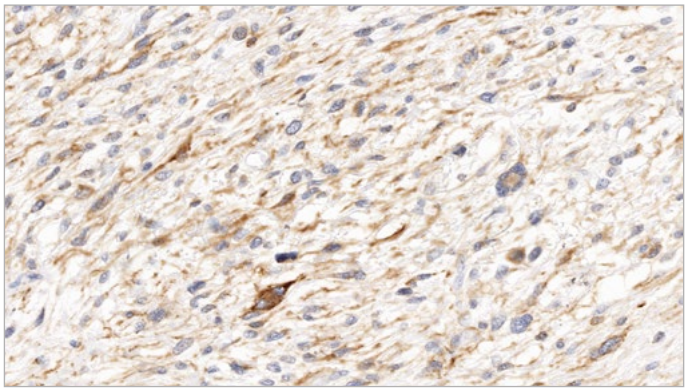
JS01

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD79b	P(HIER)	RUO	RUO	RUO

Antigen Background

CD79b, also known as B29 and Ig-beta is thought to function in the cellular activation and signaling that occurs when surface immunoglobulin (Ig) on B cells binds antigen or becomes cross-linked by anti-Ig antibody. This function occurs with the formation of a membrane signaling complex that is associated with Ig at the surface of B cells. CD79b, together with CD79a, forms the B cell antigen receptor (mIg) complex.

CD99



Human malignant fibrous histiocytoma: cytoplasmic staining of malignant cells of this adult soft tissue sarcoma. CD99: clone PCB1

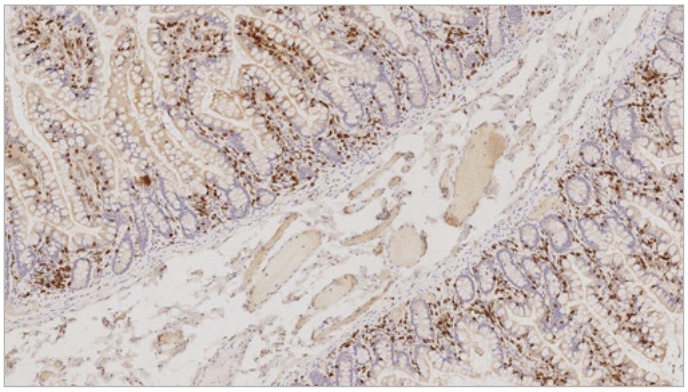
PCB1

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD99-187	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

CD99 is a 32 kDa transmembrane glycoprotein, encoded by the MIC2 gene, which is located in the pseudoautosomal region of the human X and Y chromosomes. Recently, the MIC2 gene has been shown to encode two distinct proteins which are produced by alternative splicing of the CD99 gene transcript and are identified as bands of 30 and 32 kDa (p30/32).

CD103



Human normal small bowel: note membrane and cytoplasmic staining of Intraepithelial T lymphocytes. CD103: clone EP206

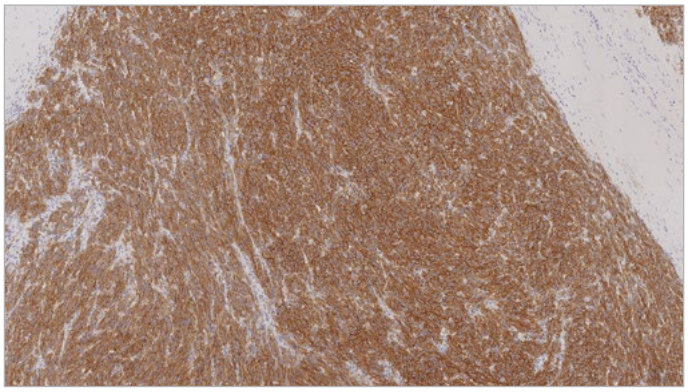
EP206

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0374	P(HIER)	IVD	IVD	IVD

Antigen Background

CD103, also known as alpha E integrin and human mucosal lymphocyte antigen 1, is an integrin protein with expression on intraepithelial T cells and some peripheral regulatory T cells. CD103 is expressed at high levels on tumor-infiltrating FOXP3-positive regulatory T cells in cancer. CD103-positive T cells are strongly associated with patient survival in high-grade serous ovarian cancer. CD103 expression has been suggested as a definitive marker of intraepithelial, tumor-specific infiltrating lymphocytes. In addition, CD103-positive cells have also been identified in a small proportion of breast cancers.

CD117



Human gastrointestinal stromal tumor: intense membrane staining of tumor cells. CD117: clone EP10

EP10

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0007	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD117-032	P(HIER)	IVD	IVD	IVD

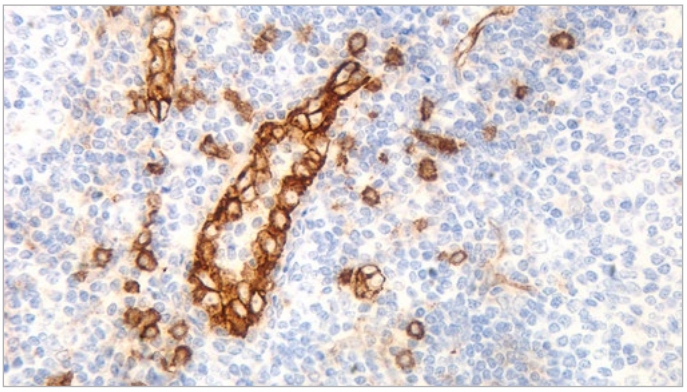
T595

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD117	P(HIER)	-	IVD/RUO	IVD/RUO

Antigen Background

The c-kit proto-oncogene encodes a transmembrane receptor with tyrosine kinase activity, c-kit (CD117), which is closely-related to the platelet-derived growth factor receptor family. c-kit plays a role during hematopoiesis, gametogenesis and melanogenesis. The expression of CD117 antigen is of particular interest in the study of gastrointestinal stromal tumors (GIST), small lung cell carcinomas and in melanomas.

CD123



Human high walled venule endothelium and plasmacytoid dendritic cells: immunohistochemical staining for CD123: clone BR4MS

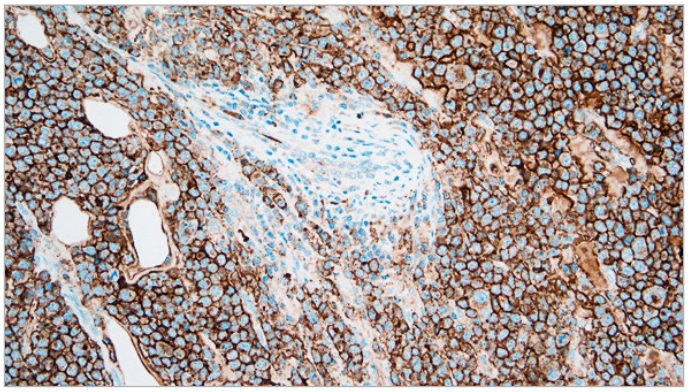
BR4MS

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD123	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD123 antigen is also known as the alpha subunit of the human interleukin-3 receptor. It is a type I transmembrane glycoprotein and is a member of the cytokine receptor superfamily. CD123 forms a heterodimer with CD131 (the beta subunit of the interleukin-3 receptor) to form the interleukin-3 receptor, where the cytokine specificity is provided by the alpha subunit and the signal transduction function is provided by the beta subunit. The interleukin-3 receptor is reported to be expressed on monocytes, neutrophils, basophils, eosinophils, megakaryocytes, erythroid precursors, mast cells, macrophages and a subpopulation of B cells, where it mediates proliferation and differentiation of these cells. Outside the hematopoietic system CD123 is reported to be expressed in Leydig cells of the testis, some endothelial cells, and cells of the placenta and brain.

CD138 (Syndecan 1)



Plasmacytoma: intense membrane staining of tumor cells. CD138: clone MI15

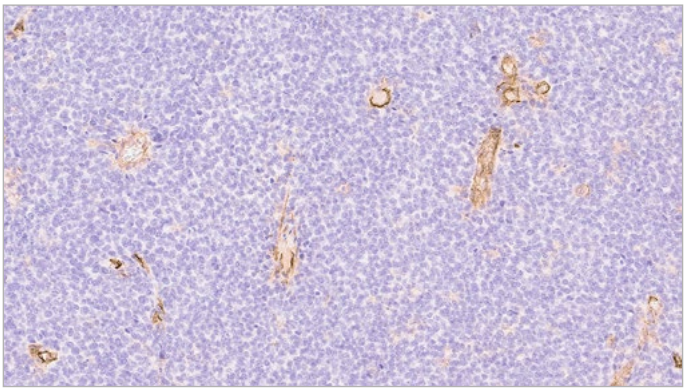
MI15

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0088	P(HIER)	IVD	IVD	IVD

Antigen Background

The CD138 molecule is a transmembrane heparan sulphate glycoprotein expressed at distinct stages of differentiation in normal lymphoid cells such as pre-B cells, immature B cells and Ig-producing plasma cells as well as being expressed in stratified and simple epithelia. The loss of CD138 expression from atypical cells is reported to be an early event during cervical carcinogenesis whereas CD138 antigen expression shows a close association with preserved epithelial morphology and differentiation; however' the major utility of CD138 as a marker in immunohistochemistry is the quantification of plasma cells.

CD141 (Thrombomodulin)



Human tonsil: immunohistochemical staining with CD141. Note the staining of endothelial cells in the lymph node. CD141 (Thrombomodulin): clone 15C8

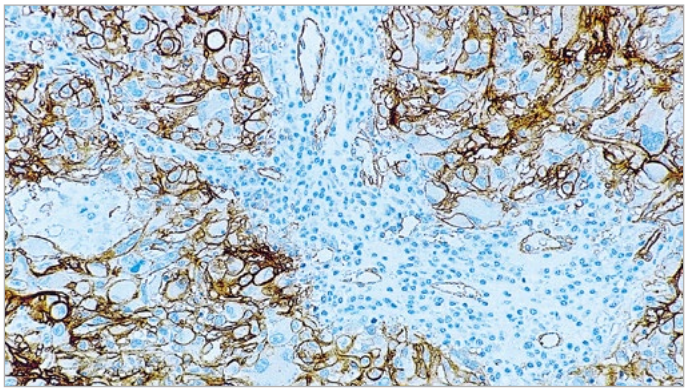
15C8

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD141	P(HIER)	IVD	-	-

Antigen Background

Thrombomodulin is a transmembrane glycoprotein of 75 kD which can accelerate the activation of protein C. Activated protein C functions as an anticoagulant by combining with protein S to inactivate factors Va and VIIIa of the blood coagulation pathway and by binding thrombin. Several factors regulate thrombomodulin expression. Downregulation of thrombomodulin may be induced by the cytokine interleukin-1, tumor necrosis factor and endotoxin. Agents which increase cyclic AMP such as forskolin may upregulate thrombomodulin activity in endothelial cells. Thrombomodulin has been identified within a number of normal tissues. These include the lining cells of arteries, veins, capillaries and the lymphatics as well as mesothelial cells, meningeal lining cells, synovial cells, syncytiotrophoblasts, megakaryocytes and platelets.

CD146 (MCAM)



Human malignant melanoma: immunohistochemical staining for CD146. Note membrane staining of metastatic melanocytes and endothelial cells. CD146: clone N1238

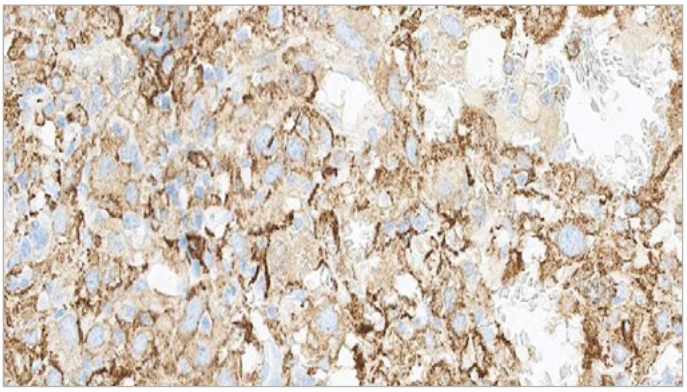
N1238

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CD146	P(HIER)	IVD	-	-

Antigen Background

CD146 protein is also known as the melanoma metastasis-associated surface molecule, MUC18, A32 antigen, S-Endo-1 and the melanoma cell adhesion molecule, MCAM or Mel-CAM. Originally, the CD146 molecule was defined as a marker of tumor progression and metastasis formation in human melanoma. More recently, it has been reported to be expressed on endothelial cells, smooth muscle and cerebellar cortex. Structurally, CD146 is an integral membrane glycoprotein of 113 kD with the characteristic V-V-C2-C2-C2 immunoglobulin-like domain structure. It shares considerable homology with chicken neural adhesion molecule, chicken gicerin, goldfish neurolin and is also closely related to the human blood group glycoprotein, lutheran. Although CD146 molecule functions as a cell adhesion molecule it interacts with an as yet uncharacterized ligand. CD146 can be induced on all T cells via PHA, recall antigen, superantigen and T cell receptor/CD3 stimulation. Furthermore reports suggest that the CD146 molecule is involved in the extravasation and homing of activated T cells. CD146 protein can promote tumor progression in human melanoma, possibly through enhanced interaction between melanoma cells and endothelial cells. In contrast, CD146 protein may act as a tumor suppressor in breast carcinoma with expression frequently lost in some cases.

CD163



Myeloid sarcoma: selective medium to strong staining of neoplastic cells. CD163: clone 10D6

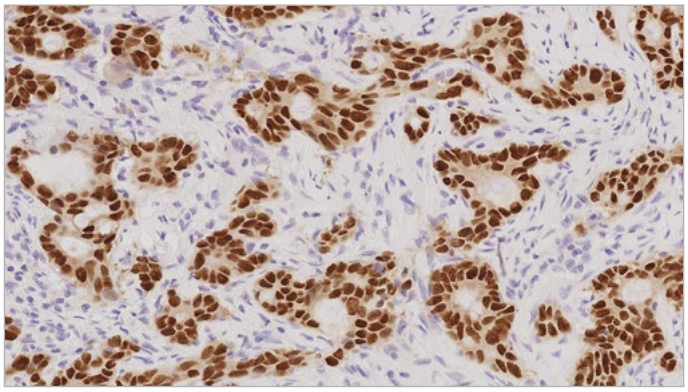
10D6

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0090	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CD163	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The CD163 molecule is a type I membrane protein also known as M130 antigen, Ber-Mac3, Ki-M8 or SM4. CD163 protein is restricted in its expression to the monocytic/macrophage lineage. It is reported to be present on all circulating monocytes and most tissue macrophages except those found in the mantle zone and germinal centers of lymphoid follicles, interdigitating reticulum cells and Langerhans cells. In addition, multi-nucleated cells within inflammatory lesions are reported not to express CD163 protein. The protein is upregulated by glucocorticoids and downregulated by the immunosuppressant cyclosporin A and by phorbol esters, while lipopolysaccharide, an inflammatory mediator, has no influence on expression. It has been proposed that a specific release mechanism of soluble CD163 antigen by human monocytes may play an important role in modulating inflammatory processes.

CDX2



Human colonic adenocarcinoma: nuclear and cytoplasmic staining of malignant cells. CDX2: clone EP25

EP25

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0375	P(HIER)	IVD	IVD	IVD

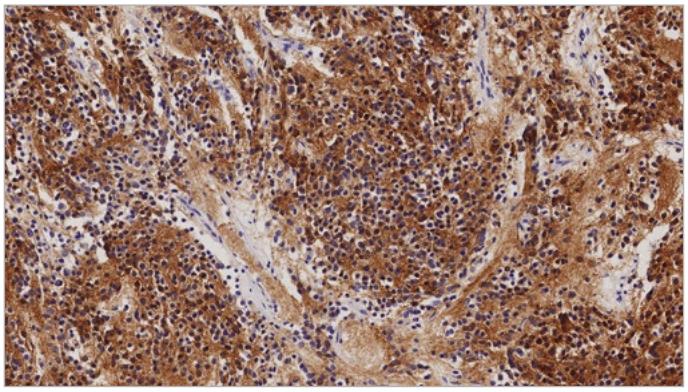
Antigen Background

CDX2 is a caudal-type homeobox, intestine-specific transcription factor expressed early in intestinal development and may be involved in the regulation of proliferation and differentiation of intestinal epithelial cells. CDX2, as well as CDX1, is of particular interest as the intestine is the only organ that contains detectable levels of either gene product.

This pattern of restricted expression is unusual for homeobox genes. Phosphorylation of the CDX2 activation domain can modulate its function and different spatial expression patterns in the intestinal epithelium. CDX2 is primarily expressed on the surface of the villus and in the crypts. In contrast to CDX1, intense CDX2 expression is reported to occur in all but the distal portions of the developing intestine.

The loss of CDX2 has been reported to contribute towards the progression of some sporadic colorectal cancers. It has been reported that CDX2 may also be associated with carcinogenesis of the stomach as expression of CDX2 mRNA progressively decreases with the transition from well differentiated to poorly differentiated gastric cancer cell lines.

Chromogranin A



Human retroperitoneum, neuroblastoma: immunohistochemical staining for Chromogranin A. Note intense cytoplasmic staining. Chromogranin A: clone 5H7

5H7

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0515	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CHROM-430	P(HIER)	IVD	IVD	IVD

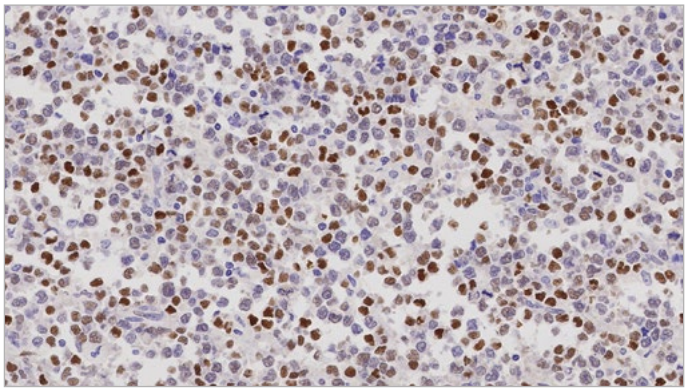
5H7 (Previous Formulation)

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0430	P(HIER)	-	IVD	IVD

Antigen Background

Chromogranin A is a 68 kD acidic protein which is reported to be widely expressed in neural tissues and in secretory granules of human endocrine cells, for example, parathyroid gland, adrenal medulla, anterior pituitary gland, islet cells of the pancreas and C cells of the thyroid. Chromogranin A expression has been reported in neuroendocrine tumors such as pituitary adenomas, islet cell tumors, phaeochromocytomas, medullary thyroid carcinomas, Merkel cell tumors and carcinoids.

Cyclin D1



Human mantle cell lymphoma: nuclear staining of malignant post-germinal B lymphocytes. Cyclin D1: clone EP12

EP12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0046	P(HIER)	IVD	IVD	IVD

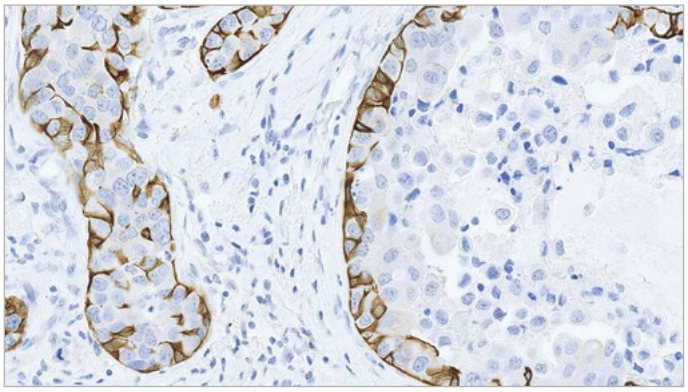
P2D11F11

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CYCLIND1-GM	P(ENZYME/HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The D-type cyclins are a family of proteins which function primarily by regulating the activity of cyclin dependent kinases in the G1 phase of the cell cycle. Cyclin D1, a protein of 36 kD, is also known as PRAD1 or bcl-1. Maximum expression of cyclin D1 occurs at a critical point in mid to late G1 phase of the cell cycle. The cyclin D1 gene, located on 11q13 has been reported to be overexpressed in mantle cell lymphomas due to the chromosomal translocation t(11;18).

Cytokeratin 5



Ductal carcinoma *in situ*: intense staining of myoepithelial cells. Cytokeratin 5: clone XM26

XM26

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0468	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CK5	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CK5	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

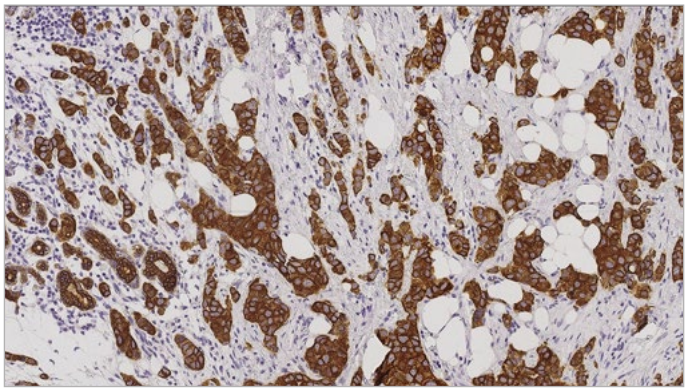
Cytokeratins are a large family of cytoskeletal proteins found in epithelial cells. They are co-ordinately synthesized in pairs so that at least one member of each family is expressed in each epithelial cell. Cytokeratins assemble into obligatory heteropolymers composed of type I (acidic) and type II (basic) polypeptides to form higher order tetramers and protofilaments. Basal cells of human epidermis express acidic keratin 14 and basic cytokeratin 5. Cytokeratin 5 is a 58 kD protein that is closely related to cytokeratin 6. They share similar tissue distribution and are found in various proportions in many non-keratinizing stratified squamous epithelia, for example, tongue mucosa, as well as in basal epithelia of trachea, basal cells of epidermis, hair follicles, sebaceous and sweat glands of skin, luminal cells of the mammary gland, basal cells of prostate, urothelium, vagina and endocervical mucosa. Cytokeratins 5 and 6 are also expressed in basal cell epitheliomas, squamous cell carcinomas of skin, tongue, epiglottis and of the rectal-anal region. Point mutations in the cytokeratin 5 gene at locus 12q11-q13 can cause various types of epidermolysis bullosa simplex. Cytokeratin 5 is also reported to be expressed in most epithelial and biphasic mesotheliomas.

Product Specific Information

Clone XM26 is specific for the 58 kD intermediate filament protein known as cytokeratin 5. It is not cross-reactive with cytokeratin 6.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Cytokeratin 7



Invasive breast carcinoma: intense staining of invasive tumor cells. Cytokeratin 7: clone RN7

RN7

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0942	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0138	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CK7-560	P(HIER)	IVD	IVD/RUO	IVD/RUO

OV-TL 12/30

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CK7-OVTL	P(ENZYME/HIER)	IVD	IVD/RUO	IVD/RUO

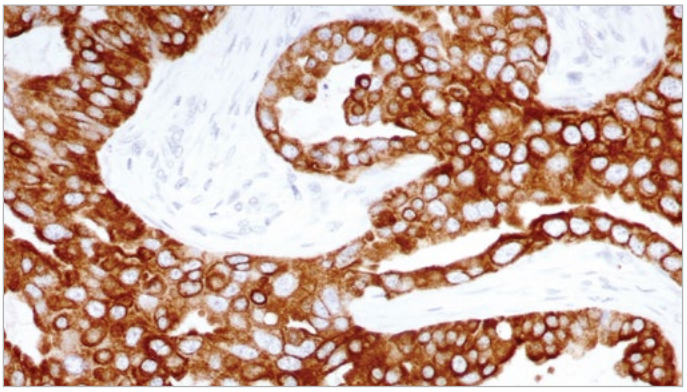
Antigen Background

Cytokeratins are intermediate filament proteins present in epithelial cells. They are expressed in a tissue-specific manner in normal organs and the tumors that arise from them. Cytokeratin 7 belongs to the neutral basic type B subfamily of cytokeratins. Its distribution is confined to glandular and transitional epithelia. Cytokeratin 7 is reported to be expressed in abundance in cultured bronchial and mesothelial cells but only at lower levels in cultured epidermal cells. The predicted amino acid sequence of this keratin has revealed a striking difference between this keratin and the type II keratins expressed in epidermal cells. Cytokeratin 7 has been reported in adenocarcinomas of the lung, breast, endometrium, ovary, thyroid as well as in carcinomas of the bladder and chromophobe renal cell carcinoma. Cytokeratin 7 and Cytokeratin 20 expression have been reported to show characteristic patterns on primary and metastatic lung and colorectal adenocarcinomas.

Product Specific Information

Where clone OV-TL 12/30 can produce unwanted staining of endothelial cells, clone RN7 does not stain these cell types. The choice of epitope retrieval, heat or enzyme, to provide the best result with clone OV-TL 12/30 should be determined by the user. Clones RN7 and OV-TL 12/30 react with the human cytokeratin intermediate filament protein (54 kD) identified as cytokeratin 7.

Cytokeratin 8



Immunohistochemical staining for Cytokeratin 8: clone TS1

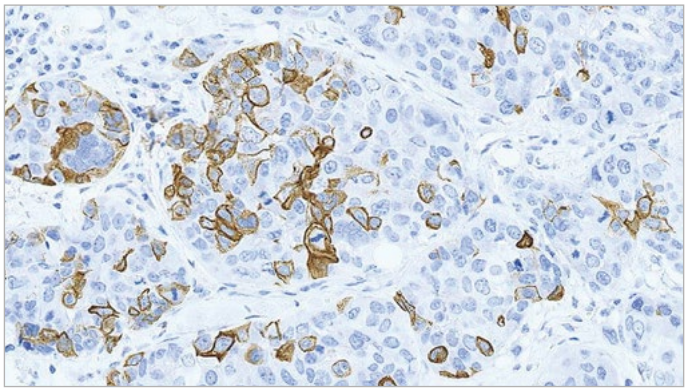
TS1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0567	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CK8-TS1	-	ASR	RUO	RUO

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

Cytokeratin 14



Invasive breast cancer: intense, clean staining of a proportion of tumor cells. Cytokeratin 14: clone LL002

LL002

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0074	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-LL002	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-LL002	P(HIER)	IVD	IVD/RUO	IVD/RUO

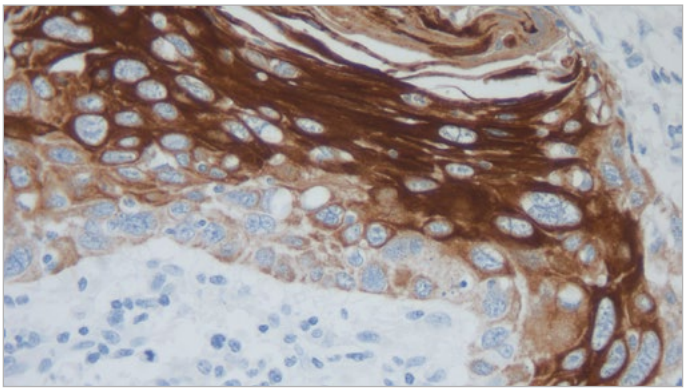
Antigen Background

Cytokeratins 14 and 5 are useful to distinguish stratified epithelial cell types from simple epithelial cell types. Cytokeratin 14 has been reported to be expressed in neoplasms of squamous cell origin.

Product Specific Information

Clone LL002 reacts with the human cytokeratin intermediate filament protein (50 kD) identified as cytokeratin 14.

Cytokeratin 17



Human squamous cell carcinoma, floor of the mouth: immunohistochemical staining for Cytokeratin 17. Note cytoplasmic staining of malignant cells. Cytokeratin 17: clone E3

E3

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0114	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CK17	P(HIER)	IVD	IVD	IVD

Antigen Background

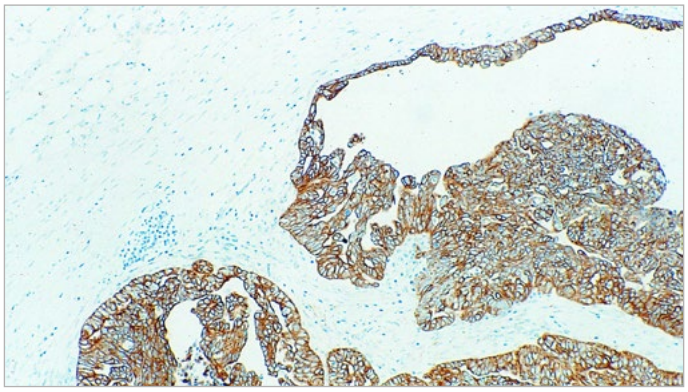
In normal tissues cytokeratin 17 is reported to be expressed in basal cells of complex epithelia, for example, basal cells of pseudostratified epithelium in the trachea, larynx, bronchi, myoepithelial cells in salivary glands and sweat glands. In neoplastic tissue, cytokeratin 17 is reported to be expressed in squamous cell carcinomas of the lung, cervix and oral cavity.

Product Specific Information

CK17 reacts with the human cytokeratin intermediate filament protein (46 kD) identified as cytokeratin 17.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Cytokeratin 18



Human colonic adenocarcinoma: immunohistochemical staining for Cytokeratin 18. Note cytoplasmic staining of malignant epithelial cells. Cytokeratin 18: clone DC-10

DC-10

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CK18	P(HIER)	IVD	-	-

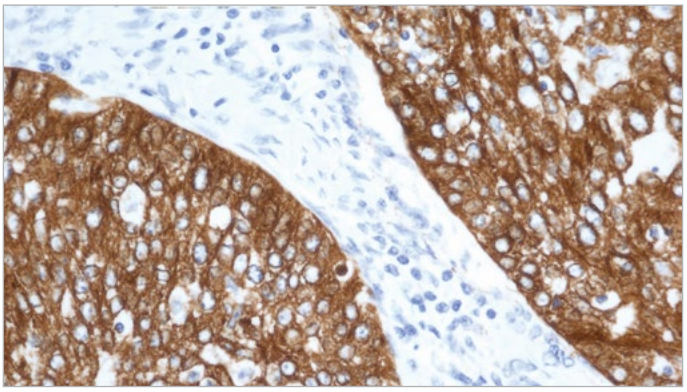
Antigen Background

Cytokeratin 18 is normally co-expressed with cytokeratin 8 and is found in most simple ductal and glandular epithelia.

Product Specific Information

CK18 reacts with the acidic cytokeratin intermediate filament protein (45 kD) identified as cytokeratin 18. Cytokeratin 18 is reported not to be expressed in stratified squamous epithelium on most squamous cell carcinomas.

Cytokeratin 19



Human rectal adenocarcinoma: immunohistochemical staining for Cytokeratin 19. Note cytoplasmic staining of malignant epithelial cells. Cytokeratin 19: clone b170

b170

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0799	P(ENZYME)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-CK19	P(HIER)	IVD	-	-

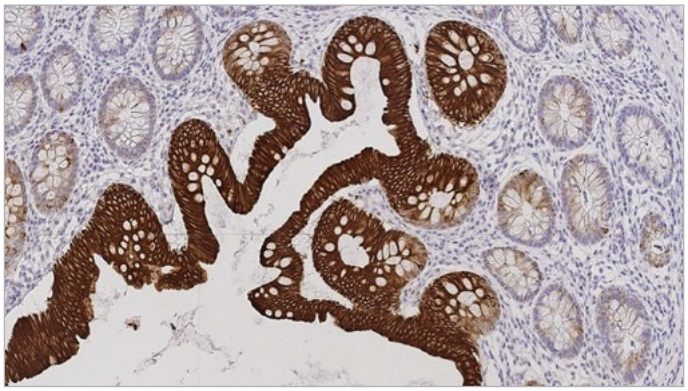
Antigen Background

The smallest human cytokeratin filament protein (40 kD) has been identified as cytokeratin 19 and has been reported to be expressed in a large number of epithelial cell types, including many ductal and glandular epithelia.

Product Specific Information

Clone B170 produces a complex heterogeneous staining pattern in non-keratinizing squamous epithelia and hair follicles, with strong staining of the basal layer observed.

Cytokeratin 20



Human colon: intense staining of surface mucosa. Cytokeratin 20: clone Ks.20.8

Ks20.8

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0022	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0037	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-CK20	P(HIER)	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-CK20	P(HIER)	IVD	IVD/RUO	IVD/RUO

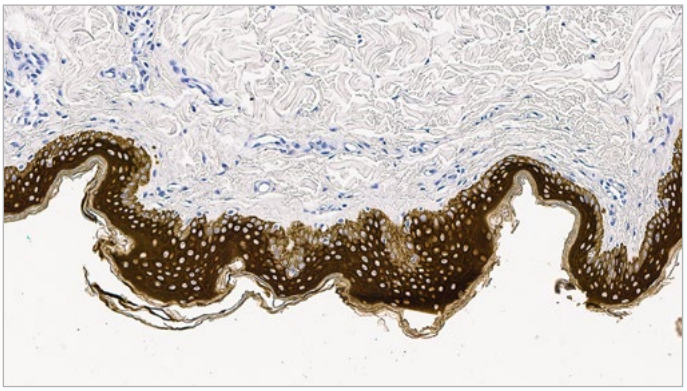
PW31

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CK20-561	P(HIER)	IVD	IVD	IVD

Antigen Background

Cytokeratin 20 has been demonstrated to be almost entirely confined to the gastric and intestinal epithelium, urothelium and Merkel cells of the skin. Cytokeratin 20 is less acidic than other type I cytokeratins and is of interest due to its restricted tissue expression. In normal tissue, cytokeratin 20 is expressed in intestinal epithelium, gastric foveolar epithelium, a number of endocrine cells in the upper portions of the pyloric glands, urothelium and Merkel cells in epidermis. In tumors it is reported, there is a marked difference in the expression of cytokeratin 20 within different carcinomas. Neoplasms expressing cytokeratin 20 are derived from normal epithelia which themselves expressed cytokeratin 20. Colorectal carcinomas consistently express cytokeratin 20, while gastric adenocarcinomas express cytokeratin 20 to a lesser degree. Adenocarcinomas of the gall bladder and bile duct, ductal cell adenocarcinomas of the pancreas, mucinous ovarian tumors, Merkel cell tumors and transitional cell carcinomas have also been reported to express cytokeratin 20.

Cytokeratin (5/6/18)



Immunohistochemical staining on skin of LP34 (cytokeratins 5/6/18) localized throughout the epidermis, with the strongest staining in the stratum spinosum. There is an absence of staining in the dermis. Cytokeratin (5/6/18): clone LP34

LP34

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-LP34	P(ENZYME)	IVD	RUO	RUO

Antigen Background

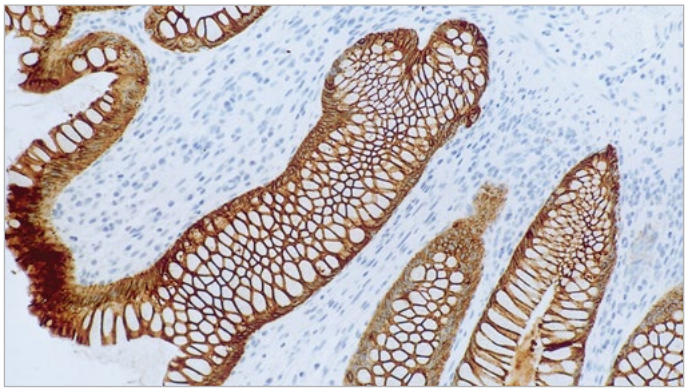
Cytokeratins 5, 6 and 18 are reported to be expressed in a broad range of human epithelial tissues, from simple glandular epithelia to stratified squamous epithelia. These include epithelial cells that are ectodermal, mesodermal, or endodermal in origin. These cytokeratins have been reported to be expressed in tumor cells of epithelial origin and less commonly of mesothelial origin. Non-epithelial tumors such as lymphomas do not express these cytokeratins.

Product Specific Information

The recognition of cytokeratin 18 on formalin fixed paraffin embedded sections using clone LP34 may be variable.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Cytokeratin (8/18)



Colon mucosa: immunohistochemical staining for Cytokeratin 8/18: clone 5D3

5D3

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0067	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-5D3	P(ENZYME)	IVD	IVD	IVD

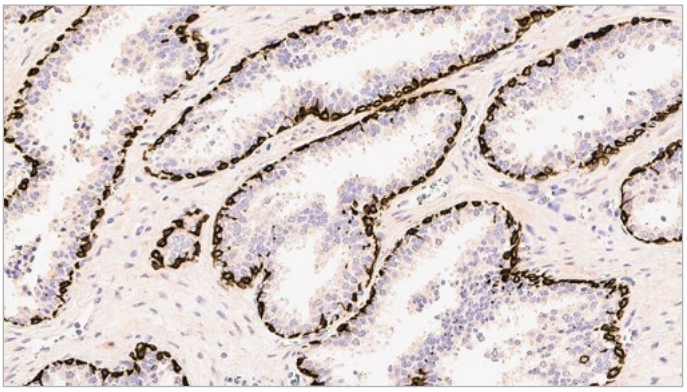
Antigen Background

In normal tissues, cytokeratins 8 and 18 are reported to be expressed in all simple and glandular epithelium and in neoplastic tissues, they have been reported to be expressed in adenocarcinomas and most squamous cell carcinomas. These cytokeratins are absent from keratinizing squamous carcinomas.

Product Specific Information

Clone 5D3 reacts with human cytokeratin intermediate filament proteins of 52.5 kD and 45 kD, identified as cytokeratins 8 and 18, respectively. Clone 5D3 shares similar specificities to clone CAM5.2 (Angus B et al. Journal of Pathology. 153: 377-384 (1987)).

Cytokeratin, Multi (1/5/10/14)



Immunohistochemical staining of the basal cells of the prostate with anti-cytokeratin (high molecular weight) antibody. Cytokeratin, Multi (1/5/10/14): clone 34BetaE12

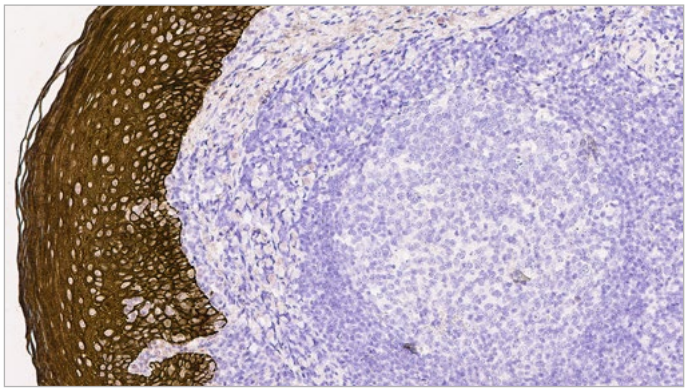
34βE12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0134	P(ENZYME)	IVD	IVD	IVD

Antigen Background

34βE12 reacts with human cytokeratin intermediate filament proteins 1, 5, 10 and 14. The antibody is reported to react with squamous epithelium and sweat ducts in normal skin, some pneumocytes, bronchial epithelium and mesothelium in normal lung and bile ducts in normal liver. It also reacts with ductal cells of the normal pancreas, some acinar and ductal cells of normal breast, some follicular epithelia of normal thyroid and some epithelia and mesothelium of the normal small and large bowel.

Cytokeratin, Multi (4/5/6/8/10/13/18)



Cytokeratins demonstrated in stratified squamous epithelium of the tonsil. The negative cells in the epithelium are infiltrating lymphocytes. Cytokeratin, Multi (4/5/6/8/10/13/18): clone C-11

C-11

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-C11	P(HIER)	IVD	-	-

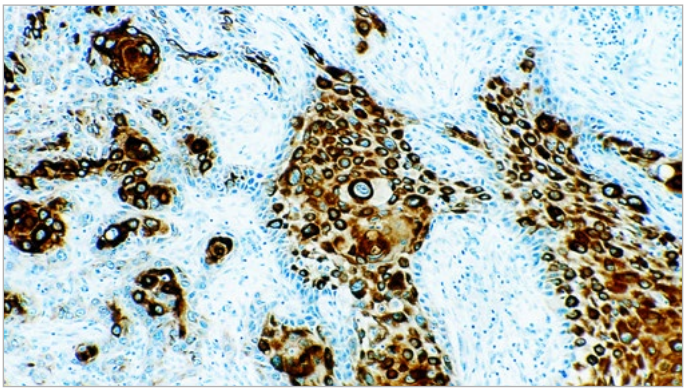
Antigen Background

Cytokeratins 4, 5, 6, 8, 10, 13 and 18 are differentially expressed between a variety of normal, reactive and neoplastic epithelia and also simple epithelium and both basal and suprabasal layers of cornifying and noncornifying squamous epithelium.

Product Specific Information

C11 is reported to react with human cytokeratins 4, 5, 6, 8, 10, 13 and 18.

Cytokeratin, Multi (5/6/8/18)



Human squamous cell carcinoma of the floor of the mouth: immunohistochemical staining for cytokeratins. Note intense cytoplasmic staining of malignant cells. Cytokeratin, Multi (5/6/8/18): clone 5D3/LP34

5D3/LP34

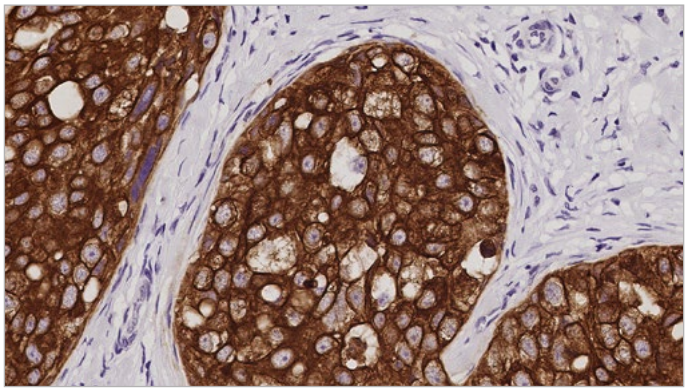
FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-CK5/6/8/18	F;P(ENZYME)	RUO	RUO	RUO

Antigen Background

CK5/6/8/18 reacts with human cytokeratins 5, 6, 8 and 18. These products are cocktails of monoclonal antibodies designed to recognize cytokeratins reported to be expressed in almost all epithelial tissues.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Cytokeratin, Multi (AE1/AE3)



Human invasive ductal carcinoma of breast: intense staining of malignant cells. Multi-Cytokeratin: clone AE1/AE3

AE1/AE3

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0012	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-AE1/AE3-601	P(HIER)	IVD	IVD	IVD

AE1/AE3 (Previous Formulation)

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0909	P(ENZYME)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-AE1/AE3	P(HIER)	IVD	IVD	IVD

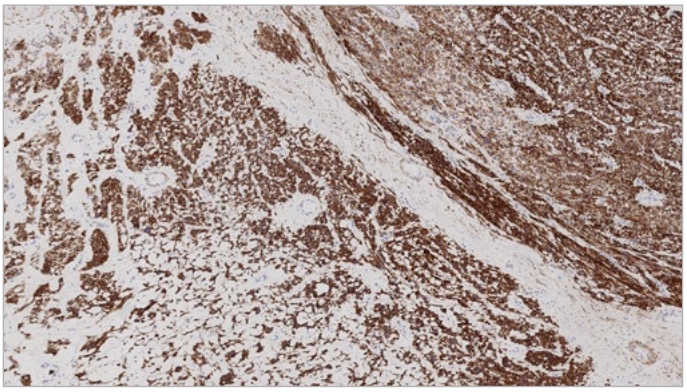
Antigen Background

Keratins are a family of water insoluble proteins of 40 to 70 kD. These proteins form tonofilaments, a class of intermediate filament, in epidermis as well as in almost all other epithelia. The process of normal epidermal differentiation is characterized by a series of morphological and biochemical changes as cells progress from the germinative basal layer through the spinous and granular layers to the outer cornified layer. The 65 to 67 kD cytokeratins are reported to be present only above the basal layer, the 58 kD cytokeratin is reported to be expressed throughout the entire epidermis including the basal layer and the 56 kD cytokeratin is reported to be absent from the basal layer and is normally eliminated during stratum corneum formation. The 56 and 65 to 67 kD cytokeratins are reported to be characteristic of epidermal cells undergoing terminal differentiation and may be considered as molecular markers for keratinization.

Product Specific Information

Clones AE1 and AE3 are specific for the 56.5, 50, 50', 48 and 40 kD acidic cytokeratins as well as the 65 to 67, 64, 59, 58, 56 and 52 kD basic cytokeratins. The cocktail of clones AE1 and AE3 exhibit broad reactivity with two families of cytokeratin, acidic and basic.

Desmin



Human leiomyosarcoma: cytoplasmic staining of malignant tumor cells. Desmin: clone DE-R-11

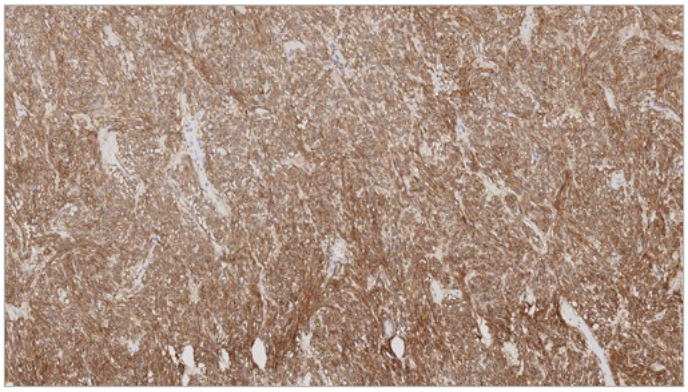
DE-R-11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0032	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-DES-DERII	P(HIER)	IVD	IVD	IVD

Antigen Background

DES-DERII reacts with an 18 kD rod piece of the intermediate filament protein desmin (53 kD) in muscle cells. The antibody does not appear to recognize other intermediate filament proteins. In normal tissues, Clone DE-RII reacts with both striated (skeletal and cardiac) and smooth muscle cells. The labeling is confined to the Z bands in skeletal and cardiac muscle giving a characteristic striated appearance.

DOG-1



Human gastrointestinal stromal tumor: intense membrane and cytoplasmic staining of tumor cells. DOG-1: clone K9

K9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0219	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-DOG-1	P(HIER)	IVD	IVD/RUO	IVD/RUO

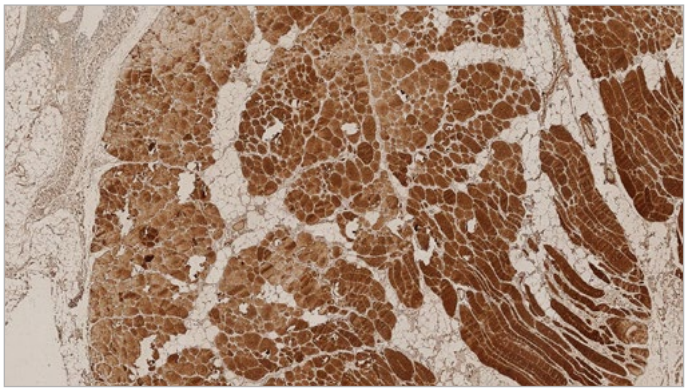
Antigen Background

DOG-1, a 986 amino acid protein of unknown function, is expressed predominantly on the plasma membrane of gastrointestinal stromal tumors (GISTs) and is rarely expressed in other soft tissue tumors, which, due to appearance, can be confused with GISTs. Reactivity for DOG-1 has been suggested to aid in the identification of GISTs, including Platelet-Derived Growth Factor Receptor Alpha mutants that fail to express KIT antigen.

Product Specific Information

The use of PBS-based diluents may result in increased background staining.

Dysferlin Antibodies



Skeletal muscle. Dysferlin Antibodies: clone Ham1/7B6

Ham1/7B6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-HAMLET	F;P(HIER)	IVD	IVD	IVD

Ham3/17B2

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-HAMLET-2	F;P(HIER)	IVD	IVD	IVD

Antigen Background

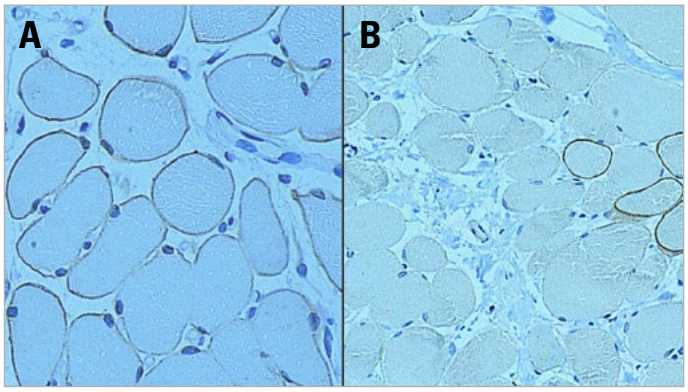
Dysferlin is the protein product of the 2p13 gene that is defective in patients with Limb-Girdle Muscular Dystrophy type 2B (LGMD2B) and Miyoshi Myopathy (MM). Dysferlin is normally localized to the muscle plasma membrane. In patients with LGMD2B and MM, immunoreactivity to dysferlin is severely reduced or lost. Patients with other neuromuscular conditions demonstrate normal labeling patterns.

Product Specific Information

HAMLET may require heat-induced epitope retrieval in some cases.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Dystrophin Antibodies



Human skeletal muscle: immunohistochemical staining for Dystrophin. Note membrane staining of normal muscle fibers (A) and reduced and variable staining of revertant muscle fibers in an individual with Duchenne muscular dystrophy (B). Dystrophin: clone 13H6

DYSA: clone 13H6

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-DYSA	P(HIER)	RUO	RUO	RUO

DYSB: clone 34C5

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-DYSB	P(HIER)	RUO	RUO	RUO

DYS1 (Rod Domain) : clone Dy4/6D3

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 2.5 mL	NCL-DYS1	F	IVD	IVD	IVD

DYS2 (C-terminus) : clone Dy8/6C5

FORMAT	CODE	USAGE	US	EU*	ROW*
Lyophilized 2.5 mL	NCL-DYS2	F	IVD	IVD	IVD

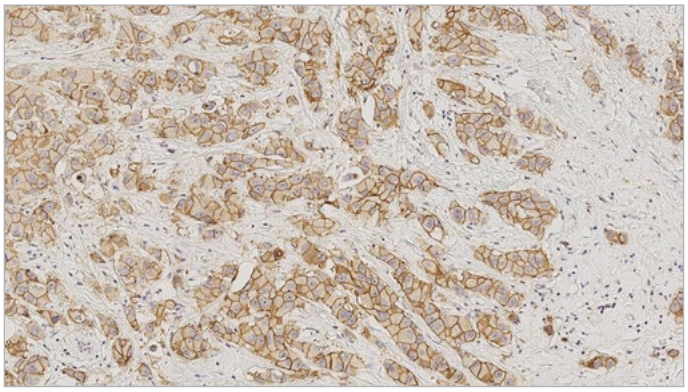
DYS3 (N-terminus) : clone Dy10/12B2

FORMAT	CODE	USAGE	US	EU*	ROW*
Lyophilized 2.5 mL	NCL-DYS3	F	IVD	IVD	IVD

Antigen Background

Duchenne Muscular dystrophy (DMD) is the most common of the muscular dystrophies resulting in progressive muscular wasting and death. Dystrophin is the 427kD protein product of the DMD gene located on the X chromosome at position Xp21. Abnormalities in protein expression occur in patients with DMD/BMD and dystrophin analysis may be used to distinguish these conditions from other neuromuscular diseases. Severe Duchenne muscular dystrophy is associated with a marked dystrophin deficiency, whereas patients with the milder form of Becker muscular dystrophy show less pronounced abnormalities of protein expression. The immunolabeling patterns for DYS1, DYS2 and DYS3 are similar; however, the use of all three antibodies is recommended to avoid the possibility of occasional false negative results.

E-Cadherin



Invasive breast carcinoma: clear membrane and cytoplasmic staining of tumor cells. E-Cadherin: clone 36B5

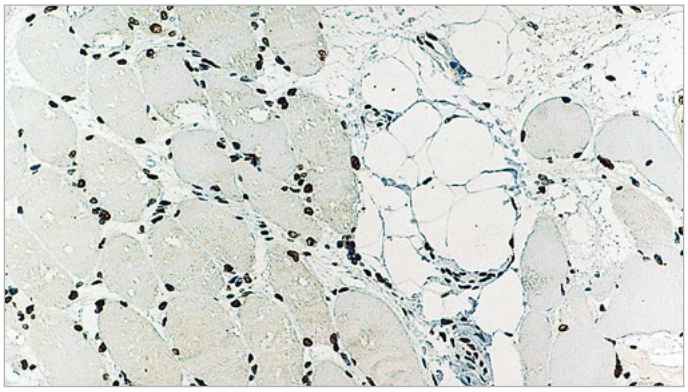
36B5

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0387	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-E-Cad	P(HIER)	IVD	IVD	IVD

Antigen Background

E-cadherin is a Ca2+-dependent, transmembrane cell adhesion molecule. It plays an important role in the growth, development and the intercellular adhesion of epithelial cells. Most tumors have an abnormal architecture and any subsequent loss of adhesiveness is thought to be an important step in the development of local invasion. E-cadherin may have a role in neoplastic progression, particularly as a suppressor of invasion. In prostate cancers, for example, the expression of E-cadherin is reported to be reduced or absent in comparison with its expression in normal prostate which is uniformly strong. Reduced expression or absence of E-cadherin in addition to alpha, beta and gamma-catenin in primary breast carcinomas has also been reported and these four proteins are associated with the development of metastases.

Emerin



Human skeletal muscle: immunohistochemical staining for Emerin. Note perinuclear staining of all cell nuclei. Emerin: clone 4G5

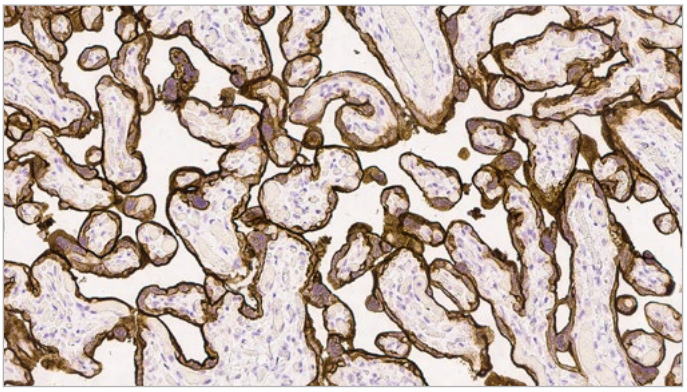
4G5

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-EMERIN	F;P(HIER)	IVD	IVD	IVD

Antigen Background

Emery-Dreifuss muscular dystrophy (EDMD) is a late onset, X-linked, recessive disorder characterized by slowly progressing contractures, wasting of skeletal muscle and cardiomyopathy usually presented as heart block. Contractures are seen in the elbows, Achilles tendons and post cervical muscles with humero-peroneal distribution early in the course of the disease. The STA gene, at Xq28 locus, encodes a serine-rich 34kD protein, emerin, which is ubiquitous in tissues and is found in highest concentration in skeletal and cardiac muscle. Emerin is localized in the nuclear membrane of normal muscle cells and its deficiency plays a crucial part in the pathology of EDMD.

Epidermal Growth Factor Receptor



Immunohistochemical staining of placenta. High expression of EGFR localized in the trophoblastic layer of the placental villi. Epidermal Growth Factor Receptor: clone EGFR.113

EGFR.113

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-EGFR	P(HIER)	-	IVD	IVD

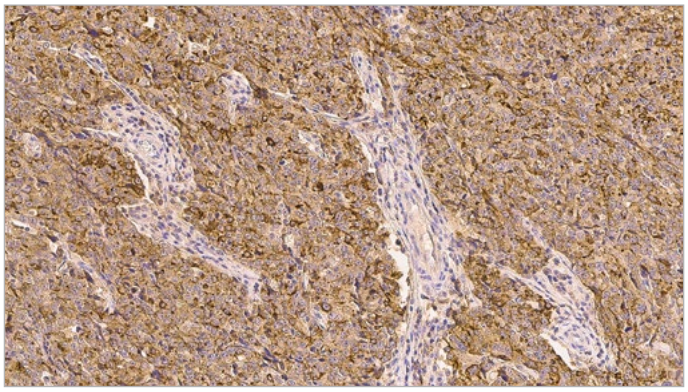
Antigen Background

Epidermal growth factor receptor (EGFR) is a transmembrane protein receptor of 170 kD with tyrosine kinase activity. Increased levels of EGFR are reported to be linked with malignant transformation of squamous cells, for example, in squamous cell carcinoma of the lung, head, neck, skin, cervix and esophagus. EGFR may also play a role in the development and progression of hepatocellular carcinomas where recurrence rates are higher in EGFR-positive cases. This correlation has similarly been reported in colorectal cancers where EGFR, produced by tumor cells, plays an important role in the invasiveness and proliferation of colorectal cancers. The majority of published studies of EGFR expression in human breast cancer has similarly shown an association with EGFR expression where it is inversely related to estrogen receptor status.

Product Specific Information

Clone EGFR.113 is raised to the extracellular domain of the EGFR molecule.

Epithelial Membrane Antigen



Immunohistochemical staining of an invasive ductal carcinoma of the breast with EMA. Epithelial Membrane Antigen: clone GP1.4

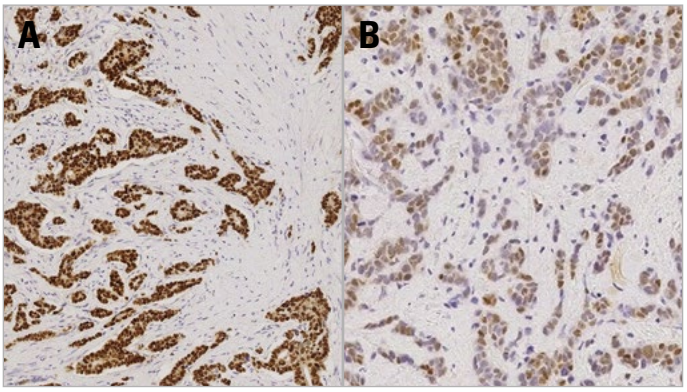
GP1.4

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0035	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-EMA	P	IVD	IVD/RUO	IVD/RUO

Antigen Background

Epithelial membrane antigen (EMA), also known as episialin, is reported to be expressed in a variety of normal and neoplastic epithelia. It has been reported that markers to CD45 (LCA) when used in conjunction with markers to EMA are useful in labeling cells of lymphoid origin, whereas the combination of anti-cytokeratin antibodies together with EMA is useful to characterize cells of epithelial origin. EMA is also notably described to be expressed in a subset of Hodgkin's lymphomas.

Estrogen Receptor



(A) Invasive ductal carcinoma (high expressor): intense nuclear staining in nearly 100% of tumor cells. (B) Invasive ductal carcinoma (moderate expressor): heterogeneous nuclear staining of approximately 50% of tumor cells. Estrogen Receptor: clone 6F11.

6F11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0151	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0009	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-ER-6F11	P(HIER)	IVD	IVD	IVD
Liquid 2 mL	NCL-L-ER-6F11/2	P(HIER)	-	IVD	IVD

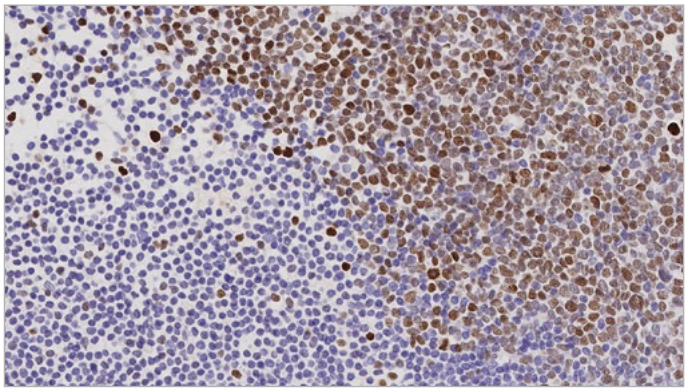
Antigen Background

Estrogen receptor (ER) content of breast cancer tissue is an important parameter in the prediction of prognosis and response to endocrine therapy. The introduction of highly specific monoclonal antibodies to ER has allowed the determination of receptor status of breast tumors to be carried out in routine histopathology laboratories.

Product Specific Information

Clone 6F11 is raised to the full length alpha form of the estrogen receptor molecule present on human ER antigen, located in the nucleus of ER positive normal and neoplastic cells.

EZH2 (Enhancer of Zeste Homolog 2 (Drosophila))



Immunohistochemical staining for EZH2 antigen. Note nuclear staining. EZH2 (Enhancer of Zeste Homolog 2 (Drosophila)): clone 6A10

6A10

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0575	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-EZH2	P(HIER)	IVD	IVD	IVD

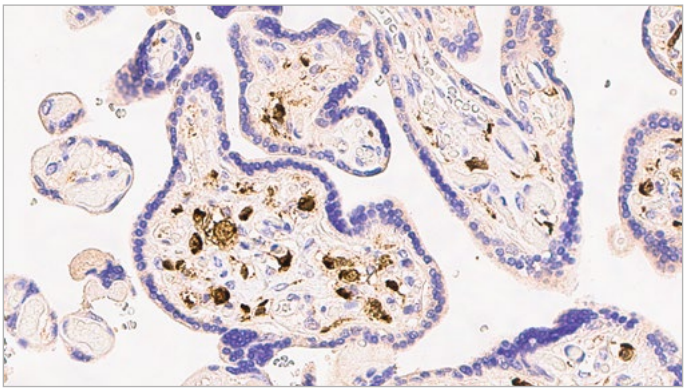
Antigen Background

Polycomb-group proteins (PcG) such as EZH2 (Enhancer of Zeste Homolog 2 (Drosophila)) form multimeric gene repressing complexes involved in axial patterning, hematopoiesis and cell cycle regulation. PcG proteins ensure correct embryonic development by expressing homeobox genes as well as contributing to the regulation of lymphopoiesis.

Product Specific Information

EZH2 stains optimally when used in TBS-based wash buffer and diluent systems.

Factor XIIIa (Blood Coagulation Factor XIIIa)



Immunohistochemical staining of placenta with Factor XIIIa localized in the hofbauer cells of the placental villi. Factor XIIIa (Blood Coagulation Factor XIIIa): clone E980.1

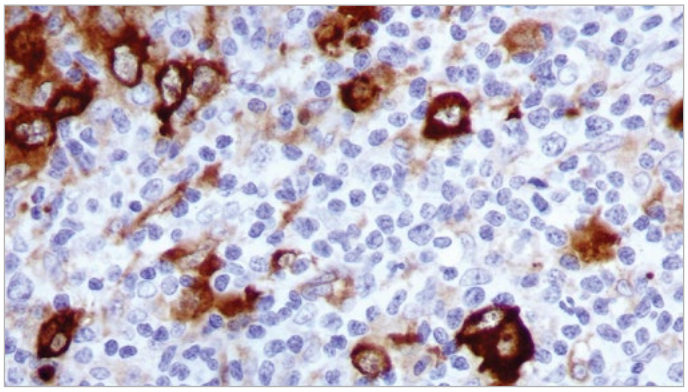
E980.1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0449	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-FXIIIa	P(HIER)	IVD	-	-

Antigen Background

Factor XIIIa, also known as fibrinoligase and fibrin-stabilizing factor, is the last enzyme generated in the blood coagulation cascade. It is a Ca2+-dependent transglutaminase or transamidating enzyme which forms intermolecular gamma-glutamyl-epsilon-lysine crosslinks between fibrin molecules resulting in the mechanical stabilization of the fibrin clot and its resistance to proteolysis. Factor XIIIa may also function to stabilize cell surface molecules and membranes. Ca2+-dependent trans-glutaminases with thiol active centers are widespread in animal tissues and have been associated with cell proliferation, embryonic development and growth through the proliferation of mammary stroma and epithelial elements. Normal mammary stroma, like most collagenous connective tissue contains resident populations of CD34 positive dendritic interstitial cells and scattered Factor XIIIa positive collagen-associated dendrophages. Factor XIIIa has been examined to determine its expression in normal and inflamed skin. Factor XIIIa positive cells in human skin represent a specific population of bone marrow dermal dendritic cells, distinct from Langerhans cells which share some features common to mononuclear phagocytes. In benign skin conditions such as inflammatory dermatoses, for example, atopic eczema and psoriasis, an increased number of factor XIIIa positive cells in the upper dermis, closely associated with lymphocytes, has been described.

Fascin



Hodgkin's lymphoma: immunohistochemical staining with Fascin. Fascin: clone IM20

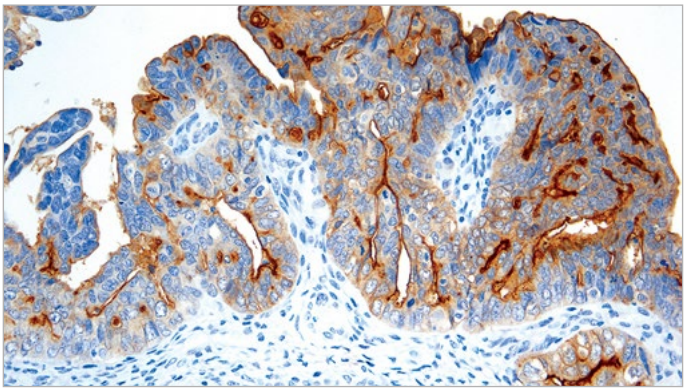
IM20

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0420	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-FASCIN	P(HIER); W	RUO	RUO	RUO

Antigen Background

Human fascin is a 55 to 58 kD actin-bundling protein, whose actin binding ability is regulated by phosphorylation. In normal tissues the detection of fascin is reported to be predominantly restricted to dendritic cells, and in the thymus has been observed only in medullary dendritic cells. In reactive nodes, interdigitating reticulum cells of T cell zones, cells in subcapsular areas, and cells of the reticular network express fascin. Variable expression is seen in follicular dendritic cells and endothelial cells. Lymphoid cells, myeloid cells and plasma cells do not express fascin; however, in cases of Hodgkin's disease, including nodular sclerosis, mixed cellularity lymphocyte depletion and unclassified cases, most or all Reed Sternberg cells are reported to be positive for fascin. Fascin expression may be induced by Epstein-Barr virus (EBV) infection of B cells with the possibility that viral induction of fascin in lymphoid or other cell types must also be considered in EBV-positive cases.

Folate Receptor Alpha



Ovarian tumor: immunohistochemical staining for Folate Receptor Alpha. Note intense cytoplasmic staining. Folate Receptor Alpha: clone BN3.2

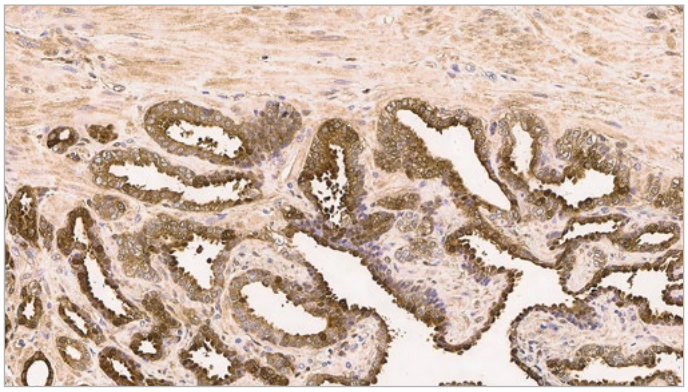
BN3.2

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-FRalpha	P(HIER)	IVD	IVD	IVD

Antigen Background

Folate is a basic component of cell metabolism and DNA synthesis and repair. It is involved in essential one-carbon transfer reactions and is a vitamin required by both normal and tumor cells. Folate entry into cells is facilitated via two different systems: the reduced folate carrier, which utilizes a bidirectional anion-exchange mechanism, and the folate receptor system. Folate receptor alpha is a membrane-bound member of the folate receptor family, facilitating folate transport via a mechanism termed potocytosis where the receptor is internalized and then recycled back to the cell membrane. Staining patterns are both membranous and cytoplasmic due to this mechanism. Members of the folate receptor family share highly conserved sequences in the open reading frames, but differ in amino acids in the 5′ untranslated regions and as a consequence can differ in function and tissue expression. Folate receptor alpha expression is reported to be highly restricted in normal tissues and only selectively overexpressed in a limited number of epithelial malignancies.

Galectin-3



Immunohistochemical staining of prostate carcinoma demonstrating Galectin-3 staining in the neoplastic cells and some staining in the stroma. Galectin-3: clone 9C4

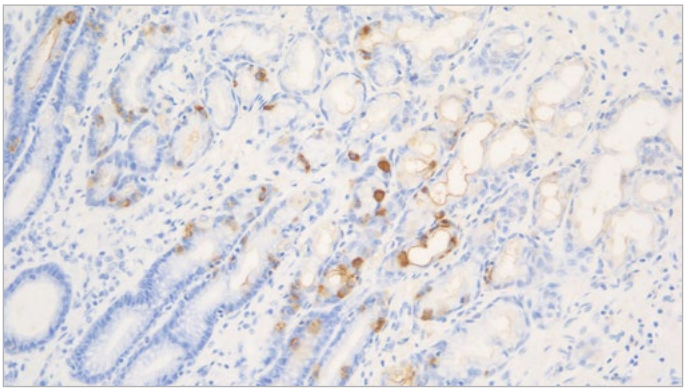
9C4

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0238	P(HIER)	IVD	IVD	IVD

Antigen Background

Galectin-3 is a member of the beta-galactosidase-binding lectin family. It is involved in several biological events including binding to the basement membrane glycoprotein laminin. Cell surface galectin-3 may be involved in homotypical cell adhesion and is downregulated in colon cancer as the disease progresses. This downregulation has also been examined in breast carcinoma with a similar correlation of expression reported. Downregulation of galectin-3 could be one of the many events that enable cancer cells to interact with laminin to facilitate invasion and metastasis and may indicate activation of the invasive phenotype in various tumor types.

Gastrin



Normal human stomach: immunohistochemical staining for Gastrin. Note: intense cytoplasmic staining of neuroendocrine cells. Gastrin: Polyclonal

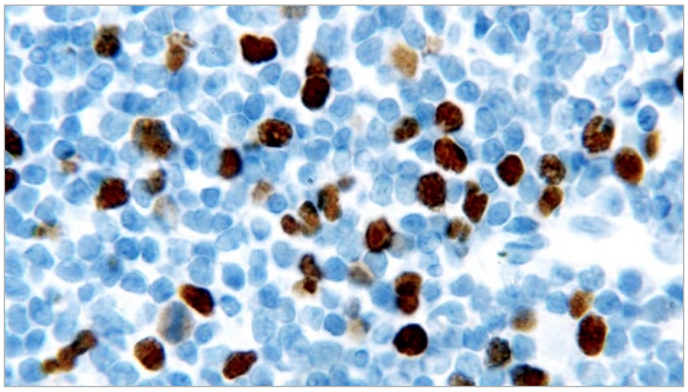
Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0681	P	IVD	IVD	IVD

Antigen Background

Gastrin, a polypeptide hormone, occurs naturally in three forms: gastrin-14, gastrin-17 and gastrin-34. Both primary and secondary G cell hyperplasia are reported to be characterized by clustering of the immunoreactive cells which sometimes project buds from the mucous glands.

Geminin



Human chronic lymphocytic leukemia: immunohistochemical staining for Geminin. Note intense nuclear staining of proliferating neoplastic cells. Geminin: clone EM6

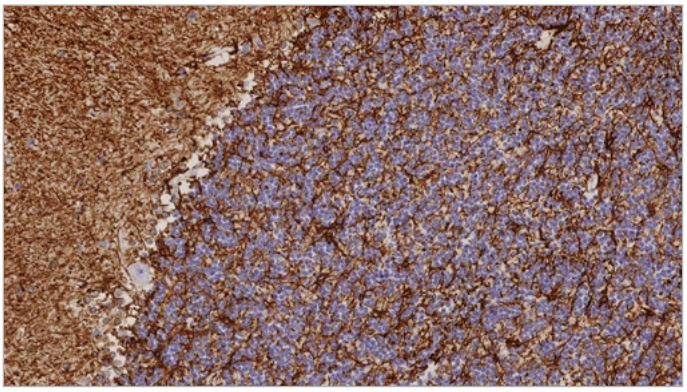
EM6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-Geminin	P(HIER)	IVD	IVD	IVD

Antigen Background

Geminin is a protein of 209 amino acids thought to be involved in the control of DNA replication via the interaction with Cdt1. Geminin is not found in the G1 phase of the cell cycle, but is first expressed in the G1 to S transition phase, with expression levels rising through the rest of the cell cycle and levels reaching a maximum during mitosis. It has been proposed that Geminin may be a tumor suppressor protein. Geminin is reported to be expressed in proliferating lymphocytes and epithelial cells, for example, germinal centers in tonsil as well as in colon, spermatocytes, seminiferous tubules of the testes, within the basal layers of the squamous epithelium of the skin and breast. Geminin is reported to be upregulated in cancers such as non-Hodgkin's lymphoma, B cell lymphoma, breast carcinoma and colon carcinoma.

Glial Fibrillary Acidic Protein



Normal brain: intense staining of neuronal processes. Glial Fibrillary Acidic Protein: clone GA5.

GA5

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0026	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-GFAP-GA5	P(HIER)	IVD	IVD	IVD

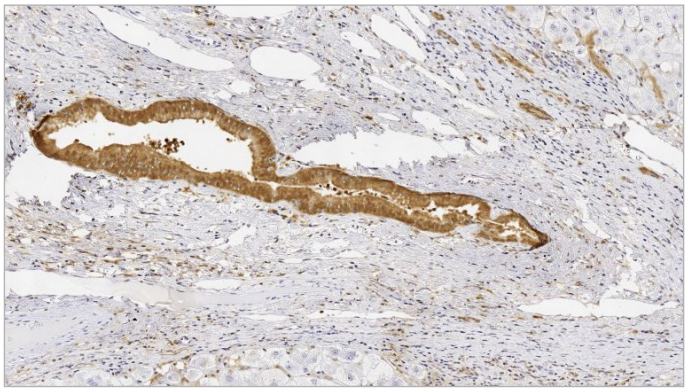
Antigen Background

Glial fibrillary acidic protein (GFAP) is an intermediate filament protein of 52kD reported to be expressed in glial cells, for example, astrocytes and ependymal cells. In the peripheral nervous system, GFAP has been reported to be expressed in Schwann cells, enteric glial cells and satellite cells of human sensory ganglia and in neoplastic tissues GFAP has been reported to be expressed in astrocytomas and ependymomas.

Product Specific Information

When using GFAP-GA5 the heat induced epitope retrieval (HIER) technique may improve staining in some cases.

Glutathione S-Transferase (GST) Antibody



Human liver: immunohistochemical staining for glutathione S-transferase. Note cytoplasmic staining of bile duct. GSTpi: clone LW29.

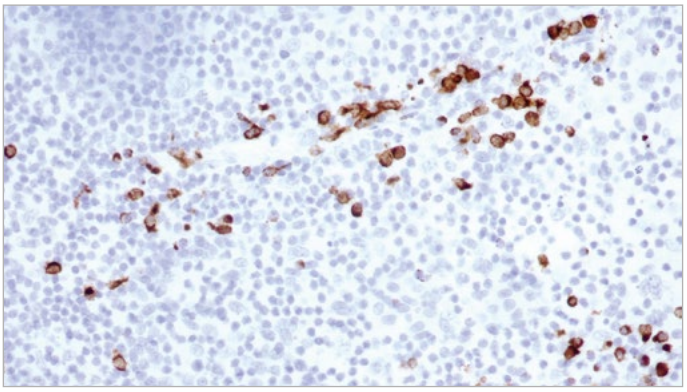
LW29

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-GSTpi-438	P	IVD	-	-

Antigen Background

The glutathione S-transferases (GSTs) are a multigene family of isoenzymes which catalyze the conjugation of glutathione to electrophilic substrates. These enzymes are involved in the detoxification of both endogenous and exogenous electrophiles which can react with cellular components such as DNA. The modification of DNA by reactive compounds can initiate carcinogenesis and the GSTs are believed to play a role in neutralizing carcinogens. The cytosolic GST isoenzymes have been classified into four evolutionary classes; alpha, mu, pi and theta. These isoenzymes are reported to be singly or multi-expressed in a variety of normal tissues, including stomach, bowel, brain, heart, liver, pancreas, breast, kidney and skin at differing levels. In gastric cancers, the levels of GSTalpha and pi are reported to differ from normal gastric tissue with GSTalpha showing decreased levels and GSTpi increased levels.

Granzyme B



Human tonsil: immunohistochemical staining for Granzyme B: clone 11F1

11F1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0291	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-GRAN-B	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Granzymes are neutral serine proteases which are stored in specialized lytic granules of cytotoxic T lymphocytes (CTL) and in natural killer (NK) cells. These CTL and NK cells are heavily involved in the elimination of neoplastic and virally infected cells. Secretory granules containing perforin and granzymes are instrumental in undertaking cytolytic activity. Granzyme B is understood to enter a target cell through a perforin pore-formed channel to induce DNA fragmentation and apoptosis. Granzyme B has also been described in neoplastic CTL and NK cells.

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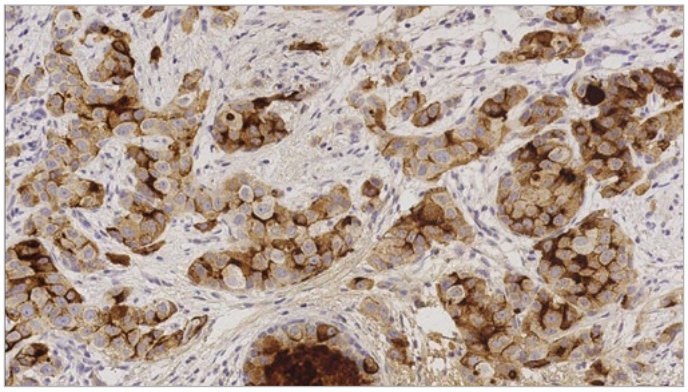
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Gross Cystic Disease Fluid Protein-15



Invasive breast carcinoma: cytoplasmic staining in tumor cells. Gross Cystic Disease Fluid Protein-15: clone 23A3

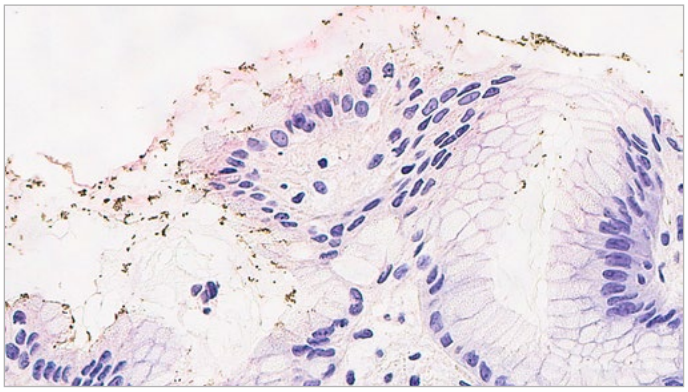
23A3

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0708	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-GCDFP15	P(HIER)	IVD	IVD	IVD

Antigen Background

Gross cystic disease of the breast is a benign premenopausal disorder in which cysts are a predominant pathological lesion. These cysts appear to be formed from excessive apocrine cystic secretions. This fluid is composed of several glycoproteins including a unique 15 kD monomer protein, GCDFP15. It has been reported that cytosolic analysis of normal tissue from all major organs has demonstrated GCDFP15 in apocrine epithelia, lacrimal, ceruminous and Moll's glands and in numerous serous cells of the submandibular, tracheal, bronchial, sublingual and minor salivary glands. Cytosol from breast carcinoma lesions are reported to contain GCDFP15 at a wide range of concentrations. The concentration is reported to be highest in more differentiated carcinomas and GCDFP15 shows only a few positive individual epithelial cells within lobules and small ducts in normal breast. Expression has also been reported in fibroadenomas within areas of apocrine metaplasia.

Helicobacter pylori



Immunohistochemical staining for *Helicobacter pylori*: clone ULC3R

Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 7 mL	NCL-5994-A	-	ASR	-	-

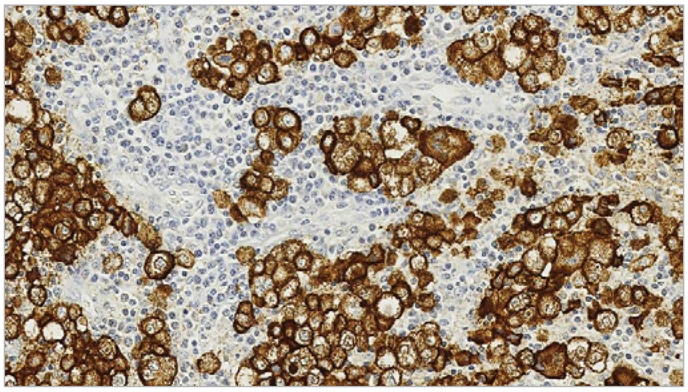
ULC3R

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-HPYLORI	-	ASR	IVD	IVD

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

HMB45 (Melanoma Marker)



Human skin, melanoma: A melanoma showing strong cytoplasmic staining. Melanoma Marker (HMB45): clone HMB45

HMB45

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0027	P(ENZYME)	IVD	IVD	IVD
BOND 30 mL	PA0625	P(ENZYME)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-HMB45	P(ENZYME)	IVD	IVD	IVD

Antigen Background

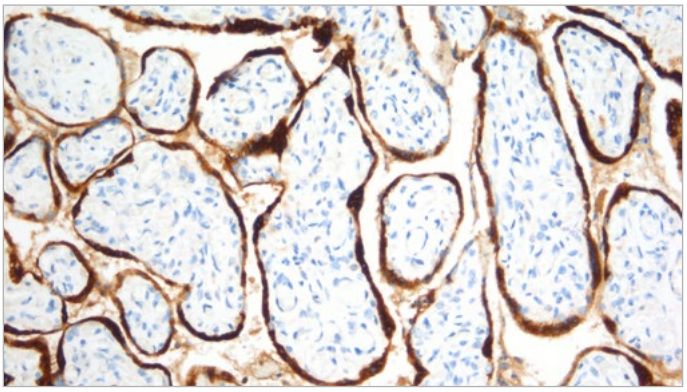
The HMB45 antigen has also been identified in retinal pigment epithelium (RPE) but is reported to be reactive only with the transient prenatal and infantile RPE. No reaction is reported to be observed with intradermal nevi and normal adult melanocytes and non-melanocytic cells.

Tumor cells of epithelial, lymphoid, glial and mesenchymal origin are reported to be negative. This clone is well described in the literature. It is indicated to label an intracytoplasmic antigen in the majority of melanomas and other tumors demonstrating melanoma/melanocytic differentiation.

Product Specific Information

The clone is also reported to react with junctional and blue nevus cells. (Bacchi CE et al., A Review. Applied Immunohistochemistry. 4:73-85 (1996)).

Human Chorionic Gonadotrophin (beta)



Placenta: immunohistochemical staining with Human Chorionic Gonadotrophin (beta): Polyclonal

Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0014	P(HIER)	IVD	IVD	IVD

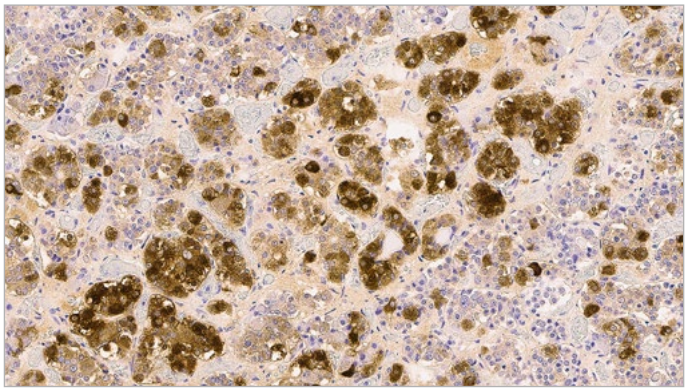
Antigen Background

Human chorionic gonadotrophin (hCG) is a glycoprotein hormone produced by trophoblastic cells of the placenta beginning 10 to 12 days after conception. Maintenance of the fetus in the first trimester of pregnancy requires the production of hCG, which binds to the corpus luteum of the ovary which is stimulated to produce progesterone which in turn maintains the secretory endometrium. hCG is composed of two subunits, alpha and beta. The alpha subunit of hCG is identical to the subunit of luteinising hormone, thyroid stimulating hormone and follicle stimulating hormone. The common alpha chain and the hormone-specific beta chains have molecular weights of 14 kD and 17 kD, respectively. The hCG beta-subunit is unique in the family of beta-containing glycoprotein hormones in that it contains an extension of 29 amino acids at its COOH end. It is believed that the C-terminal region of the HCG-beta subunit plays a role in the intracellular behavior of the heterodimer.

Product Specific Information

HCGp was raised to the isolated beta-chain of human chorionic gonadotrophin and reacts with placental trophoblasts. HCGp shows a slight cross-reaction with luteinising hormone and may, therefore, stain basophil cells in the pituitary.

Human Follicle Stimulating Hormone (beta 2) (hFSH)



Immunohistochemical staining of Human Follicle Stimulating Hormone in the anterior pituitary gland. Human Follicle Stimulating Hormone (beta 2) (hFSH) clone INN-hFSH-60

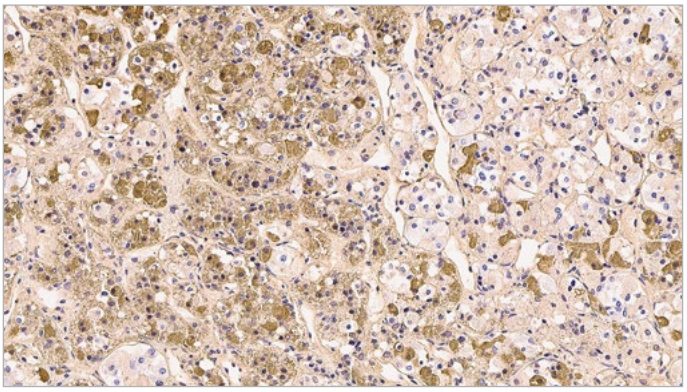
INN-hFSH-60

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0693	P(ENZYME)	IVD	IVD	IVD

Antigen Background

Follicle stimulating hormone (FSH) is a pituitary hormone of 35 kD which is involved in the maturation of ovarian follicles and estrogen secretion in females. In males, FSH stimulates the secretion of testosterone.

Human Growth Hormone (HGH)



Immunohistochemical staining of Human Growth Hormone in the anterior pituitary gland. Human Growth Hormone (HGH): Polyclonal

Polyclonal

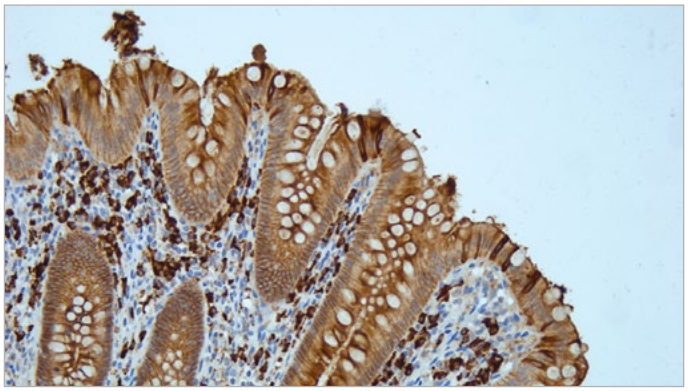
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0704	P	IVD	IVD	IVD

Antigen Background

Growth hormone (GH), somatotropin, is the primary hormone responsible for regulating overall body growth and is also important in organic metabolism. It is synthesized by acidophilic or somatotropic cells of the anterior pituitary gland. Human GH has a molecular weight of 22 kD.

GH stimulates growth indirectly by promoting the liver's production of somatomedins, which act directly on bone and soft tissue to cause growth. GH exerts direct metabolic effects on the liver, adipose tissue and muscle. In general, growth hormone enhances protein synthesis, conserves carbohydrates and uses up fat stores.

Immunoglobulin A



Human appendix: intense staining of plasma cells and secreted Immunoglobulin A. Immunoglobulin A: clone N1CLA

N1CLA

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-IgA	P(HIER)	IVD	IVD/RUO	IVD/RUO

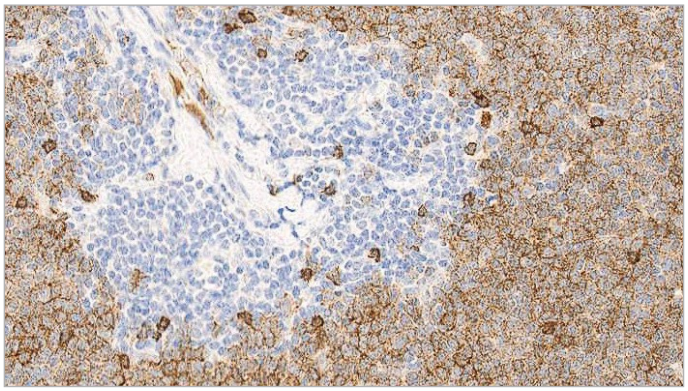
Antigen Background

IgA is a member of the antibody class of the immunoglobulin superfamily. There are several classes and subclasses (isotypes) of antibody, the antibody isotype being defined by the immunoglobulin heavy chain present in the molecule. The basic structure of an immunoglobulin molecule consists of two identical heavy chains (gamma , mu, alpha , delta , epsilon) and two identical light chains, either kappa or lambda. IgA contains the alpha -chain and may be present in a serum or secretory form. In serum, 90 percent of IgA is monomeric, while in its secretory form it is the main immunoglobulin found in secretions including tears, saliva, intestinal and bronchial mucous, sweat, colostrum, and secretions from the prostate and respiratory epithelia, where it has the job of defending exposed external surfaces of the body against attack from micro organisms. Secretory IgA is synthesized locally by plasma cells and dimerized intracellularly with a cysteine-rich J-chain.

Product Specific Information

Clone N1CLA was developed to produce reduced background staining that is associated with Polyclonal antibodies on paraffin sections.

Immunoglobulin D



Mantle cell lymphoma: mantle cell tumor cells show moderate staining, with a stronger reaction seen in heavy chain expressing plasma cells. Immunoglobulin D: clone DRN1C

DRN1C

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0061	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-IgD	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

IgD, together with IgM, are the major immunoglobulins expressed on the surface of B cells where it seems they may operate as mutually interacting antigen receptors for the control of lymphocyte activation and suppression. The greater susceptibility of IgD to proteolysis in combination with antigen could well be implicated in such a function.

Product Specific Information

The use of PBS-based diluents may result in increased background staining. Clone DRN1C was developed to produce reduced background staining that is associated with Polyclonal antibodies on paraffin sections.

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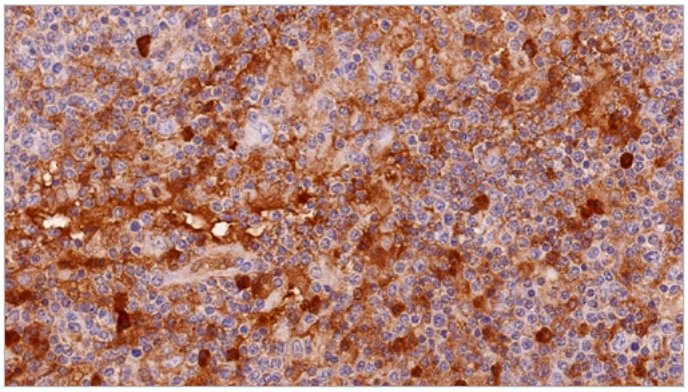
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Immunoglobulin G



Human tonsil: cytoplasmic staining of the plasma myeloma cells. Immunoglobulin G: clone RWP49

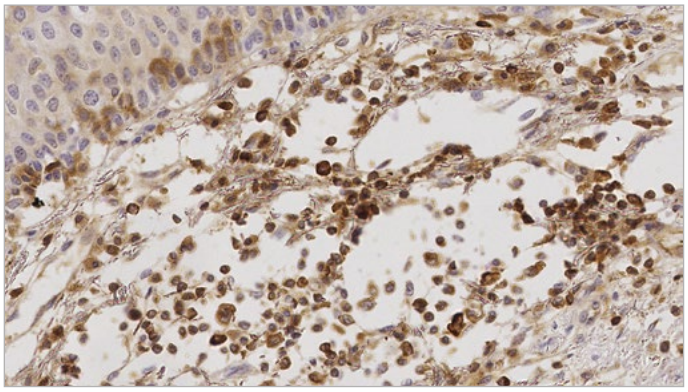
RWP49

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0905	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-IgG	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The human immunoglobulins consist of two identical heavy chains (~50 kD) and two identical light chains, which are linked together by disulphide bonds. The light chains can be either kappa or lambda. The five immunoglobulins IgA, IgD, IgE, IgG and IgM differ in their heavy chains, and IgA and IgM differ as they can occur in polymeric forms. The heavy chain of IgG is named the gamma-chain. In humans, IgG consists of four sub classes that differ only marginally in their amino acid composition. Antibodies to IgG have been reported to be useful in the identification of plasma cells, lymphoid cells containing IgG and classifying B cell derived neoplasms. The normal B cell population is Polyclonal, expressing a range of different immunoglobulins. In contrast, the majority of B cell neoplasms are characterized by the proliferation of monoclonal cells expressing one type of light chain, whereas more than one type of heavy chain can be expressed by the same cell.

Immunoglobulin M



Normal human larynx: intense membrane staining of lymphocytes. Immunoglobulin M: clone 8H6

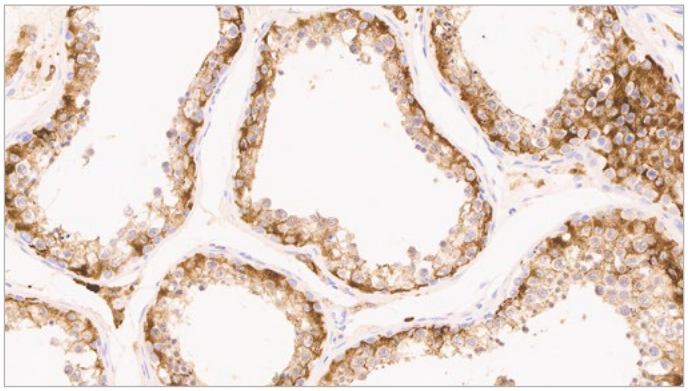
8H6

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0278	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-IgM	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

IgM, together with IgD, is the major immunoglobulin expressed on the surface of B cells and normally constitutes about 10 per cent of serum immunoglobulin. IgM antibody is prominent in early immune responses to most antigens and predominates in certain antibody responses such as natural blood group antibodies.

Inhibin Alpha



Human testis: immunohistochemical staining for Inhibin Alpha showing cytoplasmic staining of sertoli cells. Inhibin Alpha: clone R1

R1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0488	P(HIER)	IVD	IVD	IVD

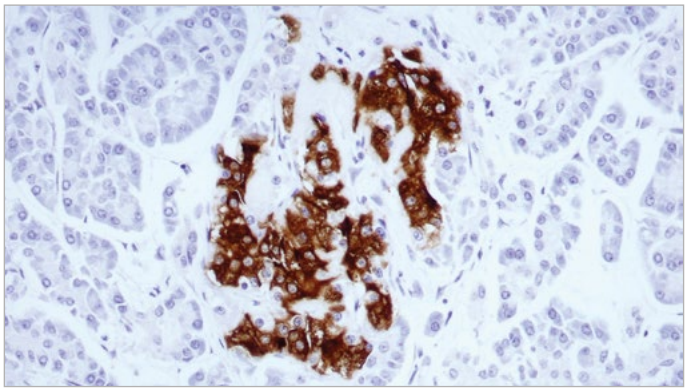
AMY82

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-InhibinA	P(HIER)	IVD	IVD	IVD

Antigen Background

Inhibins and activins are members of the transforming growth factor beta (TGF) family of cytokines. Inhibins are heterodimers consisting of a common -subunit linked to either a A subunit (- A, forming inhibin A) or a B subunit (- B, forming inhibin B). Activins share the -subunit with the inhibins and may be homo or heterodimers of -subunits forming activin A (A- A), activin AB (A- B) or activin B (B- B). The expression of the -subunit, and therefore of inhibins appears to be more restricted than that of the -subunit, and therefore of activins. Inhibins and activins play a role in the regulation of pituitary follicle stimulating hormone (FSH) secretion. The actions of inhibins and activins are thought to oppose one another, with inhibins suppressing FSH secretion and activins stimulating FSH secretion. Inhibins are secreted by granulosa cells in female follicles and Sertoli cells of the testis in the male. Inhibins are thought to have local regulatory roles in a variety of tissues, in addition to the ovary, including the brain, adrenal glands, bone marrow, fetus and placenta.

Insulin



Human pancreas: immunohistochemical staining for insulin-containing cells. Note intense cytoplasmic staining. Insulin: clone 2D11-H5

2D11-H5

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0620	P	IVD	IVD	IVD
Liquid 1 mL	NCL-L-INSULIN	P	IVD	-	-

Antigen Background

Insulin is a hormone secreted by the beta cells of the islets of Langerhans in the pancreas. It promotes glycogen storage, formation of triglycerides, and synthesis of protein and nucleic acids. Reports of immunocytochemical investigation reveal the presence of insulin in the cytoplasm of certain islet tumors. However, in some instances insulin-positive granules are sparse and form a margin against the cell membrane.

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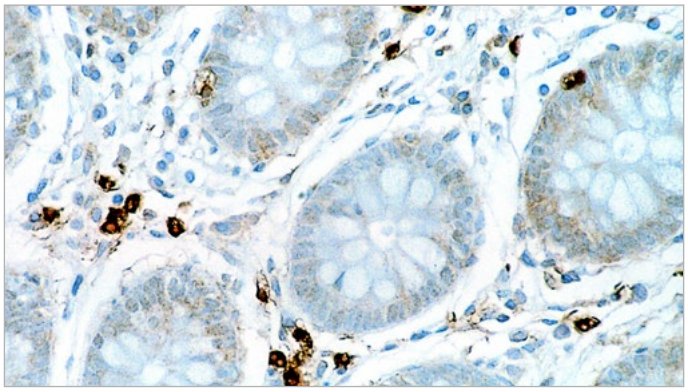
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Interleukin 6



Human colon: immunohistochemical staining for Interleukin 6. Note cytoplasmic staining of a proportion of lymphoid cells. Interleukin 6: clone 10C12

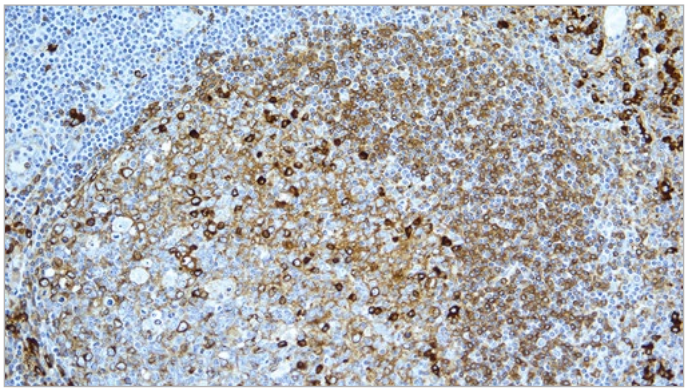
10C12

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-IL6	P	RUO	RUO	RUO

Antigen Background

IL-6 is a multifunctional cytokine that is secreted by both lymphoid and non-lymphoid cells. It plays a key role in immune responses, hematopoiesis and is an important cytokine in cell proliferation and differentiation. It may also play an important role as an autocrine growth factor in metastatic prostate cancer. IL-6 has been reported to play a role in secretion or release of pituitary hormone in pituitary hormone secreting cells and adenomas. In addition, IL-6 has been suggested to have a trophic effect in nerve cells and to have a direct pathogenic role in CNS disorders. There are an increasing number of reports that cytokines of the IL-6 family play an important regulatory role in heart physiology.

Kappa Light Chain



Human tonsil: immunohistochemical staining with Kappa Light Chain: clone CH15

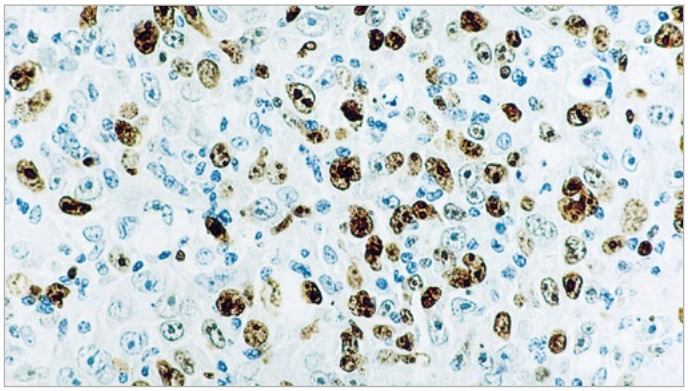
CH15

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0606	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-KAP-581	P(ENZYME)	IVD	IVD	IVD

Antigen Background

Immunoglobulins are polypeptides and comprise five major classes; immunoglobulin G (IgG), IgA, IgM, IgD and IgE. Each immunoglobulin consists of two identical heavy (H) chains and two identical light (L) chains. These are also subdivided into sub classes, for example, IgG1. There are two classes of light chain; kappa and lambda. The ratio of kappa chains and light chains varies between Ig classes and sub classes, but is also species specific. In humans, approximately 60 percent of light chains are kappa; however, in any particular immunoglobulin molecule the light chain will be either kappa or lambda. B cells contain either kappa or lambda mRNA.

Ki67 Antigen



Diffuse large B cell lymphoma: intense nuclear staining in proliferating B cells. Ki67: clone MM1

MM1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0118	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0410	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-KI67-MM1	P(HIER)	IVD	IVD/RUO	IVD/RUO

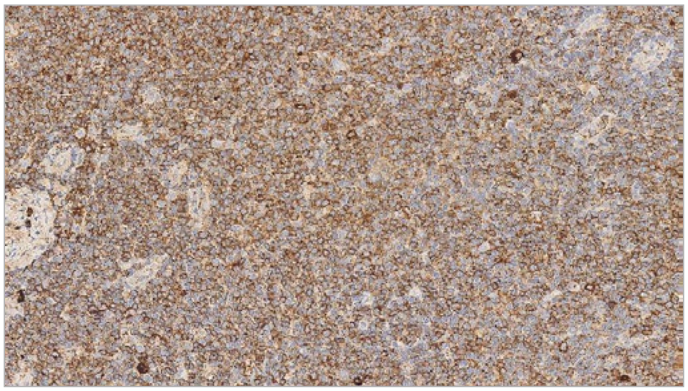
K2

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0230	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-ACK02	P (HIER)	RUO	RUO	RUO

Antigen Background

The Ki67 antigen is a nuclear protein which is expressed in all active parts of the cell cycle (G1, S, G2 and mitosis) but is absent in resting cells (G0). In contrast to many other cell cycle-associated proteins, the Ki67 antigen is consistently absent in quiescent cells and is not detectable during DNA repair processes. Thus, the presence of Ki67 antigen is strictly associated with the cell cycle and confined to the nucleus, suggesting an important role in the maintenance and/or regulation of the cell division cycle.

Lambda Light Chain



B cell chronic lymphocytic leukemia: Neoplastic cells show a moderate and distinct predominantly membrane staining reaction. Occasional plasma cells show a strong staining reaction. Lambda Light Chain: clone SHL53

SHL53

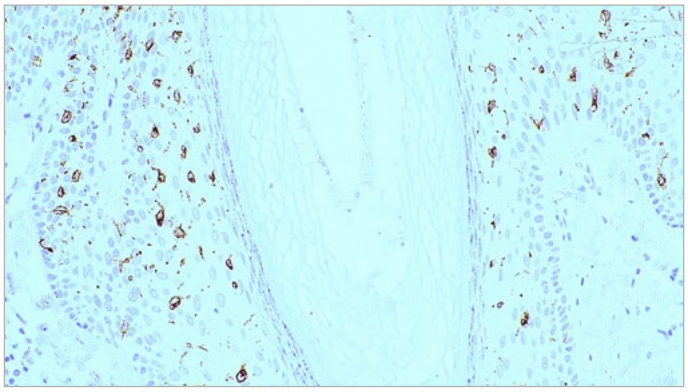
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0570	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-LAM-578	P(HIER)	IVD	IVD	IVD

Antigen Background

The basic structure of an immunoglobulin molecule consists of two identical heavy chains, either gamma, alpha, delta, or epsilon and two identical light chains, either kappa or lambda. Any heavy chain can associate with either light chain but on any immunoglobulin molecule both light chains are of the same type. The ratio of kappa and lambda light chains varies between Ig classes and subclasses. In a Polyclonal population the ratio of kappa to lambda bearing B cells is approximately 2:1, with individual B cells thought to express kappa or lambda light chains, never both. The majority of kappa and lambda chains are bound to heavy chain immunoglobulin, however in normal individuals low levels of free light chain are present in serum. The occurrence of a mixture of kappa and lambda chain expressing cells suggests a Polyclonal population and a reactive or non-neoplastic proliferation of B cells.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Langerin



Human skin: immunohistochemical staining for Langerin: clone 12D6

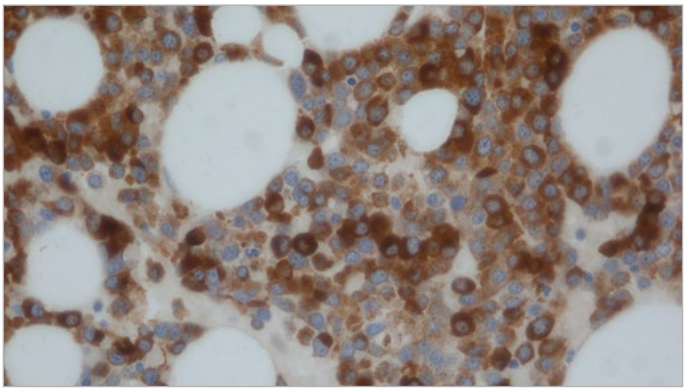
12D6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-LANGERIN	P(HIER)	IVD	-	-

Antigen Background

Langerin is a type II transmembrane C-type lectin which has mannose-binding specificity. It is a 40 kD protein restricted to Langerhans cells that is involved in the internalization of cell surface material in these immature dendritic cells. Dendritic cells are antigen-presenting cells that are required for initiation of a specific T cell-driven immune response. These cells are found in non-lymphoid tissue as immature cells whose primary function is to capture antigen through specialized surface membrane endocytic structures or through macropinocytosis. The dendritic cells migrate to secondary lymphoid tissue and mature into efficient antigen presenting cells. A part of the maturation process includes the loss of adhesion receptors such as E-cadherin and the disappearance of Birbeck granules. Although Langerin is reported to be located on the cell surface, it can be rapidly internalized following ligand capture into Birbeck granules. In fact, Langerin is a potent inducer of membrane superimposition and zippering leading to Birbeck granule formation. In reports it has been suggested that the induction of Birbeck granules is a consequence of the antigen-capture function of Langerin allowing passage into these organelles and providing access to a non-classical antigen processing pathway.

Lysozyme (Muramidase)



Bone marrow: immunohistochemical staining of myeloid cells using Lysozyme: Polyclonal

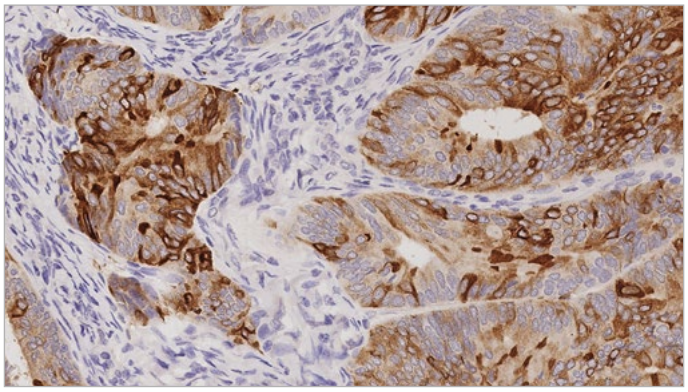
Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0391	P(ENZYME)	IVD	IVD	IVD

Antigen Background

Intracellular muramidase, also known as lysozyme, has been reported to be expressed in myeloid and monocytic cells, in leukocytes and in myelo-proliferative disorders. Muramidase is also reported to be expressed in poorly differentiated leukemic monoblasts.

Mammaglobin



Human ductal carcinoma of breast: immunohistochemical staining for Mammaglobin protein. Note cytoplasmic staining of a proportion of malignant cells. Mammaglobin: clone EP249

EP249

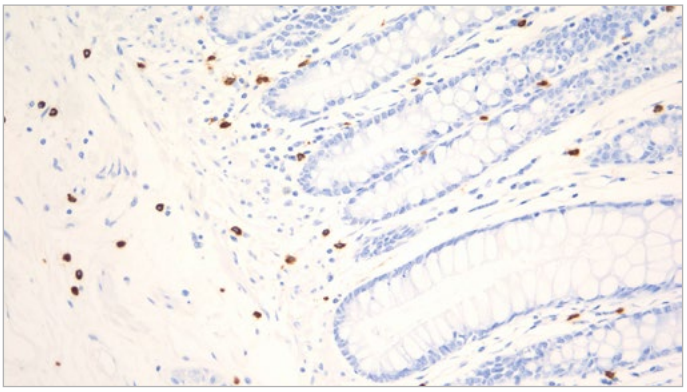
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0378	P(HIER)	IVD	IVD	IVD

Antigen Background

Mammaglobin is a 93 kDa glycoprotein that belongs to the uteroglobin family of proteins. It was first described in 1996 and found to be overexpressed in breast cancer. Published reports suggest a role for mammaglobin in the diagnosis of metastatic breast carcinoma.

Mammaglobin has been suggested as a useful marker for carcinomas of unknown primary origin, with expression unaltered from the primary site. Additional published data suggests a role for mammaglobin in the migration and invasion of breast cancer cells.

Mast Cell Tryptase



Human bowel: immunohistochemical staining for Mast Cell Tryptase. Note cytoplasmic staining of mast cells. Mast Cell Tryptase: clone 10D11

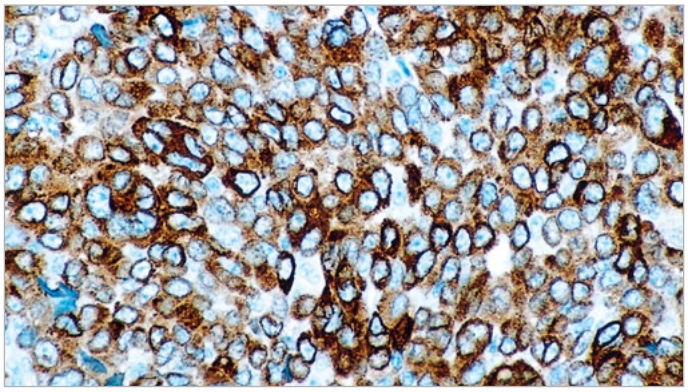
10D11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0019	P	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MCTRYP-428	P	IVD	-	-

Antigen Background

Mast cells contain a number of preformed chemical mediators such as histamine, chymase, carboxypeptidase and proteolytic tryptase. A substantial quantity of tryptase is reported to be found in mast cells of skin and lung and suggests this enzyme plays a major role in mast cell mediated events. *In vitro* studies indicate tryptase can cleave C3 to form C3a anaphylatoxin, inactivate fibrinogen as a coaguable substrate for thrombin and activate latent collagenase. Models of allergenic disease in the skin, nose and lung have each indicated elevated tryptase levels. Human mast cell tryptase has been reported to be implicated as a mediator of inflammation. Mast cell degranulation in the gut causes mucus secretion, mucosal edema, increased gut permeability and may be responsible for some of the symptoms and signs of inflammatory bowel disease.

Melan A



Human melanoma: a melanoma showing cytoplasmic staining of tumor cells.
Melan A: clone A103

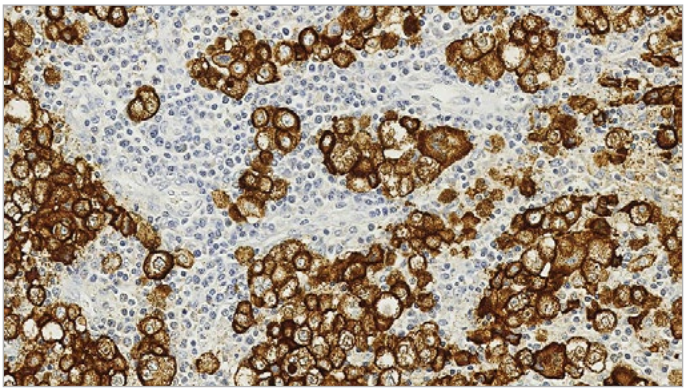
A103

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0233	P(HIER)	IVD	IVD	IVD
BOND 30 mL	PA0044	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MELANA	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Melan A, a product of the MART-1 gene, is a melanocyte differentiation marker recognized by autologous cytotoxic T lymphocytes. Other melanoma-associated markers recognized by autologous cytotoxic T cells are reported to include MAGE-1, MAGE-3, tyrosinase, gp100, gp75, BAGE-1 and GAGE-1. The analysis of these different molecules and their expression in individual melanomas may be of help in the study of their particular molecular roles in melanocyte differentiation and tumorigenesis.

Melanoma Marker (HMB45)



Human skin, melanoma: A melanoma showing strong cytoplasmic staining.
Melanoma Marker (HMB45): clone HMB45

HMB45

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0027	P(ENZYME)	IVD	IVD	IVD
BOND 30 mL	PA0625	P(ENZYME)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-HMB45	P(ENZYME)	IVD	IVD/RUO	IVD/RUO

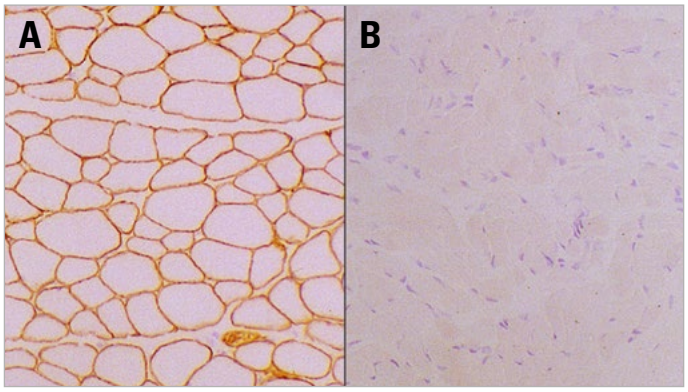
Antigen Background

The HMB45 antigen has also been identified in retinal pigment epithelium (RPE) but is reported to be reactive only with the transient prenatal and infantile RPE. No reaction is reported to be observed with intradermal nevi and normal adult melanocytes and non-melanocytic cells.

Tumor cells of epithelial, lymphoid, glial and mesenchymal origin are reported to be negative. This clone is well described in the literature. It is indicated to label an intracytoplasmic antigen in the majority of melanomas and other tumors demonstrating melanoma/melanocytic differentiation.

The clone is also reported to react with junctional and blue nevus cells. (Bacchi CE et al., A Review. Applied Immunohistochemistry. 4:73-85 (1996)).

Merosin Laminin Alpha 2 Chain



Human skeletal muscle: immunohistochemical staining for Merosin. Note membrane staining of normal muscle fibers (A) and absence of staining of muscle fibers in an individual with chromosome 6-linked congenital muscular dystrophy (B). Frozen sections. Photographs supplied courtesy of Dr Louise V B Anderson. Merosin Laminin Alpha 2 Chain: clone Mer3/22B2

Mer3/22B2

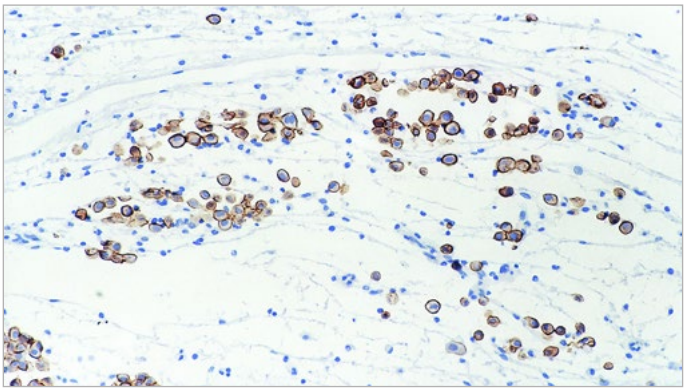
FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-MEROSIN	F	IVD	IVD	IVD

Antigen Background

The muscle-specific form of laminin, merosin, is composed of three chains: alpha 2, beta 1 and gamma 1.

Mutations in the chromosome 6 encoded gene for the laminin alpha 2 chain of merosin are responsible for a form of congenital muscular dystrophy (CMD). Merosin-negative CMD is characterized by a severe clinical phenotype and is associated with white matter changes on brain imaging.

Mesothelin



Human mesothelioma: immunohistochemical staining for Mesothelin. Note intense membrane staining of tumor cells. Mesothelin: clone 5B2

5B2

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0373	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MESO	P(HIER)	IVD	IVD	IVD

Antigen Background

Mesothelin is a glycosyl-phosphatidylinositol-linked (GPI) glycoprotein of 40kD present on the surface of mesothelial cells, mesotheliomas, epithelial ovarian cancers and some squamous cell carcinomas. It is synthesized as a 69 kD precursor which is enzymatically processed into an N-terminal secreted form of 30 kD and the GPI-linked membrane-bound form of 40 kD. The secreted form is identical to the megakaryocyte potentiating factor, but it is the GPI-linked membrane-bound form which has generated interest. Mesothelin is abundantly expressed in the kidney and in occasional epithelial cells of the trachea, tonsil and fallopian tube. The function of mesothelin is unclear but it may have a role in cellular adhesion. Mesothelin is reported to be abundant in the normal mesothelial cells from which malignant mesotheliomas and ovarian cystadenocarcinomas are derived.

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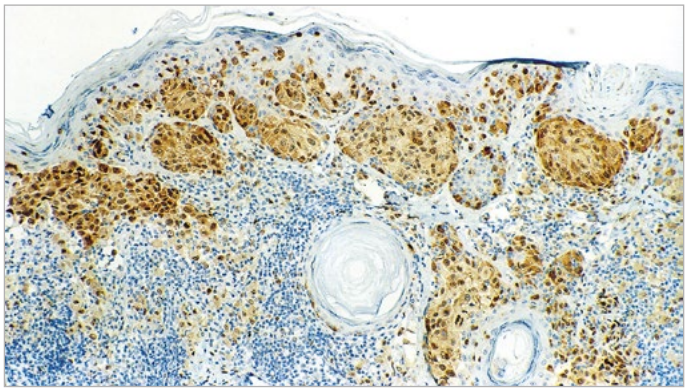
Microphthalmia Transcription Factor (MITF)



Human malignant melanoma: immunohistochemical staining for Microphthalmia Transcription Factor. Note nuclear staining of melanoma cells. Microphthalmia Transcription Factor: clone 34CA5

34CA5

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-MITF	F;P(HIER)	RUO	RUO	RUO

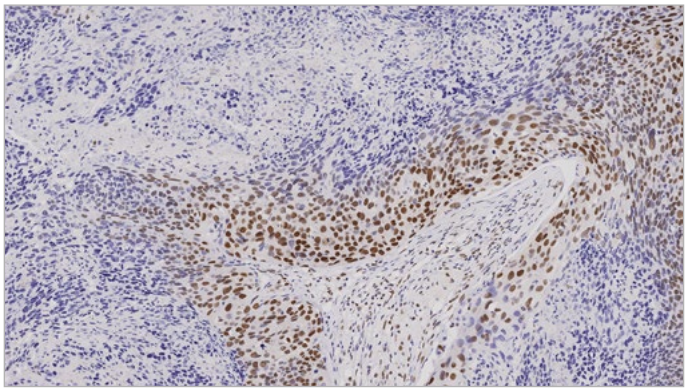
Antigen Background

Microphthalmia transcription factor (MITF) gene product, a nuclear transcription factor of the basic-helix-loop-helix type, is thought to play a role in the regulation of genes encoding the enzymes necessary for melanogenesis. These include tyrosinase, TRP-1 and TRP-2. MITF is critical for the embryonic development and postnatal viability of melanocytes. The melanocyte-specific isoform of microphthalmia transcription factor MITF-M, is reported to be expressed in normal and malignant melanocytes. The other isoforms, MITF-A, MITF-C and MITF-H, differ structurally at the N-terminus from MITF-M.

Product Specific Information

Clone 34CA5 is reported to be reactive with the MITF-M isoform.

Mismatch Repair Protein (MLH1)



Human squamous cell carcinoma: immunohistochemical staining for Mismatch Repair Protein (MLH1). Note nuclear staining in a high proportion of malignant cells. Mismatch Repair Protein (MLH1): clone ES05

ES05

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0610	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MLH1	P(HIER)	IVD	IVD	IVD

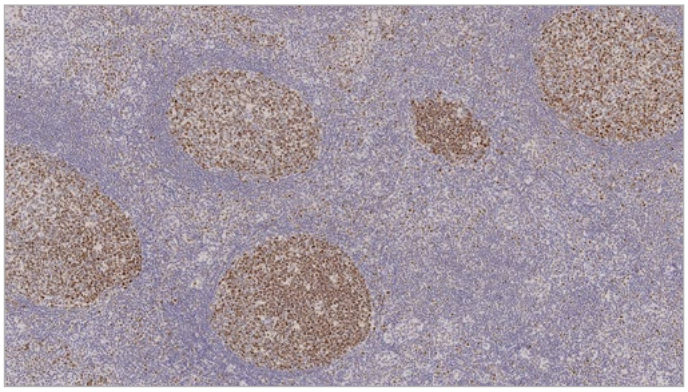
Antigen Background

MLH1, a mismatch repair protein involved in maintaining the integrity of genetic information, alongside MSH2, MSH6 and PMS2. During DNA replication, strand misalignment can occur resulting in alterations to microsatellite repeats, often referred to as microsatellite instability (MSI). These defects in DNA repair pathways have been linked to human carcinogenesis. Mutations in the MLH1 gene have been reported to be found in some forms of colon cancer, a subset of sporadic carcinomas and breast cancer. Loss of expression of MLH1 has also been reported in acute lymphoblastic leukemia, endometrial carcinoma, gastric carcinoma and ovarian carcinoma.

Product Specific Information

Human mismatch repair protein 2 (MSH2) is involved in the initial recognition of mismatched nucleotides during the post replication mismatch repair process. Therefore, the loss of MSH2 function leads to the accumulation of replication errors, which in turn may be responsible for the multiple mutations required for multistage carcinogenesis. MSH2 is reported to be expressed in the nuclei of cells from a variety of tissues including thyroid, heart, smooth muscle and the germinal centers of lymphoid follicles. In ileum and colon, MSH2 expression has been reported in the crypts, the cells which are undergoing rapid renewal. They are responsible for the continuous production of differentiated cells which migrate over 2 to 4 days before being sloughed into the lumen.

Mismatch Repair Protein (MSH2)



Human tonsil: nuclear staining in the majority of lymphocytes. Mismatch Repair Protein (MSH2): clone 25D12

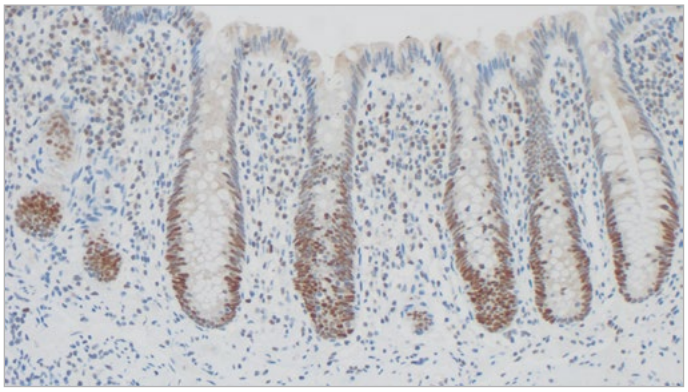
25D12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0048	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MSH2	P(HIER)	IVD	IVD	IVD

Antigen Background

Human mismatch repair protein 2 (MSH2) is involved in the initial recognition of mismatched nucleotides during the post replication mismatch repair process. Therefore, the loss of MSH2 function leads to the accumulation of replication errors, which in turn may be responsible for the multiple mutations required for multistage carcinogenesis. MSH2 is reported to be expressed in the nuclei of cells from a variety of tissues including thyroid, heart, smooth muscle and the germinal centers of lymphoid follicles. In ileum and colon, MSH2 expression has been reported in the crypts, the cells which are undergoing rapid renewal. They are responsible for the continuous production of differentiated cells which migrate over 2 to 4 days before being sloughed into the lumen.

Mismatch Repair Protein (MSH6)



Human bowel: immunohistochemical staining for Mismatch Repair Protein (MSH6): clone PU29

PU29

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-MSH6	P(HIER)	IVD	IVD	IVD

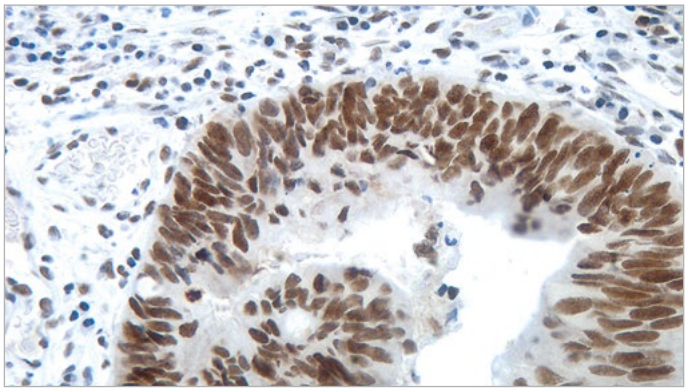
Antigen Background

MSH6 is a 160 kD protein which is involved in DNA mismatch repair (MMR) and recombination pathways, when heterodimerized with MSH2. Defects in mismatch repair systems can cause mutations and can cause DNA microsatellite sequences to become unstable. Immunohistochemical studies have reported that MSH6 is strongly expressed in the nucleus of cells in normal colonic epithelium, especially in crypts. Expression is also found in lymphocytes. Studies have also shown that MSH6 is expressed in gastric carcinomas and endometrial carcinomas. However, sometimes expression can be lost in some endometrial carcinomas and colonic carcinomas with microsatellite instability.

Product Specific Information

The use of PBS-based diluents may result in increased background staining.

Mismatch Repair Protein (PMS2)



Human colonic carcinoma: immunohistochemical staining for PMS2. Mismatch Repair Protein (PMS2): clone M0R4G

M0R4G

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-PMS2	P(HIER)	IVD	IVD	IVD

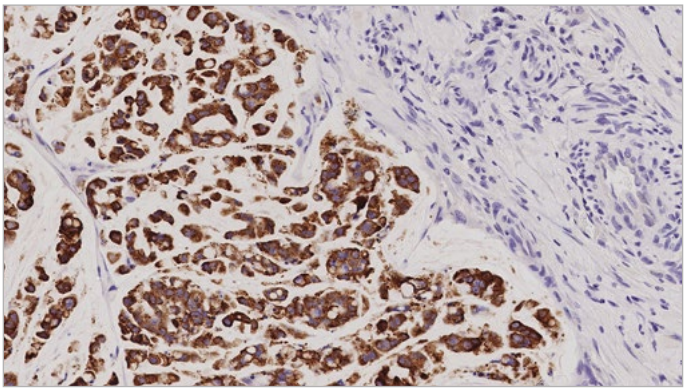
Antigen Background

Postmeiotic segregation increased 2 (PMS2), also known as PMS1 protein homologue 2, is a DNA mismatch repair (MMR) protein. The PMS2 gene family members are found in clusters on chromosome 7. PMS2 is a 96 kDa mismatch repair protein closely related to MLH1, MLH3 and PMS1, which are homologs of the bacterial mutL gene. The PMS2 protein forms a heterodimer with the MLH1 protein which is then activated in the presence of ATP; this complex coordinates the binding of other proteins that repair DNA errors arising during cell preparation for cell division.

The loss of PMS2 expression in tumors can be helpful in identifying hMLH1 mutation carriers and identifies their suitability for mutation analysis.

PMS2 gene defects account for a small but significant proportion of colorectal cancers and for a substantial proportion of tumors with microsatellite instability.

Muc-2 Glycoprotein



Immunohistochemical staining for Muc-2 Glycoprotein: clone Ccp58

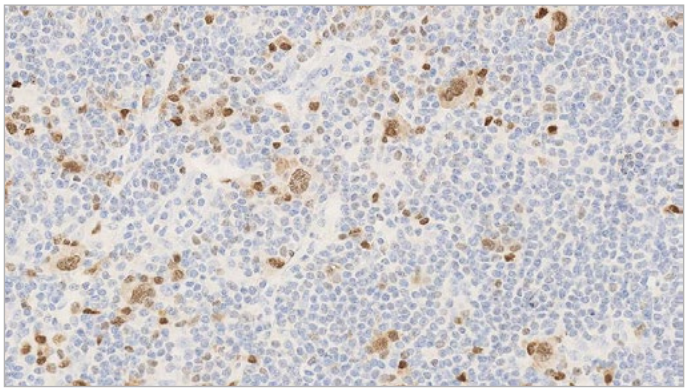
Ccp58

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0155	P(HIER)	IVD	IVD	IVD

Antigen Background

Mucins are heavily glycosylated proteins which constitute the major components of mucus covering the surface of epithelial tissues. Nine distinct epithelial mucin genes (Muc-1, 2, 3, 4, 5AC, 5B, 6, 7 and 8) have been identified. Various immunohistochemical and *in situ* hybridization studies have reported that these mucins are differentially expressed in epithelia with cell-type specificity. Muc-2 glycoprotein is not expressed in normal gastric mucosa.

Multiple Myeloma Oncogene 1 (MUM-1)



Hodgkin's lymphoma: A moderate to strong predominantly nuclear staining reaction is seen in the Reed-Sternberg cells and plasma cells. Multiple Myeloma Oncogene 1 (MUM-1): clone EAU32

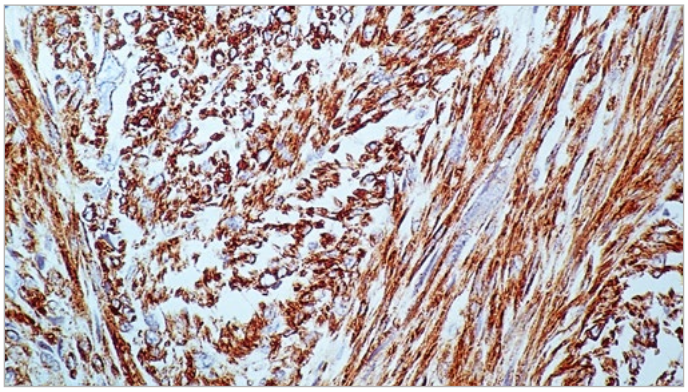
EAU32

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0129	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MUM1	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The MUM-1 (multiple myeloma oncogene 1) gene was originally identified because of its involvement in the t(6:14) translocation observed in multiple myeloma, which causes the juxtaposition of the MUM-1 gene to the Ig heavy chain locus. MUM-1 is expressed in late plasma cell directed stages of B cell differentiation and in activated T cells, suggesting that MUM-1 may serve as a marker for lympho-hemopoietic neoplasms derived from these cells. The morphologic spectrum of MUM-1 expressing cells has been found to range from that of a centrocyte to that of a plasmablast/plasma cell. Consequently the histogenic value of MUM-1 may be to provide a marker to aid in the identification of the transition from BCL-6 positive (germinal center B cells) to CD138 positive (immunoblasts and plasma cells).

Muscle Specific Actin



Human leiomyosarcoma: immunohistochemical staining for Muscle Specific Actin. Muscle Specific Actin: clone HHF35

HHF35

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0258	P	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MSA	P(ENZYME)	IVD	-	-

SC28

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-MSA-594	P(HIER)	IVD	IVD	IVD

Antigen Background

Muscle Specific Actin (MSA) is a highly conserved, ubiquitous protein found in muscle and some non-muscle cells. Actins can be divided into three subsets, alpha actins found in muscle tissue cells, beta and gamma actins found in non-muscle cells and a small subset of gamma actins also found in muscle tissue cells. In normal tissues, expression is found in striated fibers of skeletal muscle, smooth muscle in arteries, veins and pericytes of smaller arteries, muscle in bowel, myometrium of the uterus, prostatic stroma, capsule cells of liver, kidney, lymph node and spleen, the myoepithelial layers of mammary ducts and glands, eccrine sweat glands and salivary glands. Expression is not found in epithelial cells, lymphoid cells, macrophages, connective tissue and neuronal cells. In neoplastic tissues, expression can be found in soft tissue tumors with muscle differentiation, for example, leiomyomas, leiomyosarcomas and rhabdomyosarcomas of varying subtypes. Non-muscle sarcomas, carcinomas, melanomas and lymphomas do not express muscle specific actin.

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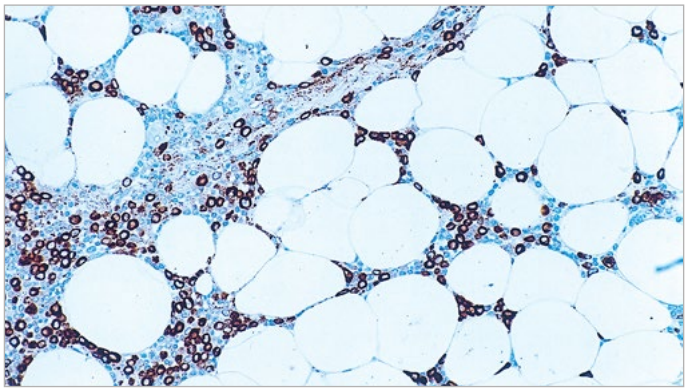
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Myeloperoxidase



Human bone marrow, granulocytic sarcoma: immunohistochemical staining for Myeloperoxidase. Note intense cytoplasmic staining of malignant myeloid cells. Myeloperoxidase: clone 59A5

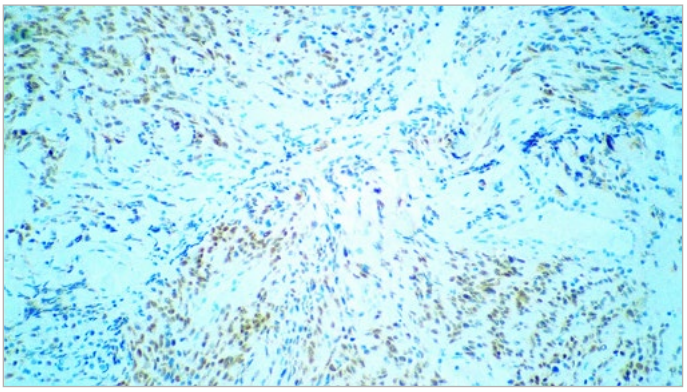
59A5

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0491	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-MYELO	P	IVD	-	-

Antigen Background

Myeloperoxidase is a lysosomal enzyme found in cells of the myeloid series which metabolizes most of the hydrogen peroxide generated by activated phagocytes. It is a major constituent of azurophilic cytoplasmic granules that uses hydrogen peroxide to oxidize a variety of aromatic compounds and chloride ions to hypochlorous acid (HOCl), a strong oxidant. HOCl is the most bacteriocidal oxidant known to be produced by neutrophils. HOCl reacts with proteins to form cytotoxic chloramines. Myeloperoxidase is reported to be a major component in all myeloid cells, including mature granulocytes and is a superior marker to myeloperoxidase mRNA, whose level decreases with the maturation of the cell and is not detectable from the myelocyte stage onwards. Myeloperoxidase is reported to be expressed in neutrophil granulocytes and monocytes in blood, in precursors of granulocytes in the bone marrow and in Kupffer cells of the liver.

MyoD1 (Rhabdomyosarcoma)



Human rhabdomyosarcoma: immunohistochemical staining for MyoD1 protein. Note staining of a proportion of tumor cell nuclei. MyoD1: clone 5.8A

5.8A

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-MyoD1	P(HIER)	IVD	-	-

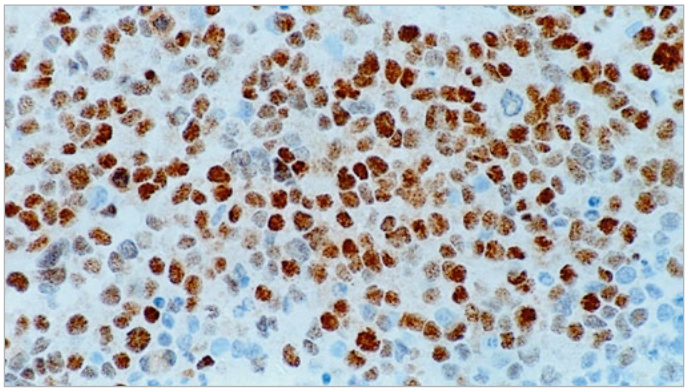
Antigen Background

The murine MyoD1 gene encodes a phosphoprotein of 45 kD, the function of which may include the commitment, differentiation and maintenance of the myogenic lineage. MyoD1 is not expressed in normal adult tissue but is reported to be highly expressed in rhabdomyosarcomas.

Product Specific Information

MyoD1 recognizes an epitope near the C-terminus of the MyoD1 protein (amino acids 180 to 189).

Myogenin (Myf-4)



Human rhabdomyosarcoma: immunohistochemical staining for Myf-4 protein. Note staining of a proportion of tumor cell nuclei. Myogenin: clone LO26

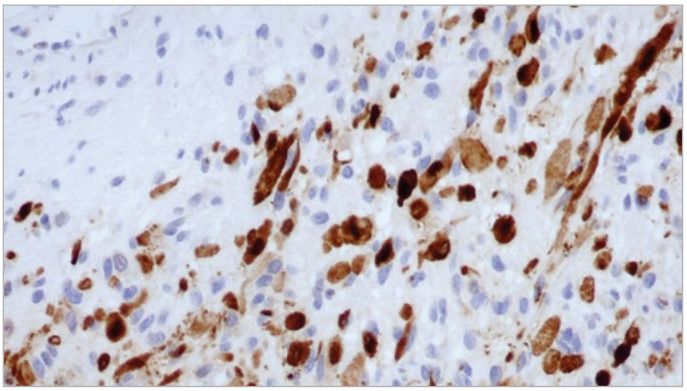
LO26

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0226	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-Myf-4	P(HIER)	IVD	IVD	IVD

Antigen Background

Rhabdomyosarcomas are a class of myoblast-derived soft tissue sarcomas that usually express a number of muscle-specific genes and primarily affect children and young adults. Differentiation of myogenic cells is controlled by a set of regulatory genes including MyoD1, myogenin, Myf-5 and Myf-6. Myf-4 is the human homolog of myogenin. Its gene product, together with that of Myf-3, accumulates in the nucleus of differentiated cells.

Myoglobin



Human rhabdomyosarcoma: immunohistochemical staining for myoglobin. Note: nuclear staining. Myoglobin: clone MYO18

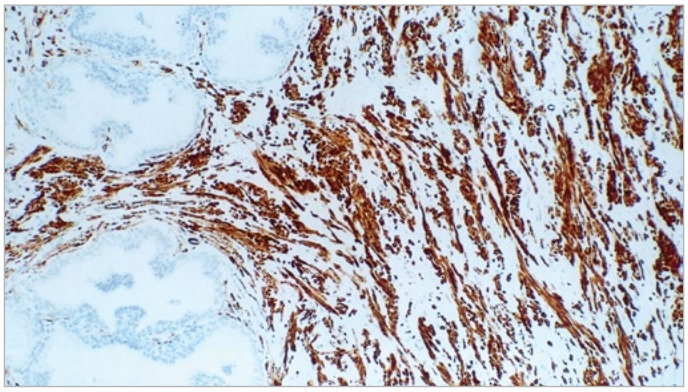
MYO18

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0727	P(HIER)	IVD	IVD	IVD

Antigen Background

Myoglobin is a cytoplasmic, single chain polypeptide of 153 amino acids that contains a single heme group. Myoglobin is reported to be expressed in skeletal and cardiac muscle but not in smooth muscle and functions as an oxygen transporting pigment.

Myosin Heavy Chain Antibodies



Human prostate: immunohistochemical staining for Myosin Heavy Chain. Note intense staining of muscle fibers. Myosin Heavy Chain Antibodies (smooth muscle): clone S131

Smooth muscle: clone S131

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0493	P(HIER)	IVD	IVD	IVD

Developmental: clone RNMy2/9D2

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-MHCd	F	RUO	RUO	RUO

Fast: clone WB-MHCf

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-MHCf	F	RUO	RUO	RUO

Neonatal: clone WB-MHCn

FORMAT	CODE	USAGE	US	EU*	ROW*
Lyophilized 1 mL	NCL-MHCn	F	RUO	RUO	RUO

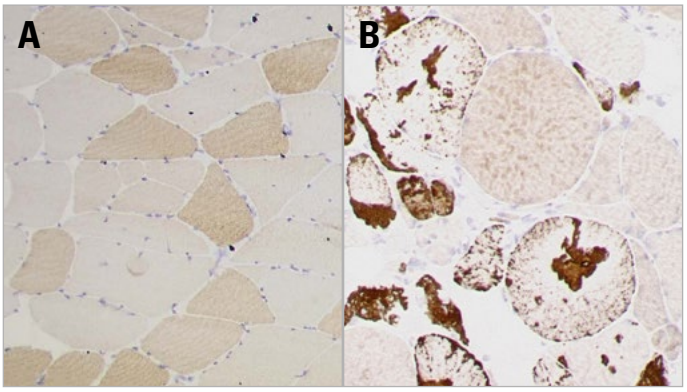
Slow: clone WB-MHCs

FORMAT	CODE	USAGE	US	EU*	ROW*
Lyophilized 1 mL	NCL-MHCs	F	RUO	RUO	RUO

Antigen Background

Myosin is a contractile muscle specific protein composed of two heavy and four light chains. The myosin heavy chain has many isoforms which are specific for different muscles or fiber types, some of which are developmentally regulated. The range of myosin heavy chain antibodies may prove useful for investigating development of intrafusal and extrafusal muscle fibers and the course of muscle fiber regeneration. At the ultrastructural level, antibodies can reveal architectural details of the myofilament as well as the cytoplasmic and membrane sites of new myosin integration.

Myotilin



Human skeletal muscle: immunohistochemical staining for Myotilin. Note sarcoplasmic staining of normal muscle fibers (A) and presence of protein aggregates in an individual with myofibrillar myopathy (B). Myotilin: clone RSO34

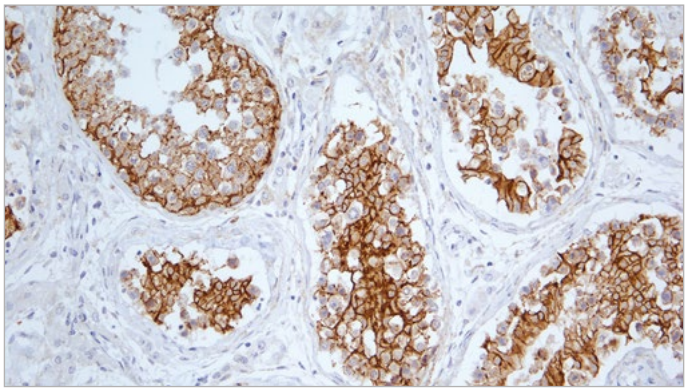
RSO34

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-MYOTILIN	F;P(HIER)	RUO	RUO	RUO

Antigen Background

The myotilin gene on chromosome 5q31 encodes a 498 amino acid polypeptide with a molecular weight of 57kD. Myotilin is a structural protein of sarcomeric Z discs and sarcolemma in human skeletal and cardiac muscle. It is homologous to palladin and titin in the two C-terminal Ig-domains and also to palladin in its unique serine-rich N-terminal region. Myotilin interacts with alpha-actinin, actin and gamma-filamin. Mutations in the myotilin gene are associated with limb-girdle muscular dystrophy 1 A (LGMD1A) and one form of Myofibrillar Myopathy. It is highly conserved between human and mouse with its expression being more widespread in the embryo than in the adult. Expression of myotilin has been reported in adult skeletal and cardiac muscle with variable expression reported in the peripheral nervous system, lung, liver and kidney. NCL-MYOTILIN will be of use in studies to determine the expression of myotilin in normal and pathological tissues.

N-Cadherin



Human testis: immunohistochemical staining for N-Cadherin. Note cytoplasmic and membrane staining of Sertoli cells. N-Cadherin: clone IAR06

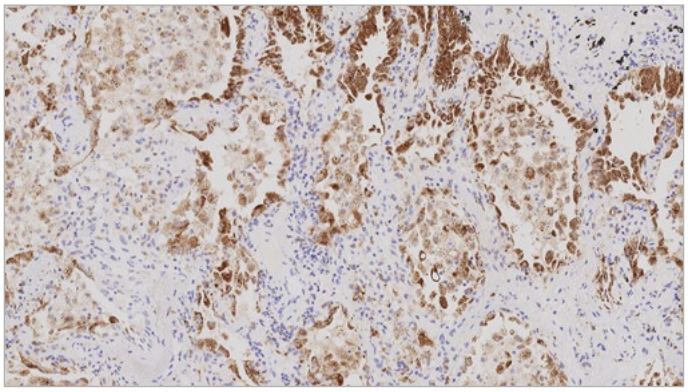
IAR06

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-N-CAD	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

N-Cadherin is a member of the cadherin family of calcium dependent cell adhesion molecules. The classical cadherins include the E, N, R, P and VE-Cadherins which are believed to be expressed in a tissue specific manner. The classical cadherins have a characteristic structure comprising an extracellular calcium-binding domain, consisting of five repeats, a transmembrane domain and a highly conserved cytoplasmic domain, which mediates interactions with cytoskeletal components of the cell via interactions with intracellular proteins including the catenins. Cadherins play an important role in cell-cell adhesion, and are implicated in segregation and aggregation of tissues during development. N-Cadherin is reported to be expressed in various cell types including neural, myocardial and mesenchymal cells.

Napsin A



Human papillary lung adenocarcinoma: Punctate cytoplasmic staining of malignant cells and infiltrating macrophages. Napsin A: clone IP64

IP64

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0064	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-NAPSINA	P(HIER)	IVD	IVD	IVD

Antigen Background

Napsin A has a specific function in normal alveolar epithelium and is proposed to play a role in the proteolytic processing of surfactant precursors.

Napsin A is reported to be predominantly expressed in lamellar bodies of type II pneumocytes, secondary lysosomes of alveolar macrophages, respiratory epithelium of terminal and respiratory bronchioles, plasma cells, within a subset of lymphocytes in normal lung, as well as in epithelial cells of renal tubules in normal kidney and is weakly expressed in normal spleen.

Studies have reported that Napsin A is expressed in 90 percent of primary lung adenocarcinomas.

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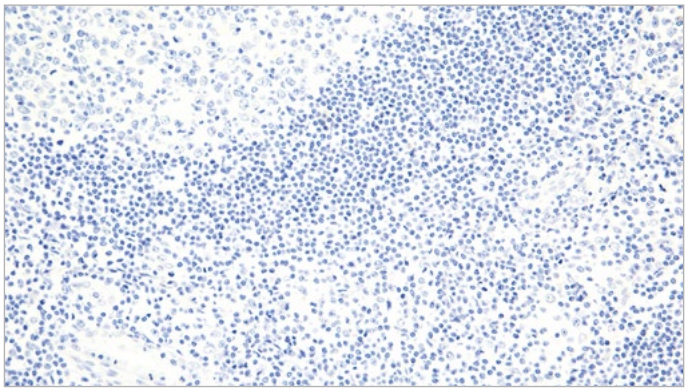
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Negative Control (Mouse)



Human tonsil: immunohistochemical staining with BOND Ready-To-Use Negative Control (Mouse) using BOND Polymer Refine Detection. Negative Control (Mouse): clone MOPC-21

MOPC-21

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0996	P	IVD	IVD	IVD

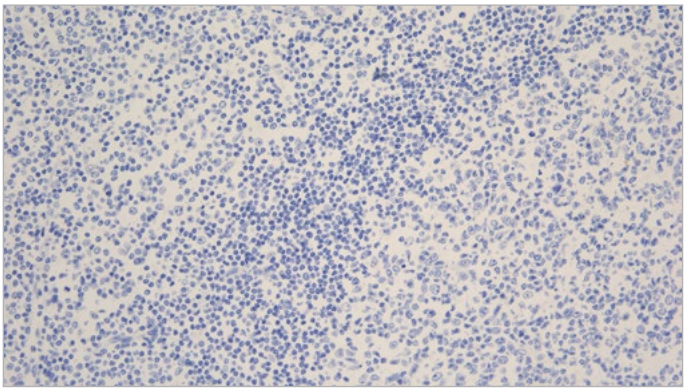
Antigen Background

In some tissues, non-specific binding may occur, especially in neoplastic or necrotic tissue.

Product Specific Information

The use of Negative Control (Mouse) antibody is recommended to aid in the identification of cells, tissues or tissue components, which may non-specifically bind mouse antibodies and will allow better interpretation of specific staining at the antigenic site.

Negative Control (Rabbit)



Human tonsil: immunohistochemical staining with BOND Ready-To-Use Negative Control (Rabbit) using BOND Polymer Refine Detection. Negative Control (Rabbit)

-

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0777	P	IVD	IVD	IVD

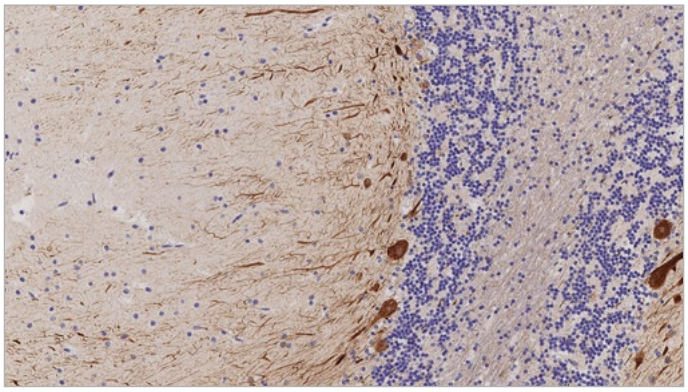
Antigen Background

In some tissues, non-specific binding may occur, especially in neoplastic or necrotic tissue.

Product Specific Information

The use of Negative Control (Rabbit) antibody is recommended to aid in the identification of cells, tissues or tissue components, which may non-specifically bind rabbit antibodies and will allow better interpretation of specific staining at the antigenic site.

Neurofilament 200kD



Human brain: cytoplasmic staining of the neurons and their axons. Neurofilament 200kD: clone N52.1.7

N52.1.7

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0371	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-NF200-N52	P(HIER)	IVD	IVD	IVD

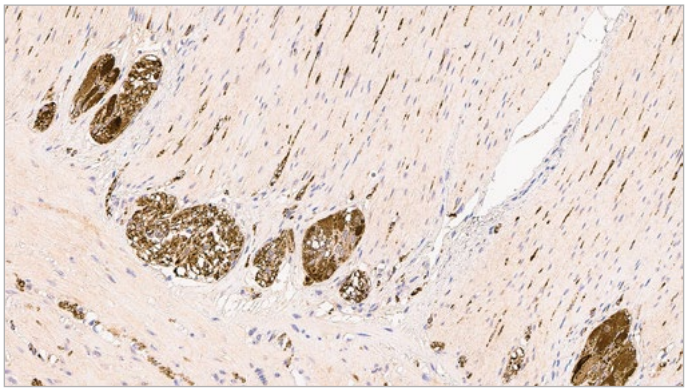
Antigen Background

Neurofilaments constitute the main structural elements of neuronal axons and dendrites. Neurofilaments are composed of three major subunits referred to as the neurofilament triplet, with molecular weights of 68 kD, 160kD and 200 kD.

Neurofilaments are composed of three major subunits referred to as the neurofilament triplet, with molecular weights of 68 kD, 160kD and 200 kD.

Within tumors, only neoplastic cells of neural origin or those exhibiting neuronal differentiation, have been reported to express neurofilaments.

Neuron Specific Enolase



Immunohistochemical staining of large/small bowel. Neuron Specific Enolase (NSE) staining in the neuronal elements and the ganglia of the longitudinal and circular smooth muscle. Neuron Specific Enolase: clone 22C9

22C9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0435	P(HIER)	IVD	IVD	IVD

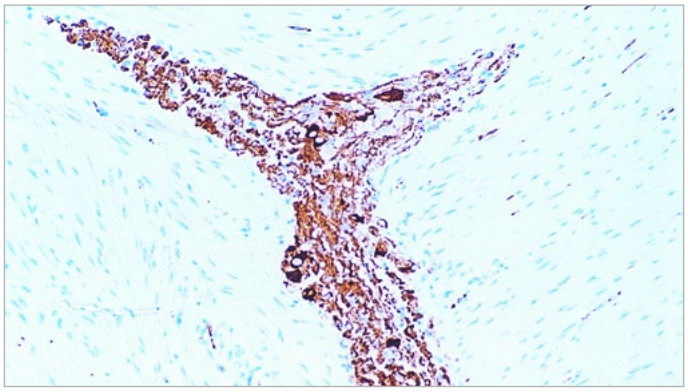
Antigen Background

Enolase is a glycolytic enzyme catalyzing the reaction pathway between 2-phosphoglycerate and phosphoenol pyruvate. In mammals, enolase molecules are dimers composed of three distinct subunits (alpha , beta and gamma) whereas, in rats, five forms have been found. The alpha subunit and beta subunit are of approximately 47 kD and 45 kD, respectively. The gamma gamma and alpha gamma enolases are located mainly in the nervous tissue and neuroendocrine cells.

Product Specific Information

Clone 22C9 reacts with the gamma subunit of the enolase isoenzyme.

Nitric Oxide Synthase 1



Human small intestine: immunohistochemical staining for Nitric Oxide Synthase 1. Note cytoplasmic staining of enteric ganglia. Nitric Oxide Synthase 1: clone NOS-125

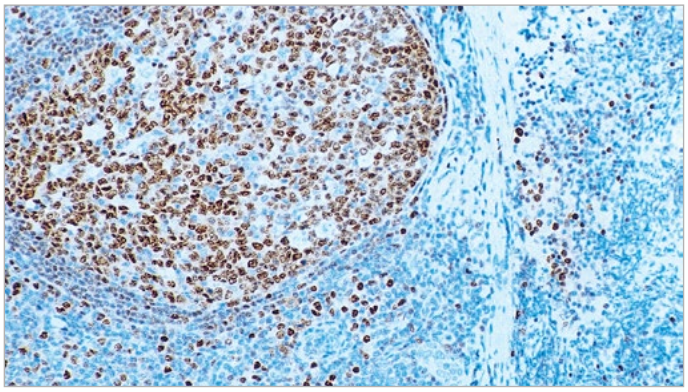
NOS-125

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-NOS-1	P(HIER)	IVD	-	-

Antigen Background

Human nitric oxide synthases are a family of enzymes responsible for the synthesis of nitric oxide (NO) from L-arginine and molecular oxygen. There are at least three nitric oxide synthases; NOS-1, also known as neuronal NOS or nNOS, NOS-2, which is referred to as inducible NOS or iNOS and NOS-3, also known as endothelial NOS or eNOS. As suggested by their nomenclature, these enzymes have different cellular distribution and are subjected to different regulatory mechanisms. NOS-3 is reported to be constitutively expressed and produces picomolar quantities of NO which play a role in signal transmission resulting in physiological effects. In the gastrointestinal tract, NO is reported to play a protective role where it has direct microbiocidal properties and acts as a first line of mucosal defence in the stomach. The function of NO in tumor development, promotion and progression is unclear. The effects may be both beneficial but also detrimental to those individuals with gastric cancer, where it is reported that NO supports tumor progression through the creation of neovasculature.

Oct-2



Human tonsil: immunohistochemical staining for Oct-2 gene product. Note intense nuclear staining of mainly germinal center B cells. Oct-2: clone Oct-207

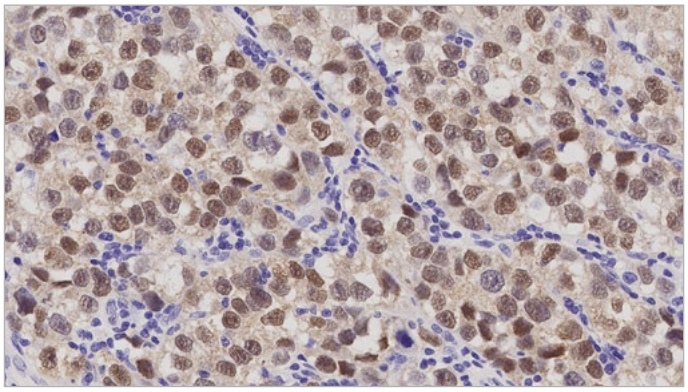
Oct-207

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0532	P(HIER)	IVD	IVD	IVD

Antigen Background

Oct-2 is a transcription factor belonging to the POU homeo-domain family that binds to the Ig gene octamer sites regulating B cell specific genes. It is dependent on the activity of B cell restricted coactivators such as BOB.1/OBF.1. Oct-2 protein expression is not restricted to B cells, although expression levels are much higher in these cells. Reports indicate that germinal center B cells shows higher expression for Oct-2 and BOB.1/OBF.1. In addition, Oct-2 expression is reported to be significantly greater in germinal center derived lymphomas, although other B cell lymphomas also display high levels of expression. Reed Sternberg (RS) cells represent the malignant cells in classical Hodgkin's disease and are derived from germinal center B cells. In a number of these cases, cells do not express immunoglobulin due to the presence of crippling mutations within the Ig genes. As Ig gene expression in B cells also requires an interaction between octamer sites and the transactivating factors Oct-2 and BOB.1, the absence of both Oct-2 and BOB.1 expression represents a novel mechanism for immunoglobulin gene deregulation in RS cells.

Oct-3/4



Human testis, seminoma: intense staining of pluripotent tumor cells. Oct-3/4: clone N1NK

N1NK

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0193	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-Oct3/4	P(HIER)	IVD	IVD	IVD

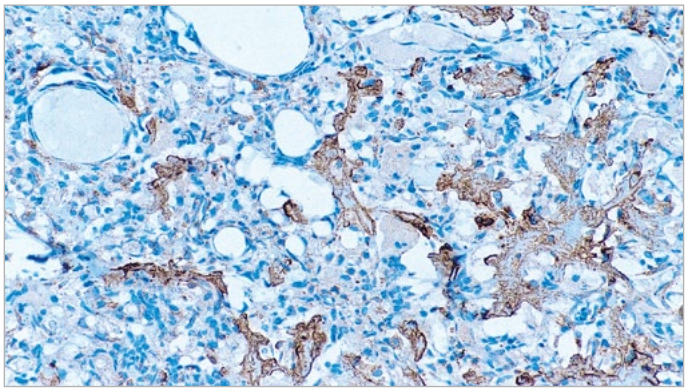
N1NK (Previous Formulation)

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0934	P(HIER)	IVD	IVD	IVD

Antigen Background

Oct3/4 is a member of the POU homeodomain family of transcription factors, which is expressed by embryonic stem cells and germ cells. A critical amount of Oct3/4 is required to maintain stem cell self replication. Down regulation of Oct3/4 levels are associated with loss of pluripotency. Oct3/4 has been proposed as a useful marker for germ cell tumors which exhibit features of pluripotentiality, including seminoma/dysgerminoma/germinoma and embryonal carcinoma, and establishing a germ cell origin for some metastatic tumors of uncertain primary tumor.

Osteopontin



Human osteosarcoma: immunohistochemical staining for Osteopontin. Note extracelluar staining in close proximity to tumor cells. Osteopontin: clone OP3N

OP3N

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-O-PONTIN	P(HIER)	IVD	-	-

Antigen Background

Osteopontin is a 34 kD extracellular matrix protein with a cell binding domain. Other molecules which share this domain include fibronectin, vitronectin and a variety of other extracellular proteins that bind members of the integrin family of cell surface receptors. Osteopontin was originally identified as a major component of the non-collagenous organic bone matrix; however, it has subsequently been demonstrated in a wide range of normal adult tissues and body fluids. It is a multifunctional protein involved in bone mineralization, cell adhesion, cell migration, chronic inflammatory disease and transformation. Osteopontin is reported to be linked to tumorigenesis and metastasis in several experimental animal models and human cancers. In breast carcinomas, demonstrated by RT-PCR and *in situ* hybridization studies, expression was confined to tumor cells. It is also reported to be expressed in normal breast, including vascular endothelial cells, macrophages, myoepithelial cells, osteosarcomas but not in lymphoid tumors. Other studies using *in situ* hybridization have shown expression in the epithelium of gastrointestinal tract, gallbladder, pancreas, urinary and reproductive tracts, lung, salivary and sweat glands. Ganglion cells in the bowel also express osteopontin, as do macrophages, T cells and NK cells upon activation. Expression of osteopontin in vascular smooth muscle and endothelium may be triggered by atherosclerosis, vascular calcification and by hypertension.

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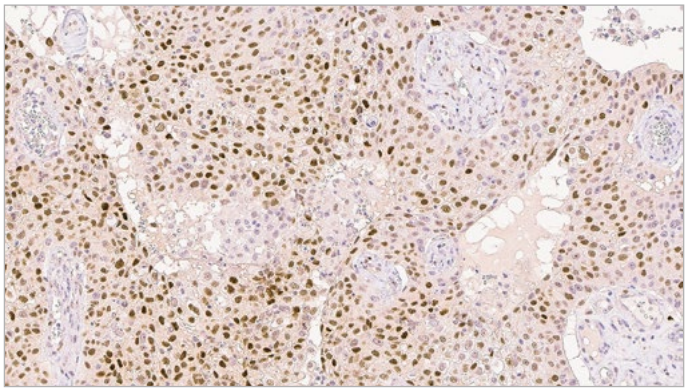
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

p21 (WAF1 Protein)



Immunohistochemical staining of p21(WAF1) in squamous cell carcinoma. p21 (WAF1 Protein): clone 4D10

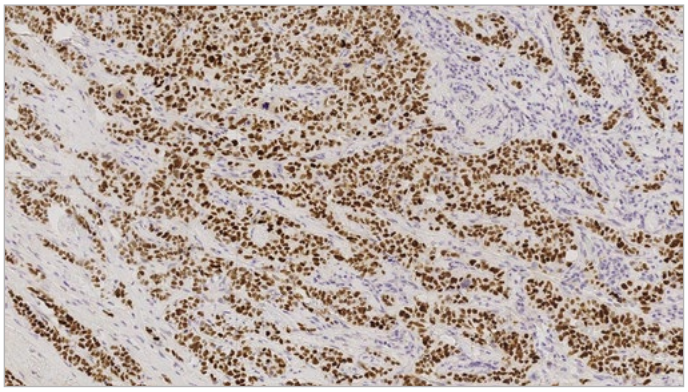
4D10

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-WAF-1	P(HIER)	RUO	RUO	RUO

Antigen Background

The gene encoding WAF1, also termed p21, is transcriptionally regulated by the suppressor protein, p53. Overexpression of WAF1 is growth suppressive, possibly by inhibiting the activity of cyclin/CDK complexes. One consequence of WAF1 binding to cyclin/CDK complexes is the inhibition of Rb protein phosphorylation. Induction of WAF1 expression requires wild type p53 activity in cells undergoing p53 dependent G1 arrest or apoptosis. Mutation of the p53 gene is a common event in human cancer and results in the failure to produce WAF1. The effect of this may lead to uncontrolled cell proliferation.

p53 Protein



Human ductal carcinoma: intense nuclear staining of tumor cells. p53: clone DO-7

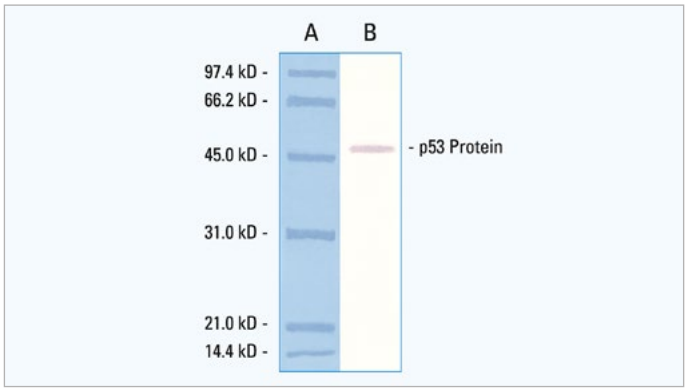
DO-7

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0057	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-p53-DO7	P	IVD	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-p53-DO7	P	IVD	IVD/RUO	IVD/RUO

Antigen Background

This monoclonal antibody recognizes both wild type and mutant forms of human p53 protein under denaturing and non-denaturing conditions. The epitope recognized by clone DO-7 can be destroyed by prolonged fixation in buffered formalin. The heat induced epitope retrieval technique may improve staining in some cases.

p53 Protein (CM5)



Western blot: detection of p53 protein (53 kD). Lane A, molecular weight markers. Lane B, T3T3 mouse cell line immunoblotted, p53 Protein (CM5): Polyclonal

Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 0.5 mL	NCL-L-p53-CM5p	P(HIER)	RUO	RUO	RUO

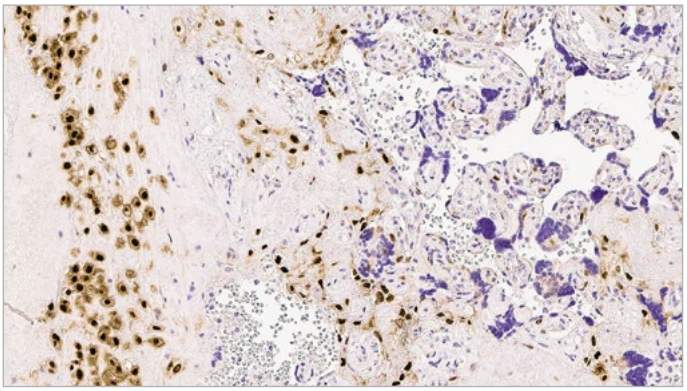
Antigen Background

The accumulation of p53 protein in response to genotoxic stress in vitro is well established and appears to induce growth arrest and apoptosis by the transcriptional regulation of other genes and possibly by other direct mechanisms.

Product Specific Information

NCL-L-p53-CM5p is specific for mouse and rat p53 protein.

p57 Protein (Kip2)



Immunohistochemical staining of p57 in the decidua of the placenta as well as the occasional trophoblast in the placental villi. p57 Protein (Kip2): clone 25B2

25B2

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-p57	P(HIER)	IVD	-	-

Antigen Background

Cyclin-dependent kinases are positive regulators of cell proliferation. p57 protein acts as a tumor suppressor to counter this. It is closely related to other CDKIs such as p21 protein (CIP1) and p27 protein (Kip1) as they share a common structural N-terminal domain for binding to CDK/cyclin complexes and inhibiting their kinase activity. Human p57 protein is found on chromosome 11p15.5, a region which is reported to be a common site for loss of heterozygosity in certain sarcomas, Wilms tumors and tumors associated with the Beckwith-Wiedemann syndrome. There is increasing interest in p57 as a marker in gestational disease. Gestational trophoblastic disease refers to a spectrum of proliferative disorders of the placental trophoblast, with a wide range of histologic appearances and clinical behaviors. Recent developments in changes in the criteria for histologic diagnosis of these lesions due to earlier clinical diagnosis have been reviewed Hui P et al., Advantages in Anatomical Pathology. 12(3): 116-125 (2005) and the ability to make more accurate diagnoses due to the introduction of newer antibodies such as p57 is discussed.

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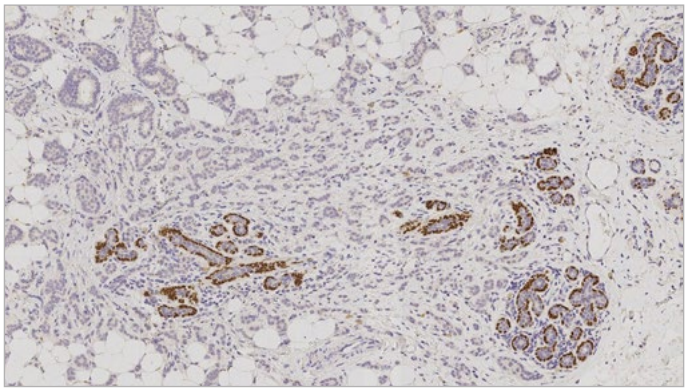
p63 Protein



Human ductal carcinoma *in situ*: Intense nuclear staining of myoepithelial cells in normal ducts only. p63: clone 7JUL

7JUL

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0103	P(HIER)	-	IVD	IVD
Liquid 1 mL	NCL-L-p63	P(HIER)	-	IVD	IVD

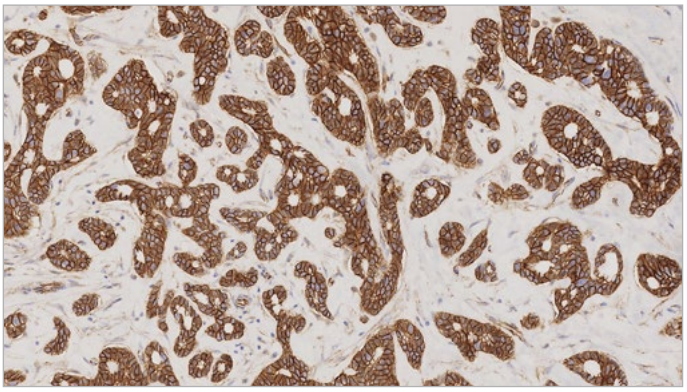
Antigen Background

p63 is a type II integral membrane protein predominantly localized in the rough endoplasmic reticulum.

p63 is reported to be expressed in a number of normal tissues including proliferating cells of the epithelium, cervix, urothelium and prostate.

p63 is also reported to be expressed in most poorly differentiated squamous cell carcinomas.

p120 Catenin



Human breast carcinoma: immunohistochemical staining for p120 Catenin antigen. Note membrane and cytoplasmic staining of malignant cells. p120 Catenin: clone EP66

EP66

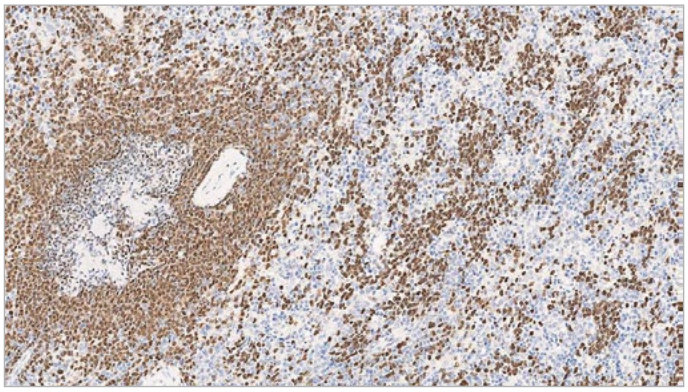
FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0379	P(HIER)	IVD	IVD	IVD

Antigen Background

p120 Catenin is a regulator of cell-cell adhesion, achieved through interaction with classical and Type II cadherins. Evidence also exists for a role in the regulation of cadherin availability on the cell surface. p120 Catenin also regulates actin dynamics, placing it as a potential master regulator of the cell motility/cell adhesion phenotypes.

Recent studies have suggested a tumor-suppression role for p120, with loss of p120 expression implicated in the development of a tumor microenvironment and induction of metastatic progression. The expression of p120 Catenin has been highlighted in early lobular breast neoplasias.

Pax-5



Pre B cell acute lymphoblastic leukemia: tumor cells show a strong, nuclear staining reaction. Pax-5: clone 1EW

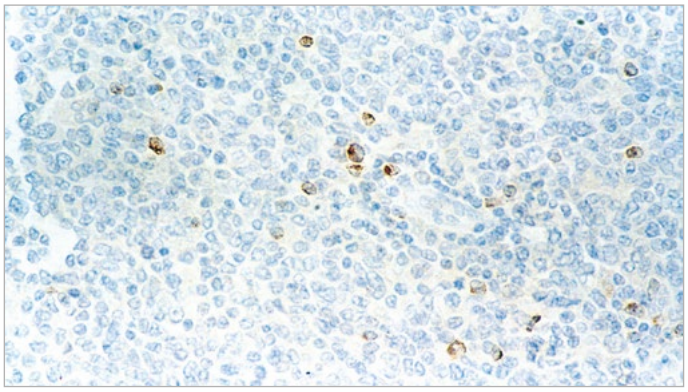
1EW

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0552	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-PAX-5	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Pax genes are a family of developmental control genes that encode nuclear transcription factors and have been implicated in the control of mammalian development. PAX-5 is a B cell specific transcription factor that is expressed in pro B cells, pre-B and mature B cells, and subsequently in all stages of B cell development until the plasma cell stage in which it is downregulated.

Perforin



Human follicular lymphoma: immunohistochemical staining for Perforin. Note focal granular staining of occasional cytotoxic T lymphocytes. Perforin: clone 5B10

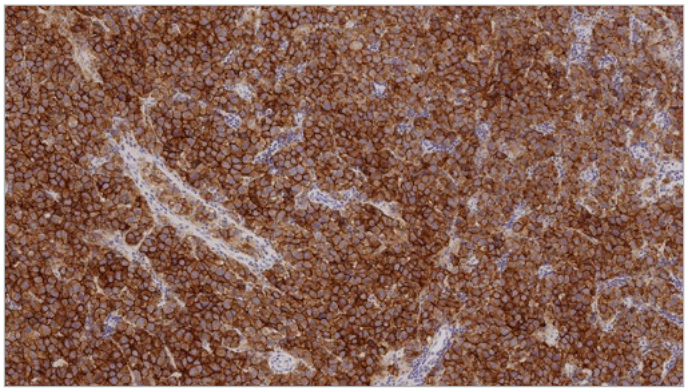
5B10

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-PERFORIN	P(HIER)	IVD	-	-

Antigen Background

Perforin is a pore-forming protein found in cytoplasmic granules of cytotoxic T-lymphocytes (CTLs). CTLs bind to cells which express foreign antigens and induce them to lyze. Perforin forms circular lesions on the target cell membrane similar to those induced by complement. Perforin and C9 share a high degree of homology particularly at the membrane spanning region. Perforin is reported to be constitutively expressed in human CD3 negative, CD56 positive NK cells, CD3 positive large granular lymphocytes and gamma/delta T cells. This expression is significantly induced in CD8 positive T cells but to a lesser extent in gamma/delta T cells and NK cells. The induction of perforin mRNA is partially blocked by the immunosuppressive drug cyclosporin A.

Placental Alkaline Phosphatase



Human seminoma: strong membrane and cytoplasmic staining of malignant cells. Placental Alkaline Phosphatase (PLAP): clone 8A9

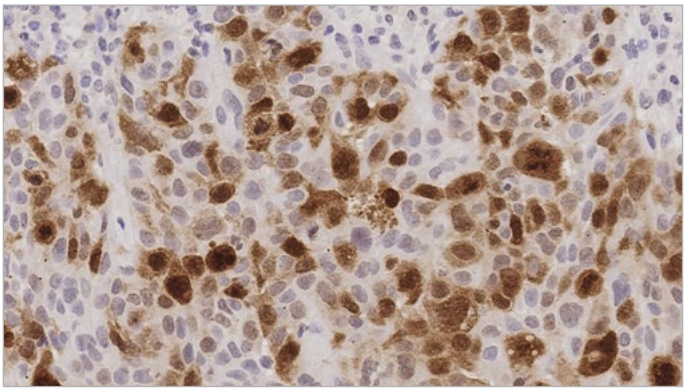
8A9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0161	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-PLAP-8A9	P(HIER)	IVD	IVD	IVD

Antigen Background

Placental Alkaline Phosphatase (PLAP) is a membrane-associated sialoglycoprotein enzyme normally present at high concentration in syncytiotrophoblasts within the placenta during the third trimester of gestation. The expression of PLAP was originally thought to be restricted to term placenta but a human PLAP-like variant has been described which shares more than 85 percent homology with PLAP itself. This high degree of homology between PLAP and PLAP-like enzyme together with cross-reacting antibodies has led to some confusion of the distribution of PLAP and PLAP-like enzyme in various tissues. PLAP is reported to be expressed only in normal term placenta, endocervix and fallopian tube and also in ovarian and proximal gastrointestinal tumors. PLAP expression is rare in malignant germ cell tumors. PLAP-like enzyme is reported to be predominantly found in normal fetal and neonatal testis, and in thymus. It is also commonly expressed in germ cell tumors and more recently described in seminomas.

Polo-Like Kinase 1 (PLK-1)



Squamous cell carcinoma of oropharangeal tissue: intense nuclear and cytoplasmic staining of a proportion of proliferating malignant cells. Polo-Like Kinase-1: clone MJS1

MJS1

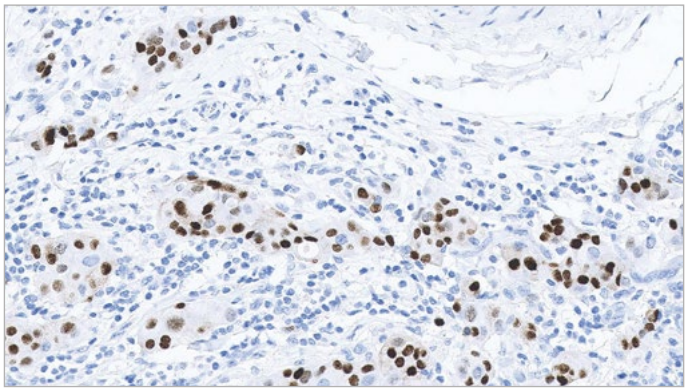
FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-PLK-1	P(HIER)	IVD	IVD	IVD

Antigen Background

Polo-Like Kinase-1 (PLK1) (also known as Serine/Threonine Protein Kinase 13) is a 66 kDa kinase. The activity of PLK-1 is crucial for mitosis and maintenance of genome stability. PLK-1 localizes to centrosomes and kinetochores where it plays a key role in late prophase and prometaphase. PLK-1 is overexpressed in many types of cancers and mediates estrogen receptor-mediated gene transcription in breast cancer cells.

Overexpression of PLK-1 is associated with tumor development, with elevated levels of expression reported in non-small cell lung cancers, head and neck, gastric, breast, ovarian, colon and several other cancer types.

Progesterone Receptor



Breast carcinoma, nuclear staining in a proportion of tumor cells. Progesterone Receptor: clone 16

16

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0312	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-PGR-312	P(HIER)	IVD	IVD	IVD
Liquid 2 mL	NCL-L-PGR-312/2	P(HIER)	-	IVD	IVD

1A6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-PGR	P(HIER)	-	IVD	IVD

Antigen Background

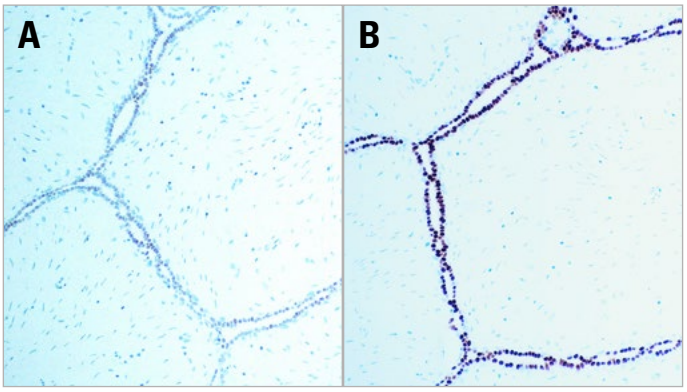
The human progesterone receptor (PR) is expressed as two isoforms, PRA (94 kD) and PRB (114 kD), which function as ligand-activated transcription factors. These two isoforms are transcribed from distinct estrogen receptor (ER)-inducible promoters within a single copy PR gene.

The PRA form is a truncated version of the PRB form, lacking the first 164 N-terminal amino acids. In humans, PRA acts as a transdominant repressor of the transcriptional activity of PRB, glucocorticoid receptor, ER, androgen receptor and mineralocorticoid receptor. PRB functions mainly as a transcriptional activator. PRB is expressed strongly in endometrial glandular and stromal nuclei in the proliferative phase of the menstrual cycle and weakly during the secretory phase and early pregnancy.

Product Specific Information

Clone 16 is specific for a region of the N-terminus of the A form of PR. The precise epitope has not been mapped but it reacts with both A and B forms of PR by Western Blot but only with the A form by immunohistochemistry. This suggests that the epitope is inaccessible in the native folded B form of the protein.

Progesterone Receptor (A/B Forms)



Human fibroadenoma (serial sections): immunohistochemical staining for progesterone receptor (A and B forms). Note a smaller proportion of weakly staining tumor cell nuclei in A compared to B. Progesterone Receptor (A/B Forms): clone 16/SAN27

16/SAN27

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-PGR-AB	P(HIER)	-	IVD	IVD

Antigen Background

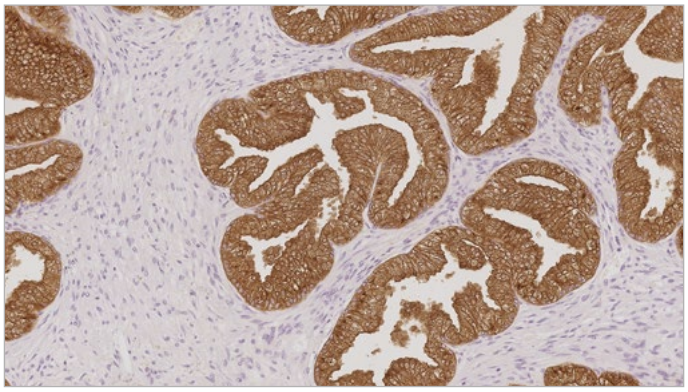
The human progesterone receptor (PR) is expressed as two isoforms, PRA (94 kD) and PRB (114 kD), which function as ligand-activated transcription factors. *In vitro* studies have indicated that PRA and PRB can activate different target genes and that PRA, in some circumstances, may act as a dominant inhibitor of the function of PRB and other steroid hormone receptors. PRA and PRB are both expressed in normal breast. Most endometrial carcinomas, however, are reported to express only one isoform with either PRA or PRB being expressed.

Product Specific Information

The cocktail has been formulated using two clones, clone 16, specific for PRA, and SAN27, specific for PRB.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Prostate Specific Antigen



Human prostatic hyperplasia: cytoplasmic and membrane staining of hyperplastic glandular epithelial cells. Prostate Specific Antigen: clone 35H9

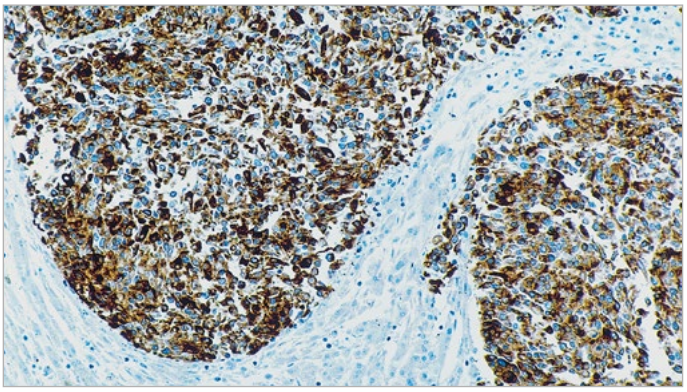
35H9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0431	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-PSA-431	P	IVD	IVD	IVD

Antigen Background

Prostate specific antigen (PSA) is a 34 kD protein belonging to the kallikrein family of serine proteases and was originally isolated and purified from human seminal plasma. It was found to be immunologically identical and biologically similar to a protein isolated from the prostate gland. PSA is distinct from prostatic acid phosphatase. Low levels of expression of PSA have been reported in non-prostatic tissues and tumors such as breast carcinomas.

Prostate Specific Membrane Antigen



Immunohistochemical staining for Prostate Specific Membrane Antigen (PSMA): clone 1D6

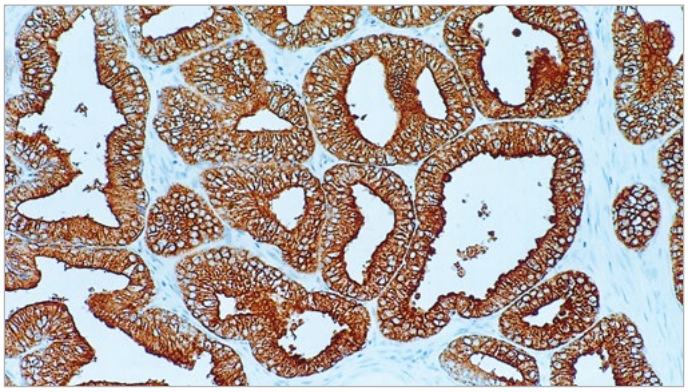
1D6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-PSMA	-	ASR	RUO	RUO

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

Prostatic Acid Phosphatase



Prostate adenocarcinoma. Prostatic Acid Phosphatase: clone PASE/4LJ

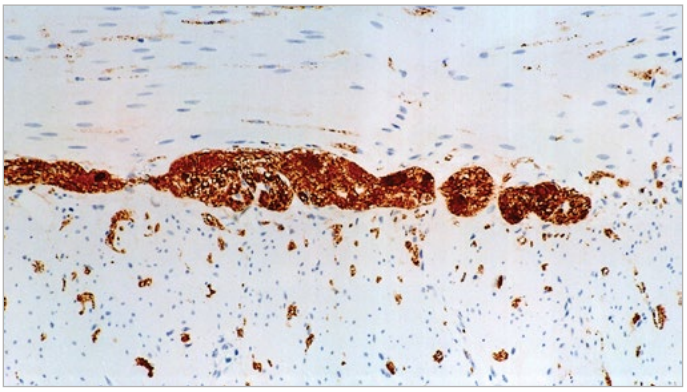
PASE/4LJ

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0006	P	IVD	IVD	IVD
Liquid 1 mL	NCL-L-PAP	F;P	RUO	RUO	RUO

Antigen Background

Prostatic Acid Phosphatase (PAP) is an isoenzyme of acid phosphatase found in large amounts in the prostate and seminal fluid. The precise function of PAP is unknown, but it may act as a hydrolase to split phosphoryl choline in semen and also function as a transferase. Elevated serum levels of the enzyme are reported in metastatic prostatic carcinoma.

Protein Gene Product 9.5



Immunohistochemical staining of colon. Protein Gene Product 9.5 staining in the neuronal elements and the ganglia of the longitudinal and circular smooth muscle. Protein Gene Product 9.5: clone 10A1

10A1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0286	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-PGP9.5	P(HIER)	IVD	IVD	IVD

Antigen Background

Protein gene product (PGP) 9.5 is a neuron-specific protein, structurally and immunologically distinct from neuron specific enolase. The protein which has a molecular weight of 27 kD was first identified by high resolution two dimensional PAGE. PGP9.5 expression has been reported in neurons and nerve fibers at all levels of the central and peripheral nervous system, in many neuroendocrine cells, in segments of the renal tubules, in spermatogonia and Leydig cells of the testis, in ova and in some cells of both the pregnant and non-pregnant corpus luteum. PGP9.5 is a member of the ubiquitin C-terminal hydroxylase family and is also concentrated within inclusion bodies suggesting that such structures may be metabolically active regions of the cells.

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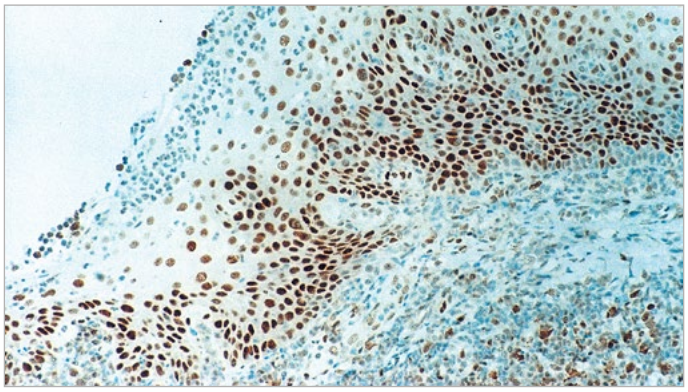
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Retinoblastoma Gene Protein



Human tonsil: immunohistochemical staining for Retinoblastoma Gene Protein. Note intense nuclear staining of epithelial cells. Retinoblastoma Gene Protein: clone 13A10

13A10

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-RB-358	P(HIER);W	RUO	RUO	RUO

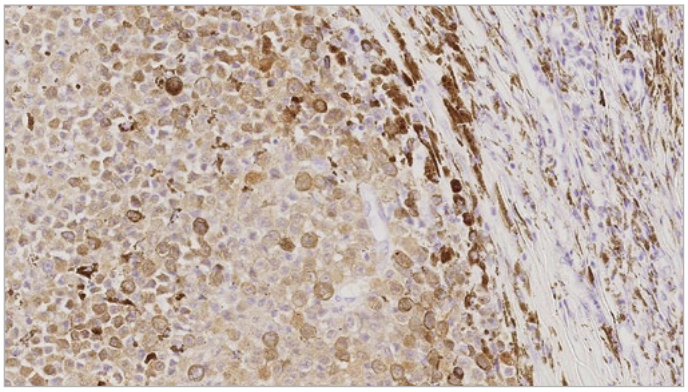
Antigen Background

Retinoblastoma (Rb) is a rare tumor of the retina associated with mutations of chromosome 13. The nuclear phosphoprotein encoded by the Rb tumor suppressor gene is present in many cells and may indirectly regulate cell growth by activating the transcription factor ATF-2. Activation of ATF-2 initiates expression of TGF-beta2, which in turn inhibits transcription of genes affecting cell growth. Bilateral mutation of the Rb gene may potentially play a role in the development of a number of malignant tumors.

Product Specific Information

NCL-L-RB-358 was raised to the N-terminal region of the Rb gene protein.

S-100



Human facial skin, melanoma: staining of malignant melanocytes as well as some neural elements. S-100: Polyclonal

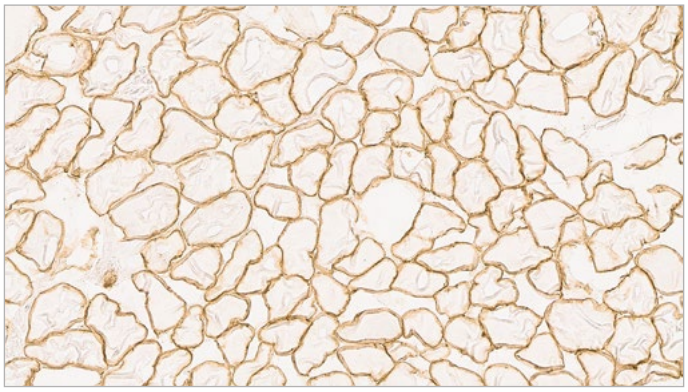
Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0900	P(ENZYME)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-S100p	P	IVD	IVD/RUO	IVD/RUO

Antigen Background

S-100A and S-100B proteins are two members of the S-100 family of proteins. S-100A is composed of an alpha and beta chain, whereas S-100B is composed of two beta chains. S-100 protein is reported to be expressed in neuroectodermal tissue, including nerves and melanocytes. Langerhans cells in skin and interdigitating reticulum cells in the paracortex of lymph nodes are also reported to express S-100 protein. It is noteworthy that S-100 protein is highly soluble and may be eluted from frozen tissue during immunohistochemical procedures.

Sarcoglycan Antibodies



The image shows a transverse section of skeletal muscle fibers. The immunohistochemical staining demonstrates the alpha-sarcoglycan localized to the muscle sarcolemma of the muscle fibers. Sarcoglycan antibodies (A-SARC): clone Ad1/20A6

Alpha: clone Ad1/20A6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-a-SARC	F	IVD	IVD	IVD

Beta: clone βSarc1/5B1

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-b-SARC	F	IVD	IVD	IVD

Delta: clone δSarc3/12C1

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-d-SARC	F	IVD	IVD	IVD

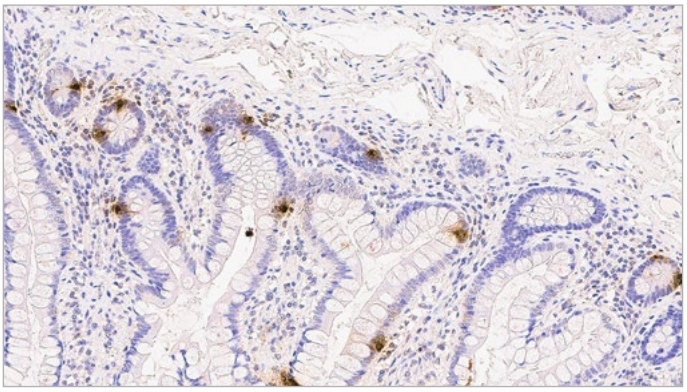
Gamma: clone 35DAG/21B5

FORMAT	CODE	USAGE	US	EU*	ROW*
Lyophilized 1 mL	NCL-g-SARC	F	IVD	IVD	IVD

Antigen Background

In normal skeletal muscle, dystrophin, the protein product of the gene which is defective in Duchenne and Becker muscular dystrophy, is attached to the muscle membrane via a complex of proteins (dystrophin-associated glycoproteins, DAGs). Dystrophin-deficient muscle shows a generalized reduction in DAG labeling. The expression of different members of the dystrophin glycoprotein complex is altered in several types of muscular dystrophy. For example, patients with LGMD2D have mutations in the gene for alpha-sarcoglycan, those with LGM2E have mutations in the beta-sarcoglycan gene, those with LGM2C have mutations in the gamma-sarcoglycan gene and those with LGM2F have mutations in the delta-sarcoglycan gene. As the sarcoglycans function together as a sub-complex, mutations in any one of the sarcoglycan genes usually results in variable expression for the whole group.

Serotonin



Human bowel: immunochistochemical staining for serotonin-containing mucosal cells. Serotonin: Polyclonal

Polyclonal

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0736	P(HIER)	IVD	IVD	IVD

Antigen Background

Serotonin (5-hydroxytryptamine, 5-HT) is reported to be a widely distributed neurotransmitter and hormone in the mammalian peripheral and central nervous system (CNS). Serotonin is formed by the decarboxylation of 5-hydroxy-tryptophan, its intermediate, which in turn is formed by hydroxylation of L-tryptophan by tryptophan hydroxylase. In the CNS, the action of serotonin is terminated by reuptake into the presynaptic terminal by specific serotonin transporters. Serotonin has been implicated in several neuropsychiatric disorders such as anxiety, depression and schizophrenia. The majority of serotonergic nerve terminals in the CNS originate in neuronal cell bodies of the Raph nuclei (dorsal, median), nucleus Raph obscurus and nucleus Raph pallidus in the brainstem which project to specific areas of the brain and spinal cord. Serotonin is thought to be an inhibitory neurotransmitter regulating a wide range of sensory, motor and cortical functions in the CNS. In the periphery, serotonin is reported to be present in neural and non-neural structures such as platelets, gastro-intestinal tract (myenteric plexus, enterochromaffin cells), lungs (neuroepithelial cells), thyroid gland and spleen.

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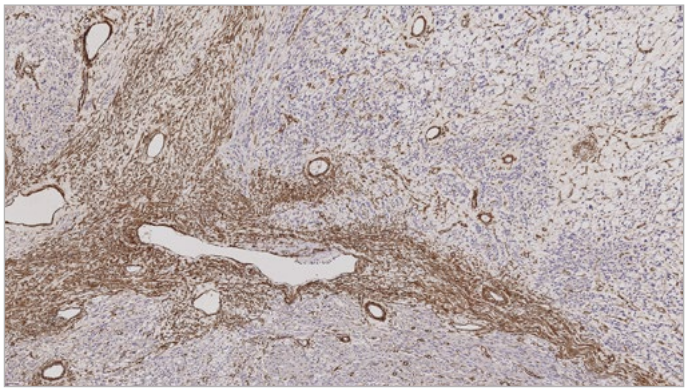
SMA (Alpha Smooth Muscle Actin)



Human leiomyosarcoma: cytoplasmic staining of smooth muscle of vascular elements and of tumor cells. SMA (Alpha Smooth Muscle Actin): clone alpha sm-1

alpha sm-1

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0943	P	IVD	IVD	IVD
Liquid 1 mL	NCL-L-SMA	P	IVD	IVD	IVD

Antigen Background

Cytoplasmic actins are part of the microfilament system of cytoskeletal proteins. Smooth muscle actin is found in vascular walls, intestinal muscularis mucosae and muscularis propria and in the stroma of various tissues.

Product Specific Information

Enzyme pretreatment may enhance staining in some cases.

Spectrin

Immunohistochemical staining of a transverse section of skeletal muscle fibers. Staining of spectrin localized in the sarcolemma of the muscle. Spectrin: clone RBC2/3D5

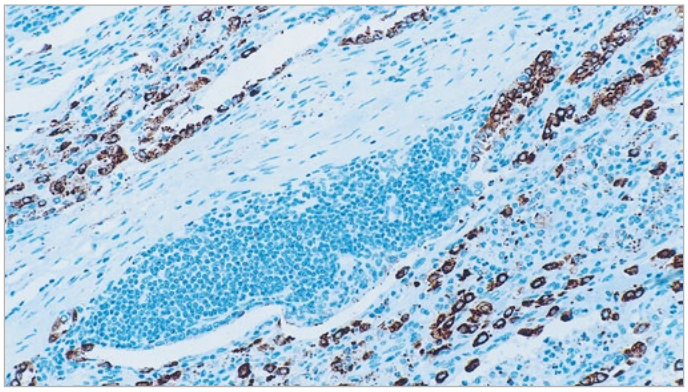
RBC2/3D5

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 1 mL	NCL-SPEC1	F	IVD	IVD	IVD

Antigen Background

Spectrin is a cytoskeletal protein which has some structural homology with dystrophin, the protein that is defective in Duchenne and Becker muscular dystrophy. Subtle membrane damage frequently occurs during the excision and freezing of muscle biopsies. Labeling for spectrin must be used to monitor membrane integrity. NCL-SPEC1 recognizes the beta chain of spectrin in erythrocytes and muscle. NCL-SPEC1 reacts with human beta-spectrin.

Surfactant Protein A



Human lung adenocarcinoma: immunohistochemical staining for Surfactant Protein A. Note intense cytoplasmic staining of type II pneumocytes and alveolar macrophages. Surfactant Protein A: clone 32E12

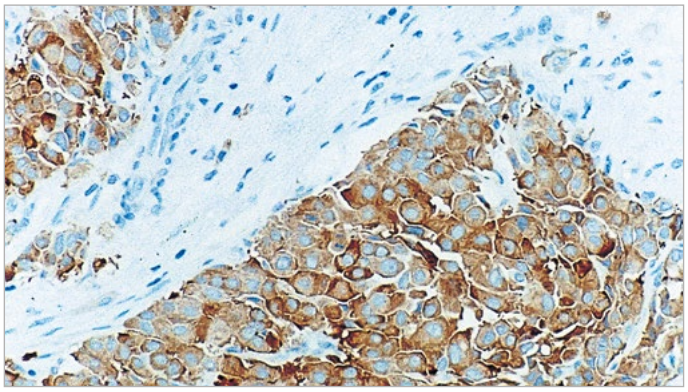
32E12

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-SP-A	P(HIER)	IVD	-	-

Antigen Background

Pulmonary surfactant plays a critical role in maintaining the structural integrity of the respiratory epithelium by reducing surface tension during expiration. It is a lipoprotein complex which is synthesized and secreted into the alveoli of the lung by type II pneumocytes. Lung surfactant protein-A (SP-A) is a major phospholipid-associated glycoprotein in surfactant and is a member of the C-type lectin superfamily that also inhibits lipid secretion and enhances the uptake of phospholipid by alveolar type II cells. Levels of SP-A in amniotic fluid are reported to reflect the degree of fetal lung maturity and inadequate levels of surfactant at birth, a frequent occurrence in premature infants, results in respiratory failure.

Synaptophysin



Breast carcinoma showing neuroendocrine differentiation: immunohistochemical staining for Synaptophysin. Note cytoplasmic staining of tumor cells. Synaptophysin: clone 27G12

27G12

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0299	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-SYNAP-299	P(HIER)	IVD	IVD	IVD

Antigen Background

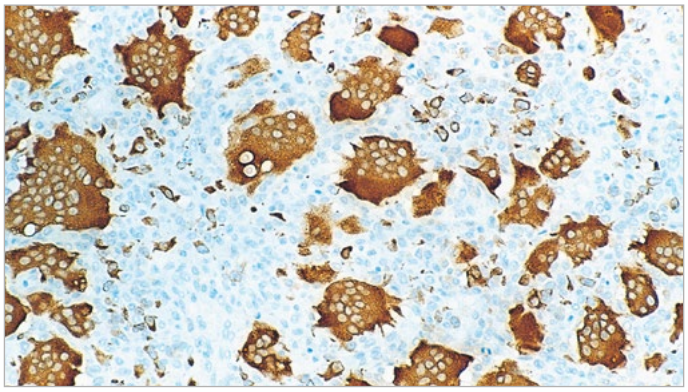
Synaptophysin is an integral membrane glycoprotein with a molecular weight of 38 kD. It is reported to occur in presynaptic vesicles of neurons in brain, spinal cord, retina, in similar vesicles of the adrenal medulla as well as in neuromuscular junctions.

Synaptophysin may be involved in synaptic vesicle formation and exocytosis. Synaptophysin is reported to be expressed in a wide spectrum of neuroendocrine tumors including neuroblastomas, ganglioneuroblastomas, phaeochromocytomas, chromaffin and non-chromaffin paragangliomas.

Synaptophysin is also reported to be expressed in neuroendocrine tumors of epithelial type including pituitary adenomas, islet cell tumors, medullary carcinomas of thyroid, parathyroid adenomas, carcinoids of the bronchopulmonary and gastrointestinal tracts, neuroendocrine carcinomas of the bronchopulmonary and gastrointestinal tract and neuronendocrine carcinomas of the skin.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Tartrate-Resistant Acid Phosphatase (TRAP)



Human osteoclastoma: immunohistochemical staining for Tartrate-Resistant Acid Phosphatase. Note intense cytoplasmic staining of osteoclasts. Tartrate-Resistant Acid Phosphatase (TRAP): clone 26E5

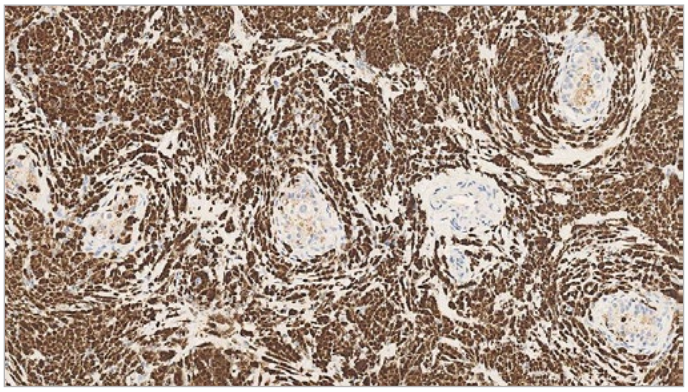
26E5

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0093	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-TRAP	P(HIER)	IVD	-	-

Antigen Background

Tartrate-resistant acid phosphatase (TRAP) is a basic, iron-binding protein with high activity towards phosphoproteins, ATP and 4-nitrophenyl phosphate. This isoenzyme has been reported through different applications to be expressed in human alveolar macrophages, osteoclasts, spleen and liver. Expression of TRAP is reported to be increased in the spleen and monocytes of individuals with Gaucher's disease, Hodgkin's disease and the sera of individuals undergoing active bone turnover. Elevated levels are also reported to be associated with various B cell and T cell leukemias and lymphomas, decidual cells, syncytiotrophoblasts and some macrophages distributed throughout maternal and embryonic tissues.

Terminal Deoxynucleotidyl Transferase



Pre B cell acute lymphoblastic leukemia: neoplastic cells show a strong and distinct nuclear staining reaction. Terminal Deoxynucleotidyl Transferase (TdT): clone SEN28

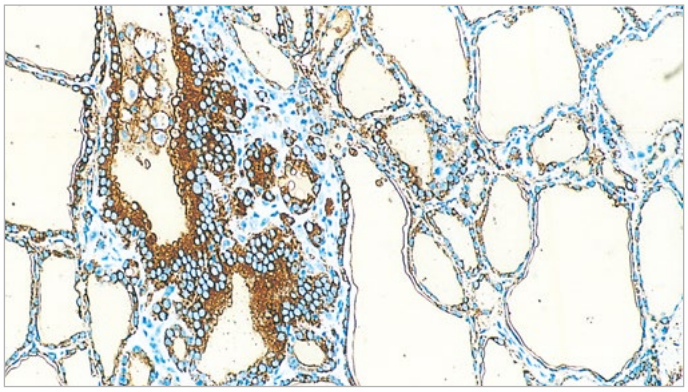
SEN28

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0339	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-TDT-339	P(HIER)	-	IVD/RUO	IVD/RUO
Liquid 1 mL	NCL-L-TDT-339	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

Terminal deoxynucleotidyl transferase (TdT) is a DNA polymerase of 58 kD located in the cell nucleus which catalyzes the polymerization of deoxynucleotides at the 3' hydroxyl ends of oligo or polydeoxynucleotide initiators and functions without a template. TdT is reported to be expressed in primitive T and B lymphocytes of the normal thymus and bone marrow. The identification of TdT-positive cell populations in primary and secondary lymphoid organs during maturation of the immune system is one area of interest but it is the reported occurrence of high levels of enzyme activity in white blood cells and bone marrow in certain leukemias which is of particular interest.

Thyroglobulin



Immunohistochemical staining of Thyroglobulin in the follicular epithelial cells of thyroid. Thyroglobulin: clone 1D4

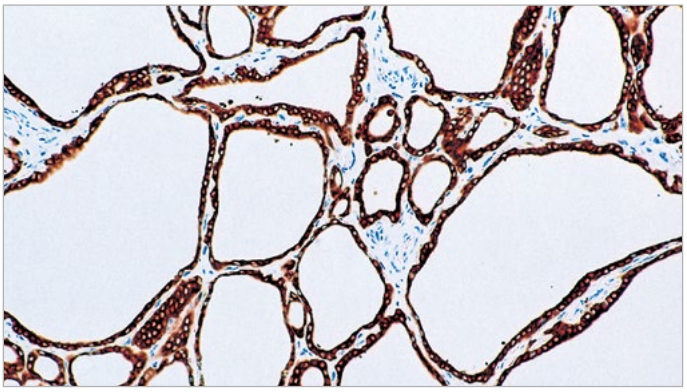
1D4

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-THY	F;P	RUO	RUO	RUO

Antigen Background

Thyroglobulin is a heavily glycosylated protein of 670kD composed of two identical subunits and is synthesized by the follicular epithelial cells of the thyroid. Thyroglobulin provides iodination sites for the formation of the thyroid hormones.

Thyroid Peroxidase



Thyroid, Graves' disease: immunohistochemical staining for Thyroid Peroxidase. Note intense cytoplasmic staining of thyroid epithelial cells. Thyroid Peroxidase: clone AC25

AC25

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-TPO	P(HIER)	IVD	IVD/RUO	IVD/RUO

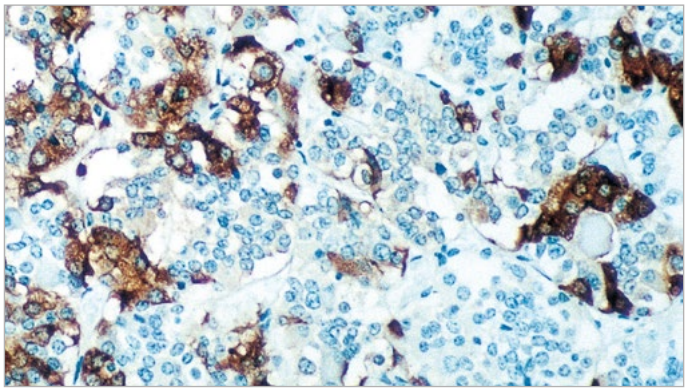
Antigen Background

Thyroid Peroxidase gene expression is under the regulation of thyroid stimulating hormone. In normal thyroid, expression of Thyroid Peroxidase (TPO) described immunohistochemically is reported to produce a diffuse, fine, granular cytoplasmic stain in all follicular cells. Some studies have shown qualitative, as well as quantitative differences in thyroid peroxidase expression in thyroid cancer compared to normal tissue.

Product Specific Information

TPO stains optimally when used in TBS-based wash buffer and diluent systems.

Thyroid Stimulating Hormone



Normal human pituitary gland: immunohistochemical staining for Thyroid Stimulating Hormone. Note cytoplasmic staining of a proportion of anterior pituitary cells. Thyroid Stimulating Hormone: clone QB2/6

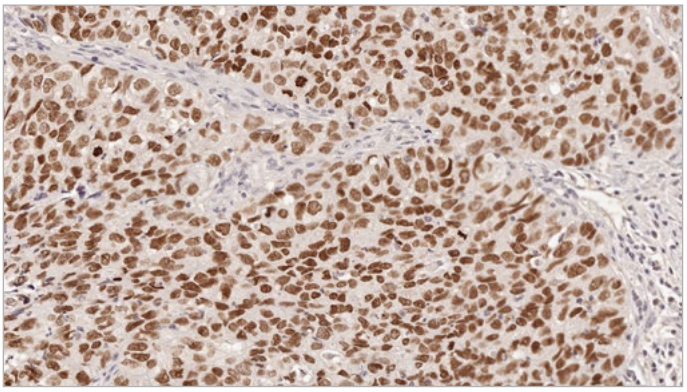
QB2/6

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0776	P(ENZYME)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-TSH	P(ENZYME)	IVD	-	-

Antigen Background

Thyroid stimulating hormone (TSH) is a pituitary hormone of 28 kD which stimulates thyroid growth and production of thyroid hormones. TSH is reported to be expressed in thyrotrophic cells of the pituitary and pituitary adenomas.

Thyroid Transcription Factor-1



Human pulmonary adenocarcinoma: nuclear staining of tumor cells. Thyroid Transcription Factor- 1: clone SPT24

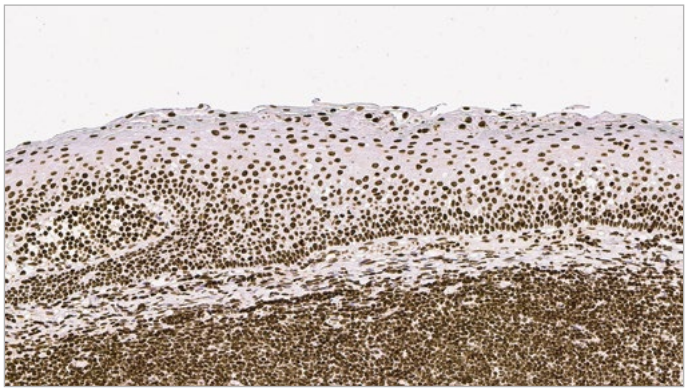
SPT24

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0364	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-TTF-1	P(HIER)	IVD	IVD	IVD

Antigen Background

Thyroid transcription factor-1 (TTF-1) is a member of the homeodomain transcription factor family and plays a role in regulating genes expressed within the thyroid, lung and brain. These include thyroglobulin, thyroid peroxidase, Clara cell secretory protein and surfactant proteins. Human TTF-1 (38 kD) is a single polypeptide of 371 amino acids sharing 98 percent homology with the equivalent rat and mouse proteins. TTF-1 functions by binding to specific recognition sites in a manner that may be regulated by both the redox and phosphorylation status of the protein. In addition to its role as a tissue-specific transcriptional activator in adult organs, TTF-1 may also function in organogenesis. Gene targeting studies have shown TTF-1 to be essential for the proper development of the thyroid and lungs and abnormal expression may underline a number of congenital abnormalities.

Topoisomerase I



Immunohistochemical staining of Topoisomerase I in the nuclei of the majority of cells within the tonsil. Topoisomerase I: clone 1D6

1D6

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-TOPO I	P(HIER)	IVD	-	-

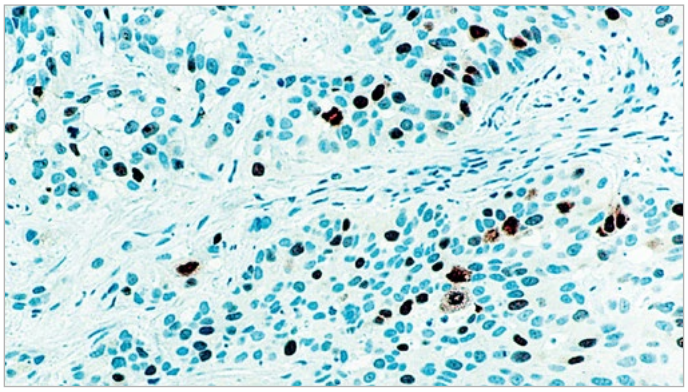
Antigen Background

Topoisomerases are nuclear enzymes involved in a variety of cellular activities such as chromosomal condensation, DNA replication, transcription, recombination and segregation at mitosis. Human Topoisomerase I is a 100 kD protein capable of relaxing positively and negatively supercoiled DNA by performing a transient single-stranded nick which is then re-ligated at the end of the reaction. It has been shown that the enzyme is located in regions of the genome that are undergoing active RNA synthesis where it probably reduces superhelical stresses in the DNA enabling RNA polymerase to function properly. In normal eukaryotic cells, DNA topoisomerase I does not show relevant fluctuations across the cell cycle, unlike DNA topoisomerase II alpha. Both DNA topoisomerases I and II have been found to be targets of autoantibodies in the sera of individuals with certain autoimmune diseases, for example, systemic lupus erythematosus and also of some anti-tumor drugs and antibiotics. Elevated levels of DNA topoisomerase I, detected by 32P transfer assays, have been reported in colorectal tumors compared with normal colon mucosa as a result of increased transcription or mRNA stability.

Product Specific Information

The use of phosphate-containing wash buffers or diluents with TOPO I has an adverse effect on staining. Only Tris-containing wash buffers or diluents should be used.

Topoisomerase II Alpha



Human bladder tumor: immunohistochemical staining for Topoisomerase II Alpha. Note intense nuclear staining of malignant cells and occasional mitotic figures. Topoisomerase II Alpha: clone 3F6

3F6

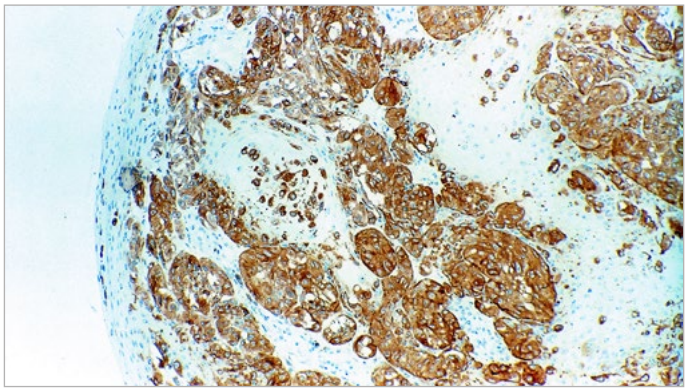
FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-TOPOIIA	P(HIER)	IVD	-	-

Antigen Background

Topoisomerase II alpha is an essential nuclear enzyme involved in DNA replication and is a target for many anti-cancer drugs used for cancer therapy. Decreased expression of topoisomerase II alpha is the predominant mechanism of resistance to several chemotherapeutic agents. A significant variation in the range of expression of this protein has been reported in many different tumors. Reports of the analysis of primary breast tumors have indicated that topoisomerase II beta is more widely expressed than topoisomerase II alpha. Topoisomerase II alpha expression and activity is linked to the cell cycle and is associated with the proliferation status of cells.

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Tyrosinase



Human malignant melanoma: immunohistochemical staining for Tyrosinase: clone T311

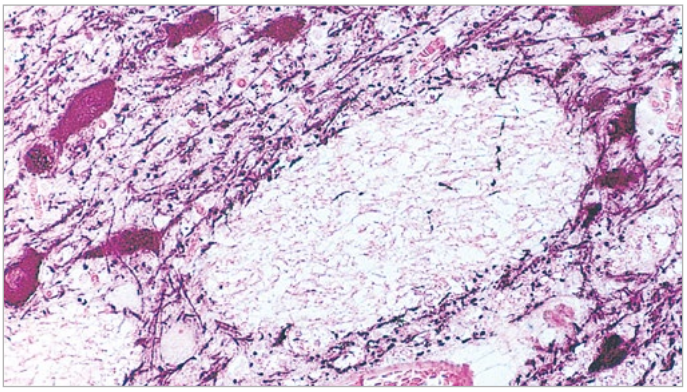
T311

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0322	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-TYROS	P(HIER)	IVD	IVD/RUO	IVD/RUO

Antigen Background

The biosynthesis of melanin in melanocytes involves a family of enzymes, a key member of which is tyrosinase. Tyrosinase deficiency is associated with various forms of albinism and in particular oculocutaneous albinism. L-tyrosinase is the initial substrate for melanin biosynthesis and its conversion to dopaquinone is catalyzed by tyrosinase, whose expression is reported in melanocytes and melanomas.

Tyrosine Hydroxylase



Human midbrain: immunohistochemical staining of tyrosine hydroxylase enzyme. Note cytoplasmic staining of catecholaminergic cells and their processes. (Peroxidase substrate: nickel DAB, Counterstain: eosin). Tyrosine Hydroxylase: clone 1B5

1B5

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-TH	P(HIER)	IVD	-	-

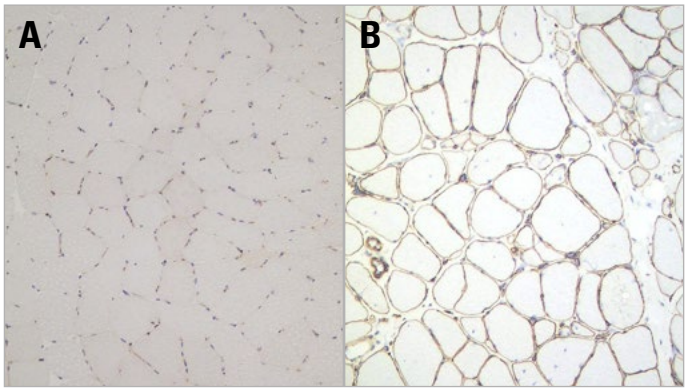
Antigen Background

Tyrosine hydroxylase is the first enzyme in catecholamine (CA) biosynthesis and catalyzes the conversion of L-tyrosine to L-DOPA. Tyrosine hydroxylase is reported to be expressed in all CA neurons. Despite the abundant data about the distribution of catecholaminergic neurons in a wide variety of species, data on their distribution in the human brain is less comprehensive. However, one such study has reported that tyrosine hydroxylase products in the substantia nigra were restricted to neural bodies, axons and dendrites. These in turn were restricted to the third decade of life and their number increased in this location with age. This finding may be related to ageing of melanin-pigmented neurons.

Product Specific Information

TH is reactive with tyrosine hydroxylase in human, mouse and rat brain tissue.

Utrophin



Human skeletal muscle: immunohistochemical staining for utrophin. In control muscle the antibody labels blood vessels and neuromuscular junctions (A). Utrophin is expressed at the sarcolemma in individuals with mutations in the DMD gene (B). Utrophin: clone DRP3/20C5

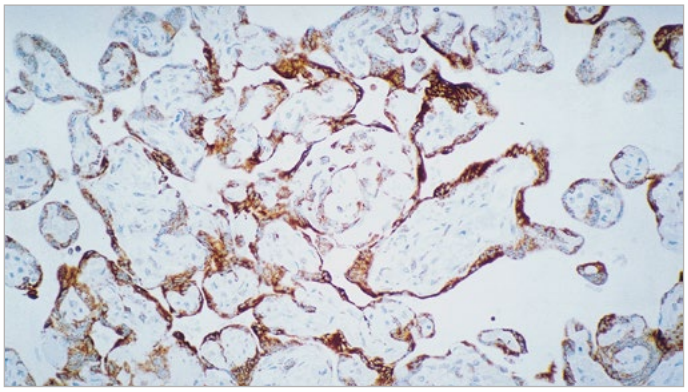
DRP3/20C5

FORMAT	CODE	USAGE	US	EU	ROW*
Lyophilized 2.5 mL	NCL-DRP2	F	IVD	IVD	IVD

Antigen Background

The utrophin gene is located on chromosome 6. The protein is a homologue of dystrophin and is known as dystrophin-related protein. In normal muscle, utrophin is restricted to neuromuscular junctions; however, in dystrophin-deficient muscle, utrophin expression may be upregulated and labeling appears around the periphery of most fibers. Immunohistochemical staining with DRP2 labels vessels and neuromuscular junctions and the upregulated form of utrophin, located around fiber membranes.

Vascular Endothelial Growth Factor Receptor-3



Human placenta: immunohistochemical staining for Vascular Endothelial Growth Factor Receptor-3: clone KLT9

KLT9

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-VEGFR-3	-	ASR	RUO	RUO

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

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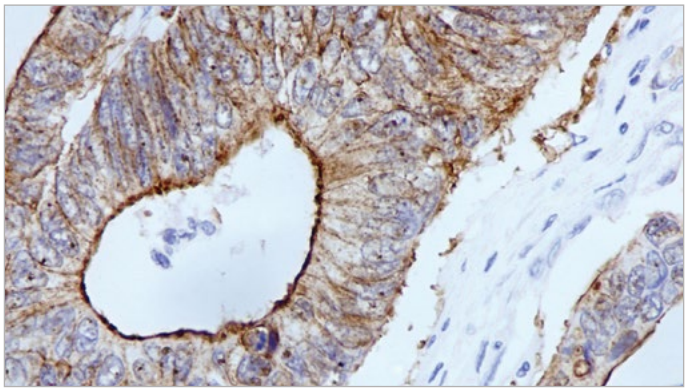
Villin



Immunohistochemical staining for Villin: clone CWWB1

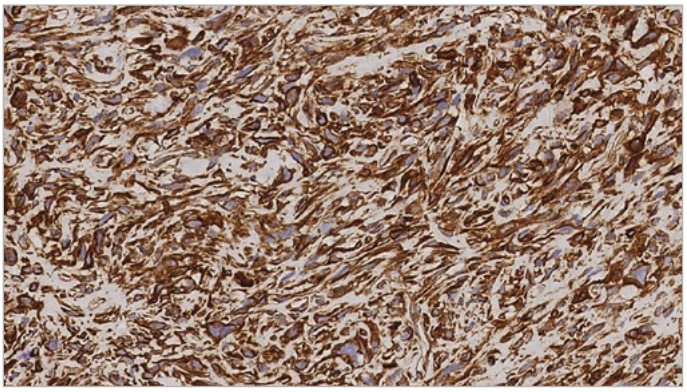
CWWB1

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 1 mL	NCL-L-VILLIN	-	ASR	RUO	RUO

Analyte Specific Reagent

Analyte Specific Reagent. Analytical and performance characteristics are not established.

Vimentin



Spindle cell carcinoma: a spindle cell carcinoma showing intense Vimentin staining. Vimentin: clone V9

V9

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0640	P(HIER)	IVD	IVD	IVD
Liquid 0.5 mL	NCL-L-VIM-V9	P(HIER)	IVD	IVD	IVD/RUO
Liquid 1 mL	NCL-L-VIM-V9	P(HIER)	IVD	IVD	IVD/RUO

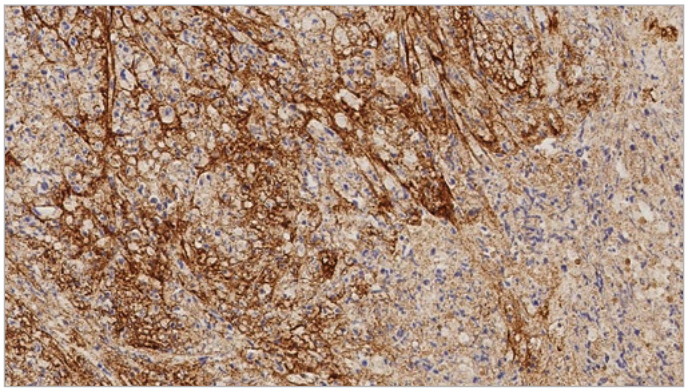
SRL33

FORMAT	CODE	USAGE	US	EU	ROW*
Liquid 0.5 mL	NCL-L-VIM-572	P(HIER)	IVD	IVD	IVD

Antigen Background

Eukaryotic cells contain a number of types of cytoplasmic filamentous proteins, microtubule, microfilaments and intermediate-sized filaments (IF). Vimentin, a 57 kD protein that is an intermediate filament is reported to be expressed in most cells of mesenchymal origin, including fibroblasts, endothelial cells, smooth muscle, melanocytes as well as T and B lymphocytes.

von Willebrand Factor (Factor VIII-related antigen)



Human skin, Kaposi's sarcoma: neoplastic cells show moderate cytoplasmic staining, while normal endothelial cells show strong staining. von Willebrand Factor (Factor VIII-related antigen): clone 36B11

36B11

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0055	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-vWF	P(HIER)	IVD	IVD/RUO	IVD/RUO

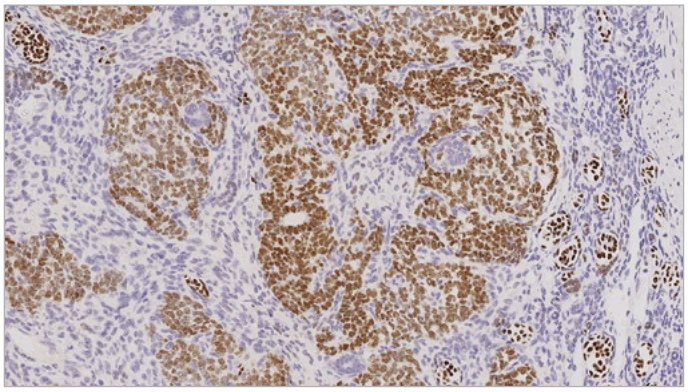
36B11 (Previous Formulation)

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0400	P(HIER)	IVD	IVD	IVD

Antigen Background

Human von Willebrand factor (or factor VIII-related antigen) is a 270 kD multimeric plasma glycoprotein. It mediates platelet adhesion to injured vessel walls and serves as a carrier and stabilizer for coagulation factor VIII. The von Willebrand factor has functional binding domains to platelet glycoprotein Ib, glycoprotein Ib/IIIa, collagen and heparin. Von Willebrand factor is synthesized by endothelial cells and is reported to be expressed in a number of tumors of vascular origin.

Wilms' Tumor



Human kidney, Wilms' tumor: nuclear staining of invasive tumor cells. Wilms' Tumor: clone WT49

WT49

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0562	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-WT1-562	P(HIER)	IVD	IVD	IVD

Antigen Background

Wilms' tumor protein (WT1) has a role in transcriptional regulation and is expressed in the kidney and a subset of hematopoietic cells. Alteration of transcription factor function is a common mechanism in oncogenesis. The WT1 protein contains a DNA binding domain and any deletions or point mutations of the WT1 gene which destroy this activity result in the development of the childhood nephroblastoma Wilms' tumor and Denys-Drash syndrome. The description of WT1 involvement in nephroblastoma is not clear.

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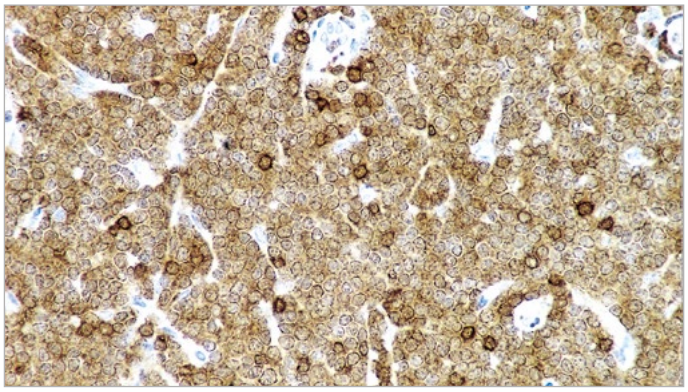
Zap-70



Human B cell chronic lymphocytic leukemia: immunohistochemical staining for ZAP-70 antigen. Note staining of malignant lymphocytic leukemic cells and intense staining of infiltrating T lymphocytes. Zap-70: clone L453R

L453R

FORMAT	CODE	USAGE	US	EU	ROW*
BOND 7 mL	PA0998	P(HIER)	IVD	IVD	IVD
Liquid 1 mL	NCL-L-ZAP-70	P(HIER)	IVD	IVD	IVD

Antigen Background

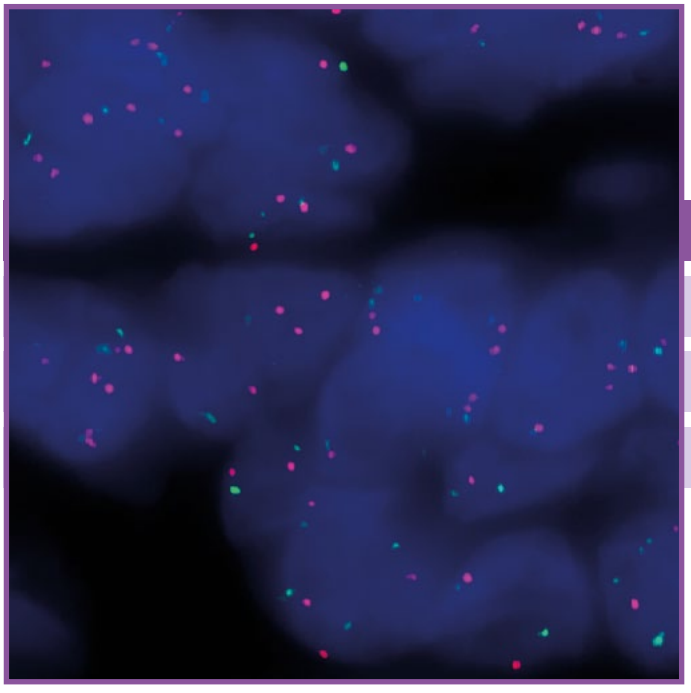
ZAP-70 is a member of the syk family of proteins. It is expressed on T cells and NK cells and is required for the T cell receptor activation that triggers an immune response. CLL B cells that express the non-mutated immunoglobulin VH genes express levels of ZAP-70 protein that are comparable to those found in the blood T cells of healthy adults. Leukemic cells that express mutated Ig VH genes generally do not express detectable levels of ZAP-70 protein and this is correlated with the high level expression of CD38.

Manual FISH Probes

ASR ISH Probes

ASR CISH Probes

ISH Probes



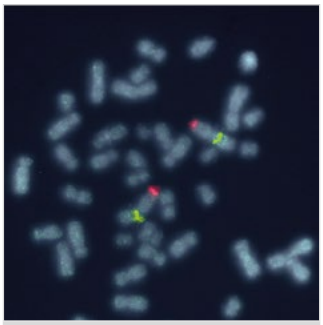
ISH PROBES

MANUAL FISH PROBES

ASR FISH PROBES

ASR CISH PROBES

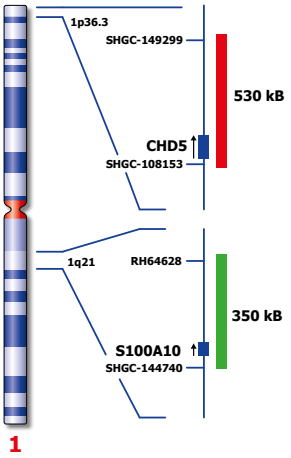
1q21 1q21 / SRD



1q21 / SRD (1p36) hybridized to a normal metaphase (2R2G).

Frequent loss of heterozygosity (LOH) on the short arm of chromosome 1 (1p) has been reported in a series of human malignancies. The combination with the potentially amplified 1q21 region allows to detect deletions at 1p36 and gain of 1q21 in a single FISH assay.

The 1q21 specific FISH probe is optimized to detect copy numbers at 1q21. The SRD 1p36 specific FISH probe is optimized to detect copy numbers of 1p at region 1p36 containing the markers D1S2795 and D1S253.

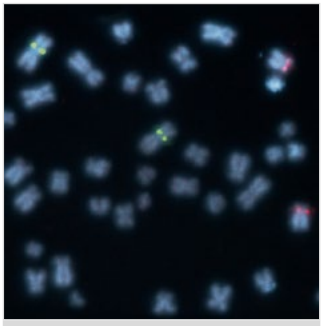


References

Cremer et al, 2005, Genes Chrom Cancer, 44; 194-203.
Shaughnessy J., 2005, Hematology, 10 suppl, 1; 117-126..

Description	Code	Color	Format	US	ROW
1q21 / SRD (1p36)	KBI-10507	Green/Red	10 Test	-	IVD
1q21 / SRD (1p36)	KI-10507	Green/Red	100 µL	RUO	-

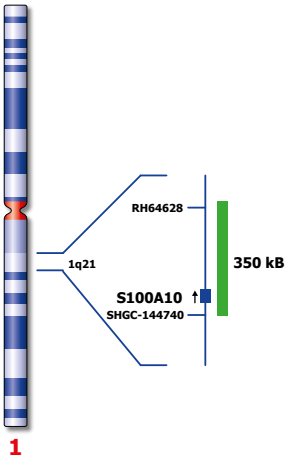
1q21 1q21 / 8p21

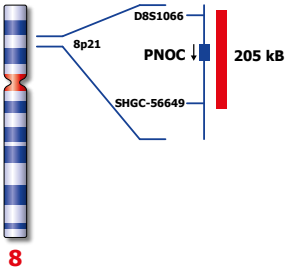


1q21 / 8p21 hybridized to a normal metaphase (2R2G).

Amplifications of 1q21 are concurrent with dysregulated expression of MAF, MMSET / FGFR3, or Deletion 13 and represent an independent unfavorable prognostic factor. Allelic losses of the chromosome 8p21-22 have been reported as a frequent event in several cancers.

The 1q21 specific FISH probe is optimized to detect copy numbers at 1q21. The 8p21 specific DNA region is optimized to detect copy numbers at 8p21.





References

Shaughnessy J., 2005, Hematology, 10 suppl, 1; 117-126.
Cremer et al, 2005, Genes Chrom Cancer, 44; 194-203.

Description	Code	Color	Format	US	ROW
1q21 / 8p21	KBI-10503	Green/Red	10 Test	-	IVD
1q21 / 8p21	KI-10503	Green/Red	100 µL	RUO	-

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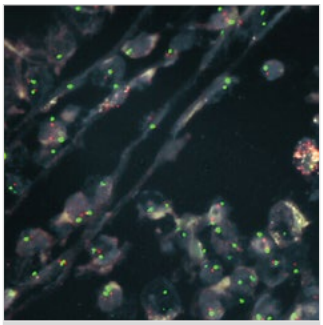
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

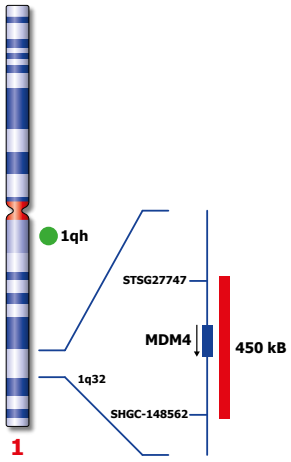
1q32 MDM4 / SE 1



MDM4 (1q32) / SE 1 probe hybridized to paraffin embedded tissue (2R2G).

MDM4 (MDM4 p53 binding protein homolog (mouse), also known as MDMX, murine double minute gene) is a relative of MDM2 that was identified on the basis of its ability to physically interact with TP53. MDM4, like MDM2, acts as a key negative suppressor of TP53 by interfering with its transcriptional activity. MDM4 amplification and/ or overexpression occurs in several diverse tumors. Studies showed an increased MDM4 copy number in 65% of human retinoblastomas compared to other tumors, qualifying MDM4 as a specific chemotherapeutic target for treatment of this tumor.

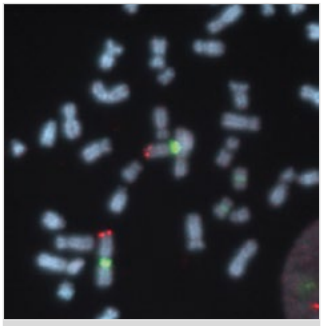
The MDM4 (1q32) FISH probe is designed as a dual-color assay to detect amplification at 1q32. The chromosome 1 Satellite Enumeration (SE 1) probe at 1qh is included to facilitate chromosome identification.



References
Riemenschneider et al, 1999, Cancer Res. 59 ; 6091-6096.
Danovi et al, 2004, Mol.Cell.Biol. 24; 5835-5843.

Description	Code	Color	Format	US	ROW
MDM4 (1q32) / SE 1	KBI-10736	Green/Red	10 Test	-	IVD
MDM4 (1q32) / SE 1	KI-10736	Green/Red	100 µL	RUO	-

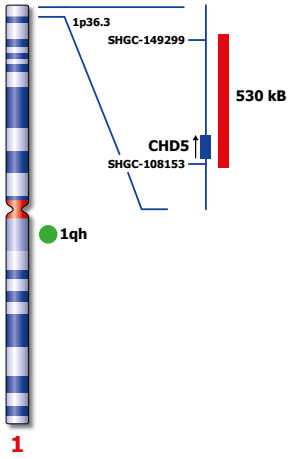
1p36 SRD / SE 1



SRD (1p36) / SE 1 probe hybridized to a normal metaphase (2R2G).

Neuroblastomas frequently have deletions of chromosome 1p and amplification of the MYCN oncogene. These deletions tend to be large and extend to the telomere, but a common region within sub-band 1p36.3 is consistently lost in these deletions. Inactivation of a tumor suppressor gene within 1p36.3 is believed to be associated with an increased risk for disease relapse.

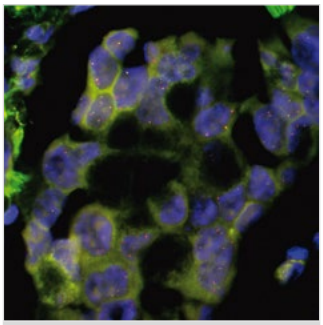
The SRD (1p36) FISH probe is optimized to detect copy numbers of the 1p36 region on chromosome 1. The chromosome 1 satellite enumeration probe (SE 1) at 1qh is included to facilitate chromosome identification.



References
Caron et al, 1993, Nat Genet, 4: 187-190.
Cheng et al, 1995, Oncogene, 10: 291-297.
White et al, 2005, Oncogene, 24: 2684-2694.

Description	Code	Color	Format	US	ROW
SRD (1p36) / SE 1 (1qh)	KBI-10712	Green/Red	10 Test	-	IVD
SRD (1p36) / SE 1 (1qh)	KI-10712	Green/Red	100 µL	RUO	-

2p23 ALK / EML4



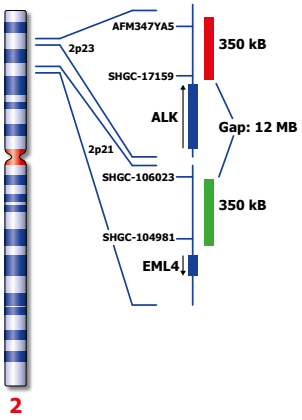
ALK/EML4 t(2;2); inv(2) Fusion probe hybridized to lung adenocarcinoma tissue showing ALK-EML4 fusion (2RG1R1G).

Image kindly provided by Prof. B. Terris, Dr. P.A. Just, Hôpital Cochin, Paris.

The inversion in 2p21 and 2p23 leading to a fusion of the kinase domain of ALK (anaplastic lymphoma kinase) and EML4 (echinoderm microtubule associated protein like 4) has been described in 5-7% of non-small cell lung cancer (NSCLC) cases. ALK and EML4 are ~12 MB apart in opposite directions; a simple inversion generates the fusion gene.

Promising results have been obtained with specific anaplastic lymphoma kinase or ALK inhibitors like crizotinib (Xalkori) in patients carrying the fusion gene ALK-EML4.

The ALK/EML4 t(2;2); inv(2) Fusion probe is designed as a dual-color assay to detect the fusion of the ALK gene with the EML4 gene by paracentric inversion with breakage and reunion occurring at bands 2p21 and 2p23.

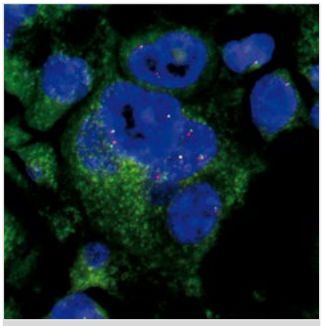


References

Soda et al, Nature, 2007, 448, 561-566.
Koivunen et al, Clin Cancer Res, 2008, 14, 4275-4283.

Description	Code	Color	Format	US	ROW
ALK (2p23) / EML4 t(2;2) inv (2) Fusion	KBI-10746	Green/Red	10 Test	-	IVD
ALK (2p23) / EML4 t(2;2) inv (2) Fusion	KI-10746	Green/Red	100 µL	RUO	-

2p23 ALK Break

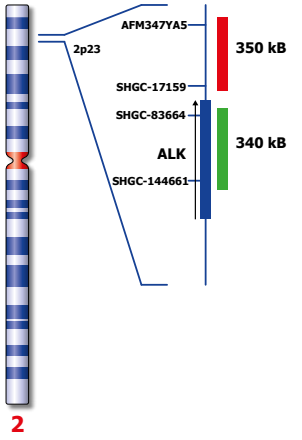


ALK (2p23) Break probe hybridized to lung adenocarcinoma tissue showing translocation involving the ALK region at 2p23 (1RG1R1G).

Image kindly provided by Prof. B. Terris, Dr. P.A. Just, Hôpital Cochin, Paris.

Translocations of the ALK (anaplastic lymphoma kinase) gene at 2p23 have originally been associated with anaplastic lymphomas, B-cell lymphomas, neuroblastomas and myofibroblastic tumors. To date at least 21 translocation partners have been described, however 80% of the translocations involves the NPM1 gene (5q35). More recently ALK rearrangements have been described in non-small cell lung cancer (NSCLC) cases. Promising results have been obtained with specific anaplastic lymphoma kinase or ALK inhibitors like crizotinib (Xalkori) in patients carrying the fusion gene ALK-EML4.

The ALK (2p23) Break probe is optimized to detect translocations involving the ALK gene region at 2p23.



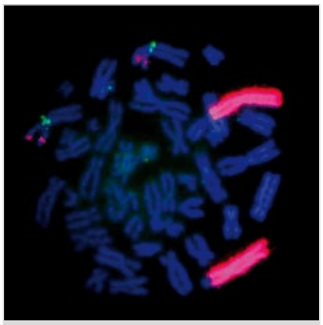
References

Soda et al, Nature, 2007, 448, 561-566.
Kwak et al, J Clin Oncol., 27(26):4247-53.
Koivunen et al, Clin Cancer Res, 2008, 14, 4275-4283.

Description	Code	Color	Format	US	ROW
ALK (2p23) Break	KBI-10747	Green/Red	10 Test	-	IVD
ALK (2p23) Break	KI-10747	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

2p24 MYCN / AFF3

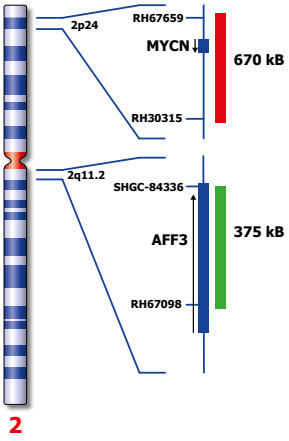


MYCN (2p24) / AFF3 (2q11) hybridized to a cell line showing amplification of MYCN on chromosome 13 and 15.

Image kindly provided by Pasteur Workshop 2008, Paris.

Amplification of the human protooncogene, v-myc avian myelocytomatosis viral oncogene neuroblastoma derived homolog (MYCN) is frequently seen either in extrachromosomal double minutes or in homogeneously staining regions of aggressively growing neuroblastomas. MYCN amplification has been defined by the INRG as > 4-fold MYCN signals compared to 2q reference probe signals.

The MYCN (2p24) FISH probe is optimized to detect copy numbers of the MYCN gene region at 2p24. The AFF3 gene region probe at 2q11 is included to facilitate chromosome identification.

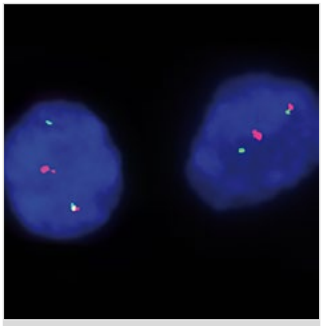


References

Shapiro et al, 1993, Am J Pathol, 142: 1339-1346.
Corvi et al, 1994, PNAS, 91: 5523-5527.

Description	Code	Color	Format	US	ROW
MYCN (2p24) / AFF3 (2q11)	KBI-10706	Green/Red	10 Test	-	IVD
MYCN (2p24) / AFF3 (2q11)	KI-10706	Green/Red	100 µL	RUO	-

3p25 PPARG Break



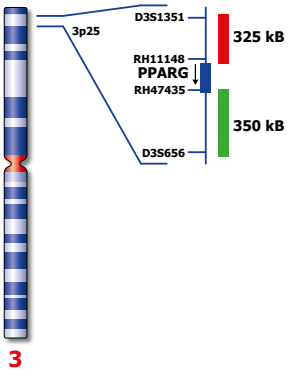
PPARG (3p25) Break probe hybridized to patient material showing a translocation at 3p25 (1RG1R1G).

Image kindly provided by Dr. Valent, Paris.

Follicular thyroid carcinoma is associated with the chromosomal translocation t(2;3)(q13;p25), fusing PAX8 (2q13) with the nuclear receptor, peroxisome proliferator-activated receptor _ (PPARG). PPARG is located in a breakpoint hot spot region, leading to recurrent alterations of this gene in thyroid tumors of follicular origin including carcinomas as well as adenomas with or without involvement of PAX8.

A break or split probe for PPARG is best used to analyze translocation of the PPARG (3p25) gene on formalin fixed paraffin embedded tissue for routine clinical diagnosis.

The PPARG (3p25) Break probe is optimized to detect translocations and amplification involving the PPARG gene region at 3p25 in a dual_color, split assay.

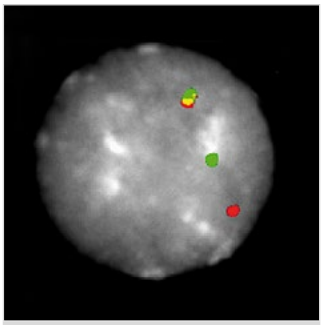


References

French et al, 2003, Am J Pathol, 162; 1053-1060.
Drieschner et al, 2006, Thyroid, 16; 1091-1096.

Description	Code	Color	Format	US	ROW
PPARG (3p25) Break	KBI-10707	Green/Red	10 Test	-	IVD
PPARG (3p25) Break	KI-10707	Green/Red	100 µL	RUO	-

3q26 MECOM Break

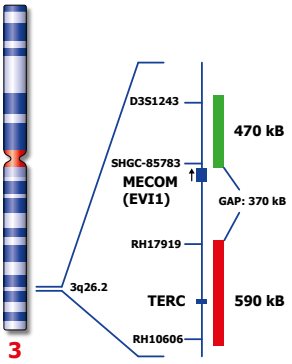


MECOM t(3;3);inv(3) (3q26) Break probe hybridized to patient material showing a rearrangement involving the MECOM gene region at 3q26 (1RG1R1G).

Image kindly provided by Dr. Reed, London.

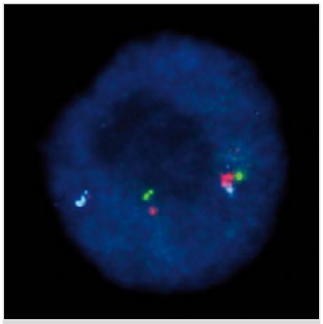
The inv(3)(q21;q26) is a recurrent cytogenetic aberration of myeloid malignancy associated with fusion of MECOM (previously known as EVI) and RPN1 and a poor disease prognosis. Genomic breakpoints in 3q26 are usually located proximal to the MECOM locus, spanning a region of several hundred kilobases. Other recurrent and sporadic rearrangements of 3q26 also cause transcriptional activation of MECOM including the translocations t(3;3)(q21;q26) and t(3;21)(q26;q22). Breakpoints in the latter rearrangements span a wider genomic region of over 1 megabase encompassing sequences distal to MECOM and neighboring gene MDS1.

The MECOM t(3;3) inv(3) Break, dual-color FISH probe is optimized to detect the inversion of chromosome 3 involving the MECOM gene region at 3q26 in a dual-color, split assay on metaphase/interphase spreads, blood smears and bone marrow cells.



Description	Code	Color	Format	US	ROW
MECOM t(3;3); inv(3) (3q26) Break	KBI-10204	Green/Red	10 Test	-	IVD
MECOM t(3;3); inv(3) (3q26) Break	KI-10204	Green/Red	100 µL	RUO	-

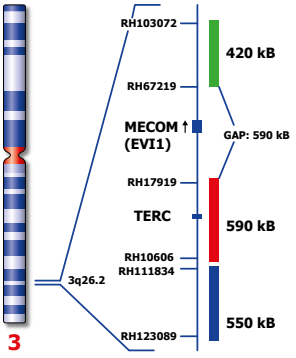
3q26 MECOM Break Triple-Color



MECOM t(3;3);inv(3) (3q26) Break probe hybridized to patient material showing a rearrangement involving the MECOM gene region at 3q26 (1RG1R1G).

Image kindly provided by Dr. Reed, London.

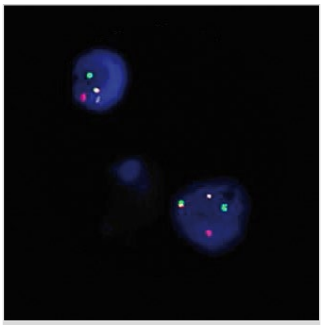
The MECOM t(3;3); inv(3)(3q26) Break Triple-Color FISH probe is optimized to detect the inversion of chromosome 3 involving the MECOM (previously known as EVI) gene region at 3q26 in a dual-color, split assay on metaphase/interphase spreads, blood smears and bone marrow cells. By using a third color breakpoint variations can also be easily observed.



Description	Code	Color	Format	US	ROW
MECOM t(3;3); inv(3) (3q26) Break, Triple-Color	KBI-10205	Green/Red/Blue	10 Test	-	IVD
MECOM t(3;3); inv(3) (3q26) Break, Triple-Color	KI-10205	Green/Red/Blue	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

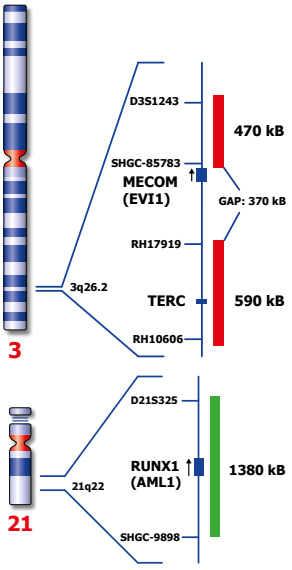
3q26 MECOM/RUNX1



MECOM / RUNX1 Fusion probe hybridized to patient material showing t(3;21) (2F1R1G)

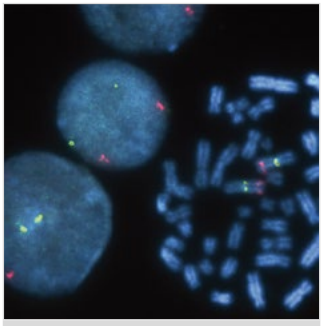
Image kindly provided by Dr. Mohr, Dresden

The chromosomal translocation t(6;9) (p22;q34) is associated with a specific subtype of acute myeloid leukemia (AML) and constitutes 0.5% to 4% of all AML cases. The translocation results in a fusion between the DEK oncogene (6p22) and the nucleoporin 214 kDa (NUP214 at 9q34; previously known as CAN). The exact mechanism by which the fusion protein DEK-NUP214 contributes to leukemia development has not been identified. Patients with t(6;9) AML have a very poor prognosis. The currently available chemotherapy does not seem to improve overall survival. However, accurate diagnosis is crucial because these patients may benefit from early allogeneic stem cell transplant. The DEK / NUP214 t(6;9) specific FISH probe has been optimized to detect the reciprocal translocation t(6;9) in a dual-color, dual-fusion assay on metaphase/interphase spreads, blood smears and bone marrow cells.



Description	Code	Color	Format	US	ROW
MECOM/RUNX1 t(3;21) Fusion	KBI-10310	Green/Red	10 Test	-	IVD
MECOM/RUNX1 t(3;21) Fusion	KI-10310	Green/Red	100 µL	RUO	-

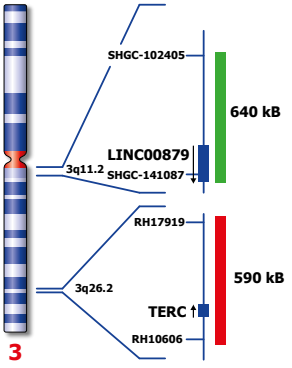
3q26 TERC / 3q11



TERC (3q26) / 3q11 probe hybridized to a normal interphase/metaphase (2R2G).

Amplification of the 3q26-q27 has a high prevalence in cervical, prostate, lung, and squamous cell carcinoma. This amplification can also be found to a lesser extent in CLL patients. The minimal region of amplification was refined to a 1- to 2-Mb genomic segment containing several potential cancer genes including TERC, the human telomerase RNA gene.

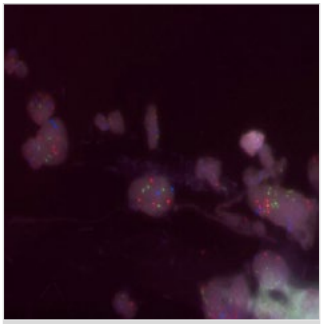
The TERC (3q26) specific FISH probe is optimized to detect copy numbers of the TERC (previously known as hTERC) gene region at region 3q26. The 3q11 region probe is included to facilitate chromosome identification.



References
Arnold et al, 1996, Genes Chrom Cancer, 16; 46-54.
Soder et al, 1997, Oncogene, 14; 1013-1021.

Description	Code	Color	Format	US	ROW
TERC (3q26) / 3q11	KBI-10110	Green/Red	10 Test	-	IVD
TERC (3q26) / 3q11	KI-10110	Green/Red	100 µL	RUO	-

3q26 TERC / MYC / SE7

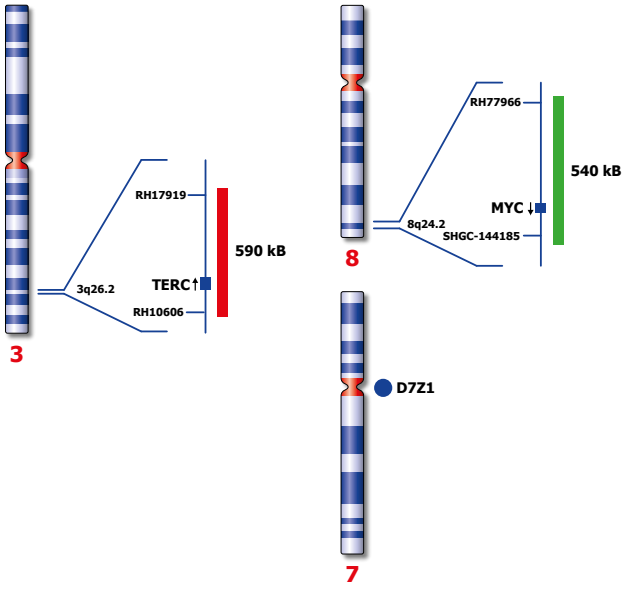


TERC (3q26) / MYC (8q24) / SE 7 Triple-Color probe hybridized to a PAP smear (destained) showing 3q26 and 8q24 amplification. The SE 7 control probe indicates a non-triploid karyotype (2B).

Image kindly provided by Dr. Weimer, Kiel.

The most consistent chromosomal gain in aneuploid tumors of cervical squamous cell carcinoma mapped to chromosome arm 3q, including the human telomerase gene locus (TERC) at 3q26. Highlevel copy number increases were also mapped to chromosome 8. Integration of HPV (Human Papilloma Virus) DNA sequences into MYC chromosomal regions have been repeatedly observed in cases of invasive genital carcinomas and in cervical cancers.

The TERC (3q26) FISH probe is optimized to detect copy numbers of the TERC gene region at region 3q26. The MYC (8q24) FISH probe is optimized to detect copy numbers of the MYC gene region at 8q24. The chromosome 7 satellite enumeration probe (SE 7) at D7Z1 is included as ploidy control.

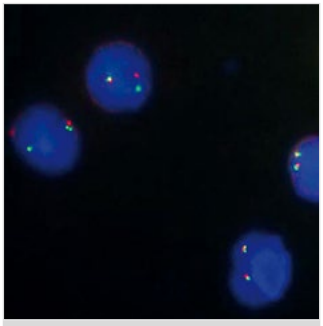


References

Xie et al, 2008, Geburtshilfe Frauenheilkunde, 68: 573.
Heselmeyer et al, 1996, PNAS, 93: 479-484.
Herrick et al, 2005, Cancer Res, 65: 1174-1179.

Description	Code	Color	Format	US	ROW
TERC (3q26) / MYC (8q24) / SE 7 Triple-Color	KBI-10704	Green/Red/Blue	10 Test	-	IVD
TERC (3q26) / MYC (8q24) / SE 7 Triple-Color	KI-10704	Green/Red/Blue	100 µL	RUO	-

3q27 BCL6 Break

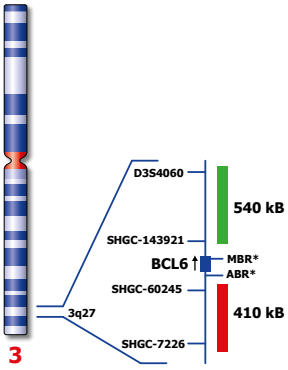


BCL6 (3q27) Break probe hybridized to patient material (1RG1R1G).

Image kindly provided by Prof. Siebert, Kiel.

Chromosomal translocations involving band 3q27 with various different partner chromosomes represent a recurrent cytogenetic abnormality in B-cell non-Hodgkin's lymphoma. A FISH strategy using two differently labeled flanking BCL6 probes provides a robust, sensitive, and reproducible method for the detection of common and uncommon abnormalities of BCL6 gene in interphase nuclei. Kreatech has developed this probe for the specific use on cell material (KBI-10607), or for the use on tissue (KBI-10730). Two different breakpoint regions have been identified; the major breakpoint region (MBR) is located within the 5' noncoding region of the BCL6 proto-oncogene, while the atypical breakpoint region (ABR) is located approximately 200 kb distal to the BCL6 gene.

The BCL6 (3q27) Break FISH probe is designed in a way to flank both possible breakpoints, thereby providing clear split signals in either case.



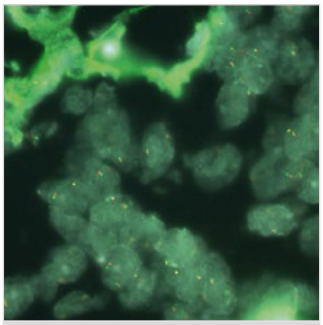
References

Butler et al, 2002, Cancer Res, 62; 4089-4094.
Sanchez-Izquierdo, 2001, Leukemia, 15; 1475-1484.

Description	Code	Color	Format	US	ROW
BCL6 (3q27) Break	KBI-10607	Green/Red	10 Test	-	IVD
BCL6 (3q27) Break	KI-10607	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

3q27 BCL6 Break (tissue)



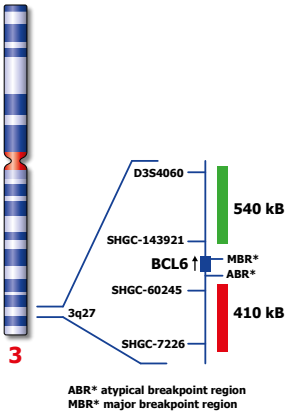
BCL6 (3q27) Break probe hybridized to patient material showing both normal (2RG) and aberrant signals (1RG1R1G).

Image kindly provided by Prof Siebert, Kiel.

Chromosomal translocations involving band 3q27 with various different partner chromosomes represent a recurrent cytogenetic abnormality in B-cell non-Hodgkin's lymphoma. A FISH strategy using two differently labeled flanking BCL6 probes provides a robust, sensitive, and reproducible method for the detection of common and uncommon abnormalities of BCL6 gene in interphase nuclei. Kreatech* has developed this probe for the specific use on cell material (KBI-10607), or for the use on tissue (KBI-10730).

Two different breakpoint regions have been identified; the major breakpoint region (MBR) is located within the 5' noncoding region of the BCL6 proto-oncogene, while the atypical breakpoint region (ABR) is located approximately 200 kb distal to the BCL6 gene. The BCL6 (3q27) Break probe is designed to flank both possible breakpoints, thereby providing clear split signals in either case.

The BCL6 (3q27) Break probe is optimized to detect translocations involving the BCL6 gene region at 3q27 in a dual_color, split assay on paraffin_embedded tissue sections.

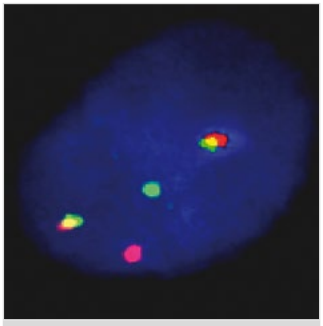


References

Butler et al, 2002, Cancer Res, 62; 4089-4094.
Sanchez-Izquierdo, 2001, Leukemia, 15; 1475-1484.

Description	Code	Color	Format	US	ROW
BCL6 (3q27) Break (tissue)	KBI-10730	Green/Red	10 Test	-	IVD
BCL6 (3q27) Break (tissue)	KI-10730	Green/Red	100 µL	RUO	-

4p16 FGFR3 / IGH

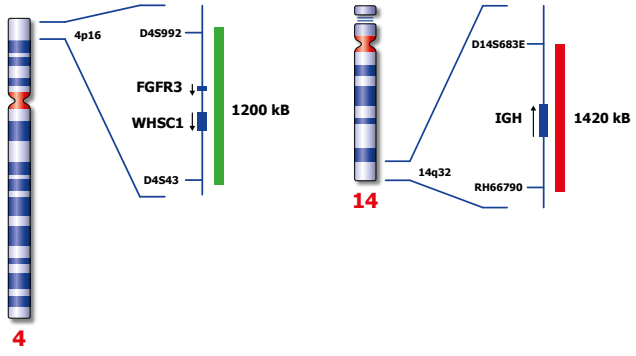


FGFR3 / IGH t(4;14) Fusion probe hybridized to MM patient material showing t(4;14) translocation (2RG1R1G).

Image kindly provided by Prof. Jauch, Heidelberg.

The t(4;14) translocation is undetectable by conventional cytogenetics. The breakpoints on chromosome 4 occur within an approximately 113-kb region located in small part of a conserved gene cluster including the transforming acidic coiled-coil protein 3 (TACC3), fibroblast growth factor receptor 3 (FGFR3), and multiple myeloma SET domain-containing protein (MMSET). The translocation is indicative for poor survival and poor response to chemotherapy.

The FGFR3 / IGH t(4;14)(p16;q32) Fusion specific FISH probe is optimized to detect the reciprocal translocation t(4;14) in a dual-color, dual-fusion assay.

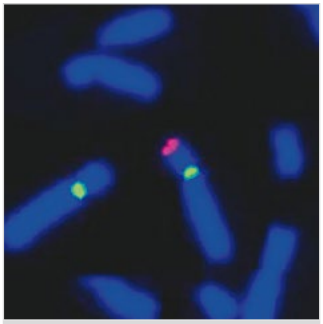


References

Chesi et al, 1997, Nat Genet, 16; 260-264.
Finelli et al, 1999, Blood, 94; 724-732.

Description	Code	Color	Format	US	ROW
FGFR3/IGH t(4;14) Fusion	KBI-10602	Green/Red	10 Test	-	IVD
FGFR3/IGH t(4;14) Fusion	KI-10602	Green/Red	100 µL	RUO	-

4p16 WHSC1 / SE 4

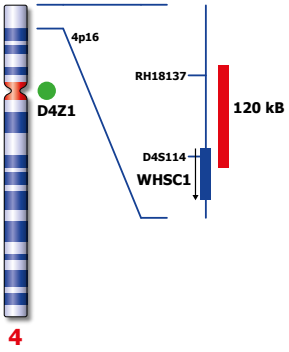


Wolf-Hirschhorn WHSC1 (4p16) / SE 4 probe hybridized to Wolf-Hirschhorn patient material showing a deletion of the WHSC1 gene region at 4p16 (1R2G).

Image kindly provided by Prof. Zollino, Rome.

Wolf-Hirschhorn syndrome (WHS) affected individuals have prenatal-onset growth deficiency followed by postnatal growth retardation and hypotonia with muscle under-development. Developmental delay/mental retardation of variable degree is present in all. FISH analysis using a WHSC1 specific FISH probe for chromosomal locus 4p16.3 detects more than 95% of deletions in WHS.

The Wolf-Hirschhorn region probe is optimized to detect copy numbers of the Wolf-Hirschhorn critical region at 4p16. The chromosome 4 Satellite Enumeration (SE 4) FISH probe at D4Z1 is included to facilitate chromosome identification.

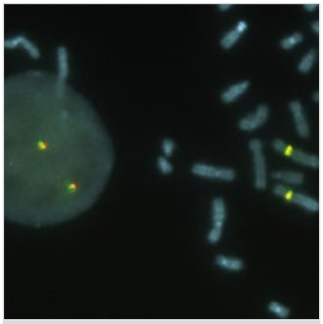


References

Gandelman et al, 1992, Am. J. Hum. Genet., 51; 571-578.
Wright et al, 1997, Hum. Mol. Genet., 6; 317-324.

Description	Code	Color	Format	US	ROW
Wolf-Hirschhorn WHSC1 (4p16) / SE 4	KBI-40107	Green/Red	10 Test	-	IVD
Wolf-Hirschhorn WHSC1 (4p16) / SE 4	KBI-45107	Green/Red	5 Test	-	IVD
WHSC1 (4p16) / SE 4	KI-40107	Green/Red	100 µL	RUO	-

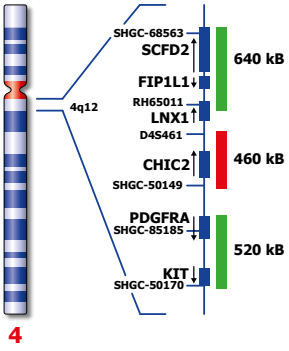
4q12 FIP1L1 / CHIC2 /PDGFRA Dual-Color



FIP1L1 / CHIC2 / PDGFRA (4q12) Deletion, Break probe hybridized to a normal interphase/metaphase (2RG).

Idiopathic hypereosinophilic syndrome (HES) and chronic eosinophilia leukemia (CEL) represent the most recent additions to the list of molecularly defined chronic myeloproliferative disorders. A novel tyrosine kinase that is generated from fusion of the Fip1-like 1 (FIP1L1) and PDGFRα (PDGFRA) genes has been identified as a therapeutic target for imatinib mesylate in hypereosinophilic syndrome (HES). This fusion results from an approximately 800-kb interstitial chromosomal deletion that includes the cysteine-rich hydrophobic domain 2 (CHIC2) locus.

The FIP1L1 / CHIC2 / PDGFRA FISH probe is optimized to detect the CHIC2 deletion at 4q12 associated with the FIP1L1 / PDGFRA fusion in a Dual-Color, split assay. It also allows the detection of translocation involving the FIP1L1 and PDGFRA region. However, chromosome 4 polyploidy may provide additional signals not associated with a translocation involving 4q12.



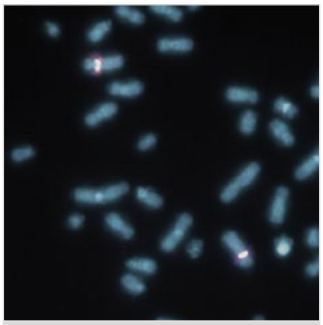
References

Cools et al, N Engl J Med, 2003, 348; 1201-1214.
Godlib et al, Blood, 2004, 103; 2879-2891.

Description	Code	Color	Format	US	ROW
FIP1L1 / CHIC2 / PDGFRA (4q12) Deletion, Break	KBI-10003	Green/Red	10 Test	-	IVD
FIP1L1 / CHIC2 / PDGFRA (4q12) Deletion, Break	KI-10003	Green/Red	100 µL	RUO	-

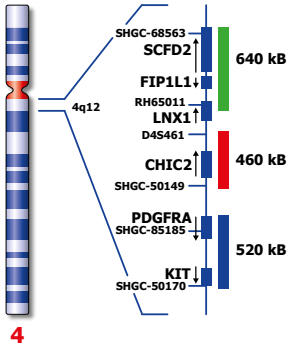
IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

4q12 FIP1L1 / CHIC2 /PDGFRA Triple-Color



FIP1L1 / CHIC2 / PDGFRA (4q12) Deletion, Break Triple-Color

The FIP1L1 / CHIC2 / PDGFRA Triple-Color FISH probe is optimized to detect the CHIC2 deletion at 4q12 associated with the FIP1L1 / PDGFRA fusion in a triple-color, split assay. It also allows the detection of translocation involving the FIP1L1 and PDGFRA region.

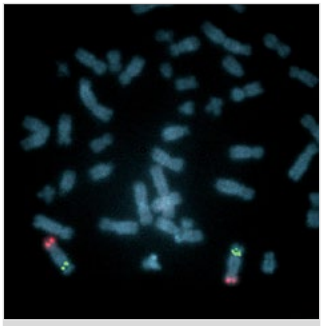


References

Cools et al, N Engl J Med, 2003, 348; 1201-1214.
Griffin et al, 2003, PNAS, 100;7830-7835.
Gotlib et al, 2004, Blood, 103;2879-2891

Description	Code	Color	Format	US	ROW
FIP1L1 / CHIC2 / PDGFRA (4q12) Deletion, Break, Triple-Color	KBI-10007	Green/Red/Blue	10 Test	-	IVD
FIP1L1 / CHIC2 / PDGFRA (4q12) Deletion, Break, Triple-Color	KI-10007	Green/Red/Blue	100 µL	RUO	-

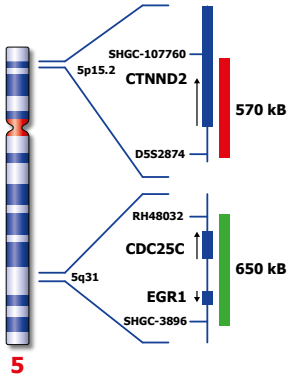
5p15 CTNND2



Cri-Du-Chat CTNND2 (5p15) / 5q31 probe hybridized to a normal metaphase 2RG).

Cri-Du-Chat syndrome is an autosomal deletion syndrome caused by a partial deletion of chromosome 5p. It is characterized by a distinctive, high-pitched, catlike cry in infancy with growth failure, microcephaly, facial abnormalities, and mental retardation throughout life. Loss of a small region in band 5p15.2 (Cri-Du-Chat critical region) correlates with all the clinical features of the syndrome with the exception of the catlike cry, which maps to band 5p15.3 (catlike cry critical region).

The Cri-Du-Chat region probe is optimized to detect copy numbers at the CTNND2 gene region in the Cri-Du-Chat critical region at 5p15.2. The 5q31 specific FISH probe is included as control probe.

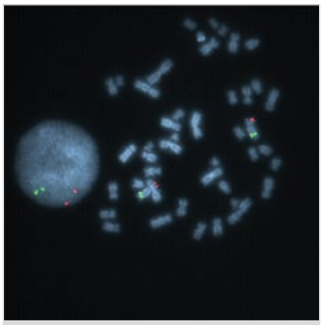


References

Overhauser et al, 1994, Hum. Mol. Genet., 3; 247-252.
Gersh et al, 1997, Cytogenet Cell Genet., 77; 246-251.

Description	Code	Color	Format	US	ROW
Cri-Du-Chat CTNND2 (5p15) / 5q31	KBI-40106	Green/Red	10 Test	-	IVD
Cri-Du-Chat CTNND2 (5p15) / 5q31	KBI-45106	Green/Red	5 Test	-	IVD
CTNND2 (5p15) / 5q31	KI-40106	Green/Red	100 µL	RUO	-

5p15 TERT / 5q31

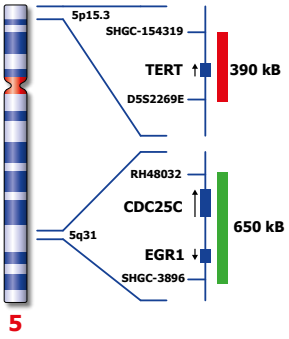


TERT (5p15) / 5q31 probe hybridized to a normal interphase/metaphase (2R2G).

Image kindly provided by Dr. Mohr, Dresden.

The TERT / 5q31 dual-color FISH probe can be used to detect deletions involving band 5q31 in MDS and RUNX1.

The 5q- specific FISH probe is optimized to detect copy numbers at the CDC25C/ EGR1 gene region at 5q31. The TERT (previously known as hTERT) gene region at 5p15 is included to facilitate chromosome identification.

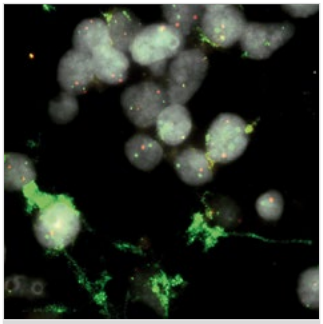


References

Zhao et al, 1997, PNAS, 94; 6948-6053.
Horrigan et al, 2000, Blood, 95; 2372-2377.

Description	Code	Color	Format	US	ROW
TERT (5p15) / 5q31	KBI-10208	Green/Red	10 Test	-	IVD
TERT (5p15) / 5q31	KI-10208	Green/Red	100 µL	RUO	-

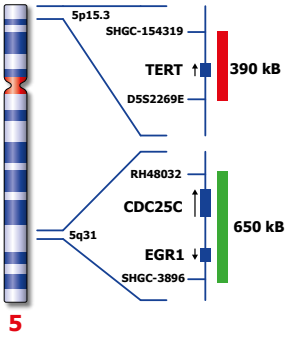
5p15 TERT / 5q31 (tissue)



TERT (5p15) / 5q31 (tissue) probe hybridized to paraffine embedded tissue (2R2G).

Amplification of the TERT gene at 5p15 has been observed in a variety of cancers, particularly lung cancer, cervical tumors, and breast carcinomas. Several studies have revealed a high frequency of TERT gene amplification in human tumors, which indicates that the TERT gene may be a target for amplification during the transformation of human malignancies and that this genetic event probably contributes to a dysregulation of TERT/ telomerase occurring in a subset of human tumors.

The TERT (5p15) FISH probe is designed as a dual-color assay to detect amplification at 5p15. The CDC25C / EGR1 (5q31) gene region probe is included as internal control.



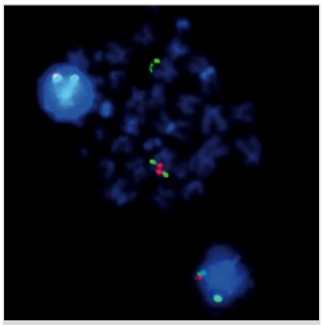
References

Bryce et al, 2000, Neoplasia, 2;197-201.
Zhang et al, 2000, Cancer Res, 60;6230-6235

Description	Code	Color	Format	US	ROW
TERT (5p15) / 5q31 (tissue)	KBI-10709	Green/Red	10 Test	-	IVD
TERT (5p15) / 5q31 (tissue)	KI-10709	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

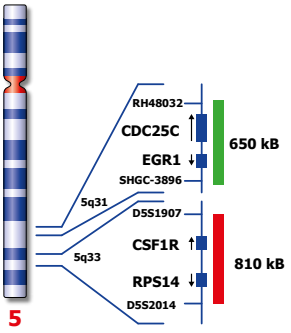
5q 5q- Dual-Color



5q- (5q31; 5q33) probe hybridized to patient material showing a 5q33 deletion (1R2G).

The presence of del(5q), either as the sole karyotypic abnormality or as part of a more complex karyotype, has distinct clinical implications for myelodysplastic syndromes (MDS) and acute myeloid leukemia. Interstitial 5q deletions are the most frequent chromosomal abnormalities in MDS and are present in 10% to 15% of MDS patients. Two different critical regions are described, one at 5q31-q33 containing the CSF1R and RPS14 gene regions, characteristic for the '5q-' syndrome, and a more proximal located region at 5q13-q31 containing the CDC25C and EGR1 gene regions.

The 5q- specific FISH probe is optimized to detect copy numbers at the CDC25C / EGR1 gene region at 5q31 and the CSF1R / RPS14 gene region at 5q33 simultaneously in a dual-color assay.

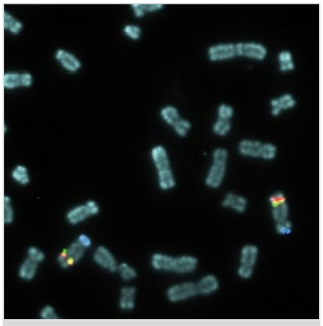


References

Boultwood J e.a., Blood 2002, 99; 4638-4641.
Zhao N e.a., PNAS 1997, 94; 6948-6953.
Wang e.a., Haematologica 2008, 93; 994-1000.
Ebert BL e.a., Nature 2008, 451; 335-339.
Mohamedali A and Mufti GJ, Brit J Haematol 2008, 144; 157-168.

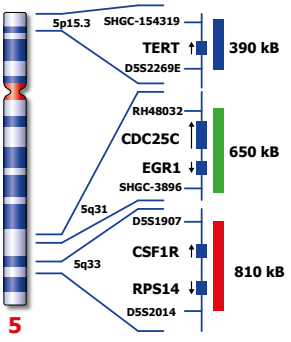
Description	Code	Color	Format	US	ROW
5q- (5q31; 5q33)	KBI-10209	Green/Red	10 Test	-	IVD
5q- (5q31; 5q33)	KI-10209	Green/Red	100 µL	RUO	-

5q 5q- Triple-Color



5q- (5q31; 5q33) / TERT (5p15)Triple-Color probe hybridized to a normal metaphase (2R2G2B).

The 5q- specific FISH probe is optimized to detect copy numbers at the CDC25C / EGR1 gene region at 5q31 and the CSF1R / RPS14 gene region at 5q33 simultaneously in a dual-color assay. The triple-color probe provides in addition to the two critical regions a control in blue targeting the TERT (previously known as hTERT) gene region at 5p15.

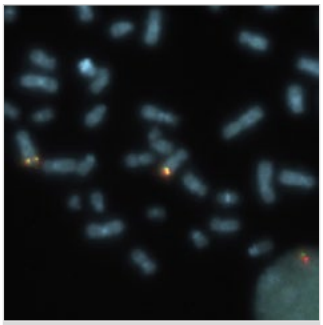


References

Boultwood J e.a., Blood 2002, 99; 4638-4641.
Zhao N e.a., PNAS 1997, 94; 6948-6953.
Wang e.a., Haematologica 2008, 93; 994-1000.
Ebert BL e.a., Nature 2008, 451; 335-339.
Mohamedali A and Mufti GJ, Brit J Haematol 2008, 144; 157-168.

Description	Code	Color	Format	US	ROW
5q- (5q31; 5q33) / TERT (5p15) Triple-Color	KBI-10210	Green/Red/Blue	10 Test	-	IVD
5q- (5q31; 5q33) / TERT (5p15) Triple-Color	KI-10210	Green/Red/Blue	100 µL	RUO	-

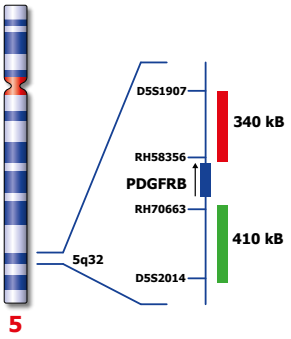
5q32 PDGFRB Break



PDGFRB (5q32) Break probe hybridized to a normal metaphase (2RG).

PDGFRB activation has been observed in patients with chronic myelomonocytic leukemia/atypical chronic myeloid leukemia and has been associated with 11 translocation partners, the best known is the ETV6 gene on 12p13, causing a t(5;12) translocation. Cytogenetic responses are achieved with imatinib in patients with PDGFRB fusion positive, BCR / ABL1 negative CMPDs.

The PDGFRB (5q32) Break FISH probe is optimized to detect translocations involving the PDGFRB region at 5q32 in a dual-color, split assay.



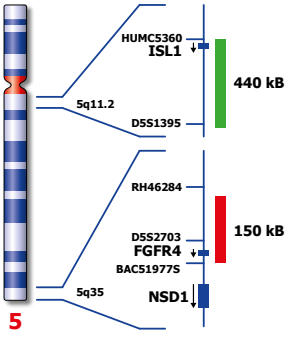
References
Wlodarska et al, 1997, Blood, 89; 1716-1722.
Wilkinson et al, 2003, Blood, 102; 4287-419.

Description	Code	Color	Format	US	ROW
PDGFRB (5q32) Break	KBI-10004	Green/Red	10 Test	-	IVD
PDGFRB (5q32) Break	KI-10004	Green/Red	100 µL	RUO	-

5q35 FGFR4 / 5q11.2

The fibroblast growth factor/fibroblast growth factor receptor (FGF / FGFR) signaling axis plays an important role in normal organ, vascular and skeletal development. It is also well documented that dysregulation of FGF-FGFR signaling via amplification, point mutation or translocations may have an important role in tumor development and progression. Alterations in FGFRs (i.e. overexpression, mutation, translocation, and truncation) are associated with a number of human cancers, including lung, myeloma, breast, gastric, colon, bladder, pancreatic, and hepatocellular carcinomas. A growing body of preclinical data demonstrates that inhibition of FGFR signaling can result in antiproliferative and/or pro-apoptic effects, thus confirming the validity of the FGFR / FGFR axis as a potential therapeutic target.

The FGFR4 (5q35) FISH probe is optimized to detect copy numbers of the FGFR4 gene region at region 5q35. The 5q11.2 probe is included to facilitate chromosome identification.

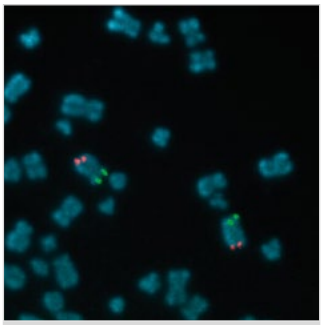


References
Brooks et al, Clin Cancer Res. 2012; 18:1855.
Dutt et al, PLoS ONE 6: e2035.1
Kunii et al, Cancer Res. 2008; 68:2340-8.
Liang et al, Clin Cancer Res. 2013;19: 2572
Liao et al, Cancer Res. 2013; 73:5195-205.
Weiss et al, Sci Transl Med. 2010; 2:62ra93.

Description	Code	Color	Format	US	ROW
FGFR4 (5q35) / 5q11.2	KBI-10756	Green/Red	10 Test	-	IVD
FGFR4 (5q35) / 5q11.2	KI-10756	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

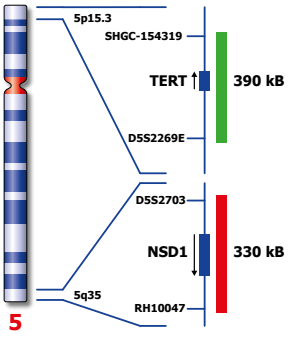
5q35 NSD1 / TERT



NSD1 (5q35) / TERT (5p15) probe hybridized to a normal metaphase (2R2G).

NSD1 microdeletions (chromosome 5q35) are the major cause of Sotos syndrome, and occur in some cases of Weaver syndrome. Sotos is a childhood overgrowth characterized by distinctive craniofacial features, advanced bone age, and mental retardation. Weaver syndrome is characterized by the same criteria but has its own specific facial characteristics. Sotos syndrome is inherited in an autosomal dominant manner. While 50% of Sotos patients in Asia are showing a chromosomal microdeletion, only 9% deletion cases are observed in the affected European population.

The NSD1 (5q35) region probe is optimized to detect copy numbers of the NSD1 gene region at 5q35.2. The TERT region specific FISH probe at 5p15 is included as control probe.

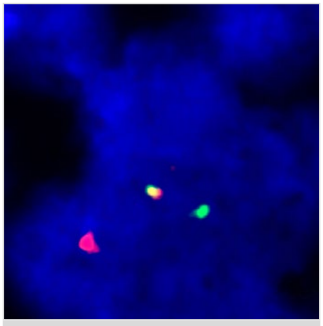


References

Douglas et al, 2003, Am. J. Hum. Genet. 72; 132-143.
Rio et al, 2003, J. Med. Genet., 40; 436-440.

Description	Code	Color	Format	US	ROW
NSD1 (5q35) / TERT (5p15)	KBI-40113	Green/Red	10 Test	-	IVD
NSD1 (5q35) / TERT (5p15)	KBI-45113	Green/Red	5 Test	-	IVD
NSD1 (5q35) / TERT (5p15)	KI-40113	Green/Red	100 µL	RUO	-

6p25 IRF4 / DUSP22 Break

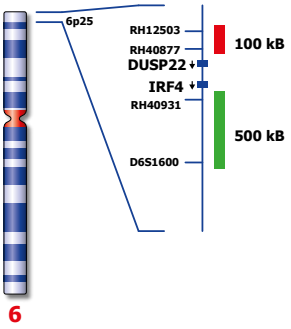


IRF4 / DUSP22 (6p25) Break.

Image kindly provided by Hopital Universitario Marqués de Valdecilla, Satander.

Rearrangements of the 6p25.3 locus define a subtype of cutaneous CD30 positive T-cell lymphomas (CTCL). Genes rearranged at the 6p25.3 locus are IRF4 (Interferon regulatory factor 4, 6p25.3) (previously known as MUM1) and the lately described DUSP22 (dual specificity phosphatase 22). FISH positivity for the IRF4 translocation showed to be highly specific (99%) for CD30 positive primary cutaneous anaplastic large cell lymphoma cases which makes FISH a useful adjunct in the differential diagnosis of CTCL. Rearrangements of the 6p25.3 locus have also been described to occur in high and low grade B-cell lymphomas, myeloma and chronic B-cell lymphoid leukemia. The IRF4 / DUSP22 (6p25) Break FISH probe detects both rearrangements involving IRF4 and DUSP22, but does not distinguish them from each other.

The IRF4 / DUSP22 (6p25) Break FISH probe is optimized to detect trans locations involving the IRF4 / DUSP22 gene region at the 6p25.3 locus in a dual-color assay on metaphase/interphase spreads, blood smears, bone marrow cells and lymph node biopsies.

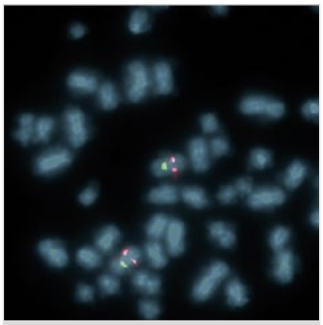


References

Bisig et al., Best Pract Res Clin Haematol, 2012, 25; 13-28.
Feldman et al., Blood, 2011, 117; 915-919.
Karai et al., Am J Surg Pathol, 2013 [Epub ahead of print].
Pham-Ledard et al., J Invest Dermatol, 2010, 130; 816-825.
Salaverria et al., Blood, 2011, 118; 139-147.
Wada et al., Mod Pathol, 2011, 24; 596-605.

Description	Code	Color	Format	US	ROW
IRF4 / DUSP22 (6p25) Break	KBI-10613	Green/Red	10 Test	-	IVD
IRF4 / DUSP22 (6p25) Break	KI-10613	Green/Red	100 µL	RUO	-

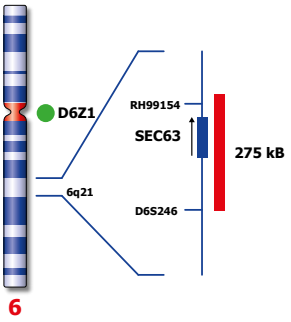
6q21 6q21 / SE 6



6q21 / SE 6 probe hybridized to a normal metaphase (2R2G).

Deletions affecting the long arm of chromosome 6 (6q) are among the most commonly observed chromosomal aberrations in lymphoid malignancies and have been identified as an adverse prognostic factor in subsets of tumors including CLL. A minimal deletion region has been identified within a 2-megabase segment of 6q21, between D6S447 and D6S246. The SEC63 gene is located within this critical region.

The 6q21 specific FISH probe is optimized to detect copy numbers of 6q at region 6q21.The chromosome 6 Satellite Enumeration FISH probe (SE 6) at D6Z1 is included to facilitate chromosome identification.



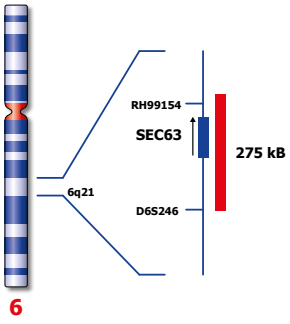
References
Sherratt et al, 1997, Chromosome Res, 5; 118-124.
Zhang et al, 2000, Genes Chrom Cancer, 27; 52-58.

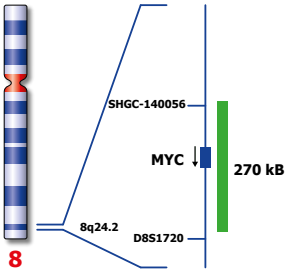
Description	Code	Color	Format	US	ROW
6q21 / SE 6	KBI-10105	Green/Red	10 Test	-	IVD
6q21 / SE 6	KI-10105	Green/Red	100 µL	RUO	-

6q21 6q21 / MYC

Deletions affecting the long arm of chromosome 6 (6q) involving band 6q21 are among the most commonly observed chromosomal aberrations in lymphoid malignancies and have been identified as adverse prognostic factor in subsets of tumors. Amplification of MYC (8q24) has been described in many types of solid tumors, such as breast, cervical and colon cancers, as well as in myeloma, non-Hodgkin's lymphoma, gastric adenocarcinomas and ovarian cancer.

The 6q21 / MYC (8q24) FISH probe is designed as a dual-color assay to detect deletions and amplifications at 6q21 and 8q24.



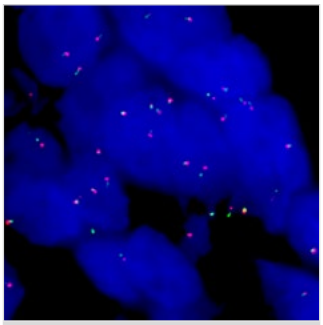


References
Zhang, Y, 2000, Genes, Chrom. And Canc. 27; 52-58
Bentz, M et al, 1995, Blood, 85; 3610-3618

Description	Code	Color	Format	US	ROW
6q21 / MYC (8q24)	KBI-10117	Green/Red	10 Test	-	IVD
6q21 / MYC (8q24)	KI-10117	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

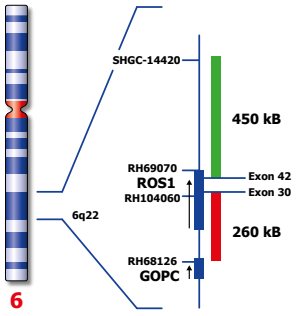
6q22 ROS1 Break



Hybridization of ROS1 (6q22) Break Probe (KBI-10752) to a tissue section harboring a ROS1 rearrangement.

Translocations involving the ROS1 (repressor of silencing 1) gene at chromosome 6q22 can increase expression of the gene by fusion with SLC34A2 (4p15), but also with other fusion partners. Elevated expression is observed in non-small cell lung cancer (NSCLC), where the success of tyrosine kinase-based therapeutics is based on inhibiting the activity of these fusion genes. The fusion of ROS1 to the GOPC (FIG; 6q22) gene, by deletion of a 240 kb DNA fragment, also results in activation of a fusion gene.

The ROS1 (6q22) Break probe is optimized to detect translocations involving the ROS1 gene region at the 6q22 locus, as well as the 240 kb deletion forming the ROS1-GOPC fusion gene, in a dual-color assay on formalin- fixed paraffin-embedded tissue samples.

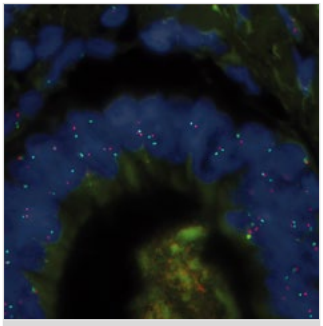


References

Charest et al, Genes Chromosomes Cancer, 2003, 37: 58-71.
Rikova et al, Cell, 2007, 131: 1190-120.
Rimkunas et al, Clin. Can. Res., 2012, 18: 4449-4457.
Takeuchi et al, Nat. Med., 2012, 18: 378-381.
Gu et al, PLoS, 2011, 6: e15640.

Description	Code	Color	Format	US	ROW
ROS1 (6q22) Break	KBI-10752	Green/Red	10 Test	-	IVD
ROS1 (6q22) Break	KI-10752	Green/Red	100 µL	RUO	-

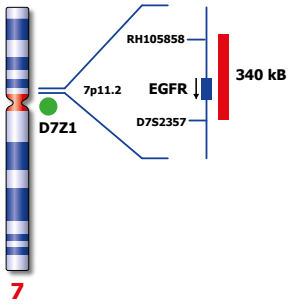
7p11 EGFR / SE 7



EGFR (7p11) / SE 7 hybridized to colon tissue (2R2G).

Epidermal growth factor receptor (EGFR) is a cell membrane protein, providing signal transduction and cell growth. It is a member of the Erb-B family of type I receptor tyrosine kinases and implicated in the development and progression of non-small cell lung carcinomas (NSCLC), breast, intestine, and other organs. EGFR has been found to act as a strong prognostic indicator in head and neck, ovarian, cervical, bladder and oesophageal cancers. In these cancers, increased EGFR expression was associated with reduced recurrence-free or overall survival.

The EGFR (7p11) FISH probe is optimized to detect copy numbers of the EGFR gene region at region 7p11. The chromosome 7 satellite enumeration (SE 7) probe at D7Z1 is included to facilitate chromosome identification.

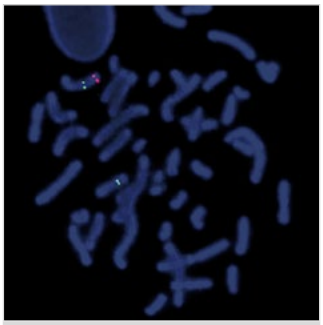


References

Wang et al, 1993, Jpn J Hum Genet, 38: 399-406.
Nicholoset al, 2001, Eur J Cancer, 37: 9-15.

Description	Code	Color	Format	US	ROW
EGFR (7p11) / SE 7	KBI-10702	Green/Red	10 Test	-	IVD
EGFR (7p11) / SE 7	KI-10702	Green/Red	100 µL	RUO	-

7q 7q-

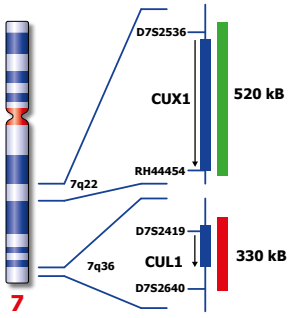


7q- (7q22; 7q36) hybridized to patient material showing a 7q36 deletion (1R2G).

Image kindly provided by Prof. Jauch, Heidelberg.

Loss of a whole chromosome 7 or a deletion of the long arm, del(7q), are recurring abnormalities in malignant myeloid diseases. Most deletions are interstitial and there are two distinct deleted segments of 7q. The majority of patients have proximal breakpoints in bands q11-22 and distal breakpoints in q31-36. The CCAAT displacement protein CUX1 gene region is located in the 7q22 critical region.

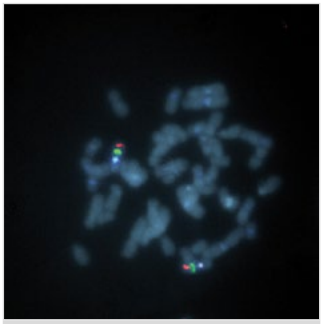
The 7q- specific FISH probe is optimized to detect copy number of 7q at 7q22 and at 7q36 simultaneously in a dual-color assay.



References
LeBeau et al., 1996, Blood, 88; 1930-1935.
Doehner et al, 1998, Blood, 92; 4031-4035.

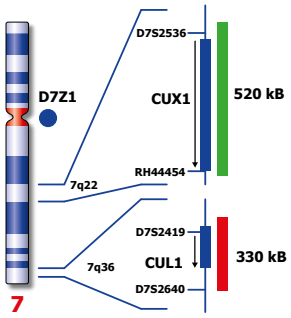
Description	Code	Color	Format	US	ROW
7q- (7q22; 7q36)	KBI-10202	Green/Red	10 Test	-	IVD
7q- (7q22; 7q36)	KI-10202	Green/Red	100 µL	RUO	-

7q 7q- Triple-Color



7q (7q22; 7q36) / SE 7 Triple-Color probe hybridized to a normal metaphase (2R2G2B).

The 7q- specific FISH probe is optimized to detect copy number of 7q at 7q22 and at 7q36 simultaneously in a dual-color assay. The chromosome 7 Satellite Enumeration FISH probe (SE 7) at D7Z1 in blue is included to facilitate chromosome identification.

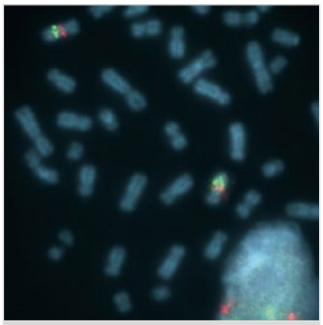


References
LeBeau et al., 1996, Blood, 88; 1930-1935.
Doehner et al, 1998, Blood, 92; 4031-4035.

Description	Code	Color	Format	US	ROW
7q- (7q22; 7q36) / SE7 Triple-Color	KBI-10207	Green/Red/Blue	10 Test	-	IVD
7q- (7q22; 7q36) / SE7 Triple-Color	KI-10207	Green/Red/Blue	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

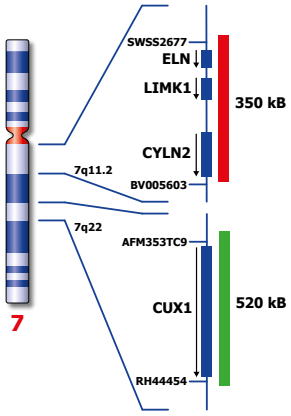
7q11 ELN / 7q22



Williams-Beuren ELN (7q11) / 7q22 probe hybridized to a normal metaphase (2RG).

Williams-Beuren syndrome (WS) is characterized by cardiovascular disease, distinctive facial features, connective tissue abnormalities, mental retardation and endocrine abnormalities. Over 99% of individuals with the clinical diagnosis of WS have this contiguous gene deletion, that encompasses the elastin (ELN) gene region including ELN, LIMK1, and the D7S613 locus.

The Williams-Beuren region probe is optimized to detect copy numbers of the ELN gene region at 7q11. The 7q22 region specific FISH probe at 7q22 is included as control probe.

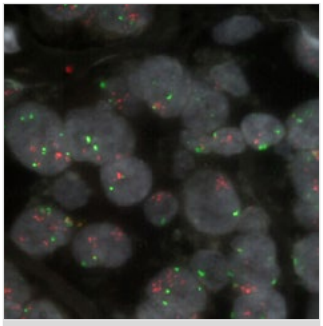


References

Ewart, et al, 1993, Nat. Genet., 5; 11-16.
Botta et al, 1999, J. Med. Genet., 36; 478-480.

Description	Code	Color	Format	US	ROW
Williams-Beuren ELN (7q11) / 7q22	KBI-40111	Green/Red	10 Test	-	IVD
Williams-Beuren ELN (7q11) / 7q22	KBI-45111	Green/Red	5 Test	-	IVD
ELN (7q11) / 7q22	KI-40111	Green/Red	100 µL	RUO	-

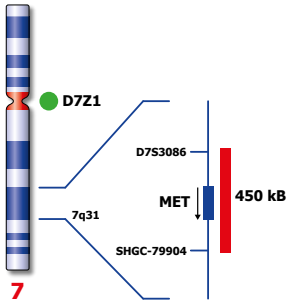
7q31 MET / SE 7



Hybridization of MET Amplification Probe (KBI-10719) to a tissue section showing MET amplification.

The MET proto-oncogene is a receptor-like tyrosine kinase that drives a physiological cellular program important for development, cell movement, cell repair and cellular growth. Aberrant execution of this program has been associated to neoplastic transformation, invasion and metastasis. Activation of MET has been reported in a significant percentage of human cancers including non-small cell lung cancer (NSCLC) and is amplified during the transition between primary tumors and metastasis.

The MET (7q31) FISH probe is optimized to detect copy numbers of the MET gene region at region 7q31. The Chromosome 7 Satellite enumeration probe (SE 7) at D7Z1 is included to facilitate chromosome identification.

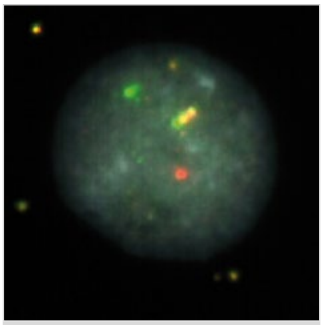


References

Go et al, 2010, J Thorac Oncol 5: 305-313.
Hara et al, 1998, Lab Invest 78; 1143-1153.
Tsugawa et al, 1998, Oncology 55; 475-481.

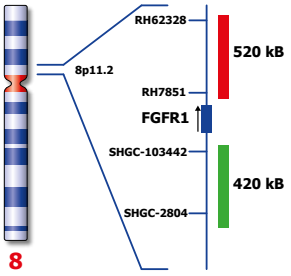
Description	Code	Color	Format	US	ROW
MET (7q31) / SE 7	KBI-10719	Green/Red	10 Test	-	IVD
MET (7q31) / SE 7	KI-10719	Green/Red	100 µL	RUO	-

8p11 FGFR1 Break



FGFR1 (8p11) Break probe hybridized to patient material showing a break at 8p11 (1RG1R1G).

FGFR1 has been implicated in the tumorigenesis of haematological malignancies, where it is frequently involved in balanced chromosomal translocations, including cases of chronic myeloid leukemia (BCR-FGFR1 fusion) and the 8p11 myeloproliferative syndrome/stem cell leukemia–lymphoma syndrome, which is characterized by myeloid hyperplasia and non-Hodgkin's lymphoma with chromosomal translocations fusing several genes, the most common being a fusion between ZNF198 and FGFR1.

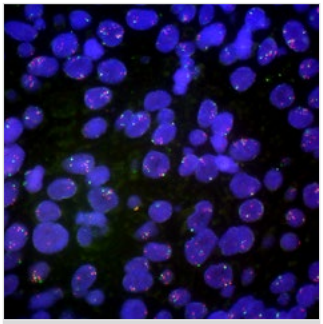


References

Smedley et al, 1998, Hum Mol Genet., 7; 627-642.
Sohal et al, 2001, Genes Chrom. Cancer, 32; 155-163.
Kwak et al, J Clin Oncol., 27(26); 4247-53.

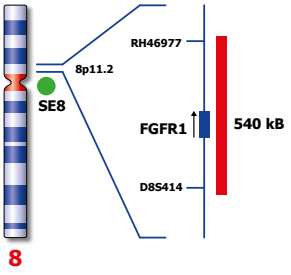
Description	Code	Color	Format	US	ROW
FGFR1 (8p11) Break	KBI-10737	Green/Red	10 Test	-	IVD
FGFR1 (8p11) Break	KI-10737	Green/Red	100 µL	RUO	-

8p11 FGFR1 / SE 8



FGFR1 gene locus amplification in FFPE tissue showing an amplification of FGFR1 gene region at 8p11.

Amplification of the fibroblast growth factor receptor type 1 gene (FGFR1) has been observed in numerous cancer types including lung cancer (especially squamous cell carcinoma) and breast cancer. With the development of new therapeutic strategies, FGFR1 amplification could act as a valuable biomarker for R&D and provide an attractive tool for clinical stratification. The FGFR1 (8p11) / SE 8 FISH probe is optimized to detect amplification involving the FGFR1 gene region at 8p11 in a dual-color assay on paraffin embedded tissue sections. The chromosome 8 satellite enumeration probe (SE 8) at D8Z1 is included to facilitate chromosome identification.



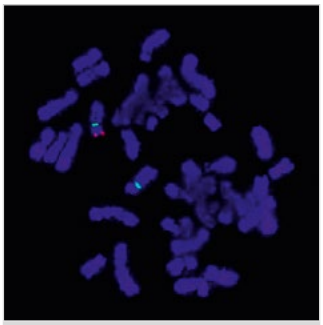
References

Weiss et al, 2010, Sci Transl. Med. 2(62); 62ra93.
Brooks et al, 2012, Clin. Cancer res. 18(7): 1855-62

Description	Code	Color	Format	US	ROW
FGFR1 (8p11) / SE 8	KBI-12754	Green/Red	20 Test	-	IVD
FGFR1 (8p11) / SE 8	KBI-14754	Green/Red	50 Test	-	IVD

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

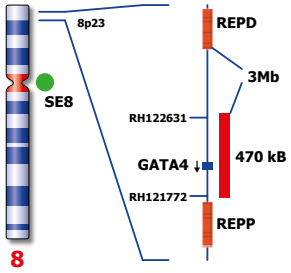
8p23 GATA4 / SE8



GATA4 (8p23) / SE 8 probe hybridized to patient material showing a deletion of the GATA4 (8p23) region (1R2G).

The deletion of GATA4 (8p23) is found in patients with congenital heart disease. Besides the deletion of the region, duplications are found of the region flanked by low copy repeats 8p-OR-REPD (distal) and –REPP (proximal). These recurrent deletions are associated with a spectrum of anomalies, including congenital diaphragmatic hernia, developmental delay and neuropsychiatric findings. GATA4 is expressed in adult heart, epithelium and gonads. During fetal development, GATA4 is expressed in yolk sac endoderm and cells involved in heart formation.

The GATA4 (8p23) / SE 8 FISH probe is optimized to detect deletions of the GATA4 gene region at 8p23 in a dual-color assay on metaphase/interphase spreads, blood smears and bone marrow cells. The Chromosome 8 Satellite Enumeration (SE) FISH probe is included to facilitate chromosome identification.

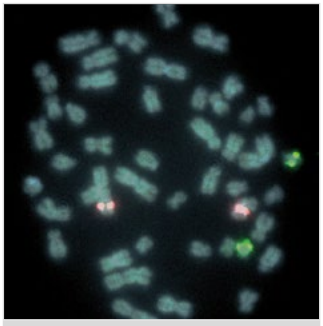


References

Bhatia et al, 1999, Prenat Diagn., 19; 863-867.
Giorda et al, 2007, Hum. Mut., 28; 459-468.
Wat et al, 2009, Am. J. Med. Genet., Part A, 149A; 1661-1677.

Description	Code	Color	Format	US	ROW
GATA4 (8p23) / SE 8	KBI-40118	Green/Red	10 Test	-	IVD
GATA4 (8p23) / SE 8	KBI-45118	Green/Red	5 Test	-	IVD
GATA4 (8p23) / SE 8	KI-40118	Green/Red	100 µL	RUO	-

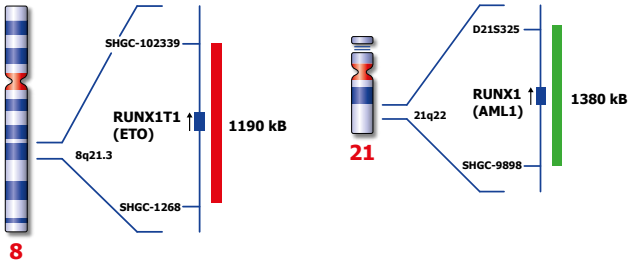
8q21 RUNX1 / RUNX1T1



RUNX1/RUNX1T1 t(8;21) Fusion probe hybridized to a normal metaphase (2R2G).

t(8;21)(q21;q22) is the most frequently observed karyotypic abnormality associated with acute myeloid leukemia (AML), especially in FAB M2. As a consequence of the translocation the RUNX1 (previously known as AML) (CBFA2) gene in the 21q22 region is fused to the RUNX1T1 (previously known as ETO) (MTG8) gene in the 8q21 region, resulting in one transcriptionally active gene on the 8q-derivative chromosome.

The RUNX1/RUNX1T1 t(8;21)(q21;q22) specific FISH probe is optimized to detect the reciprocal translocation t(8;21) in a dual-color, dual-fusion assay.

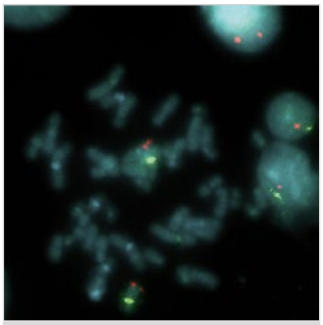


References

Sacchi et al, 1995, Genes Chrom Cancer, 79; 97-103.
Hagemeijer et al, 1998, Leukemia, 12; 96-101.

Description	Code	Color	Format	US	ROW
RUNX1/RUNX1T1 t(8;21) Fusion	KBI-10301	Green/Red	10 Test	-	IVD
RUNX1/RUNX1T1 t(8;21) Fusion	KI-10301	Green/Red	100 µL	RUO	-

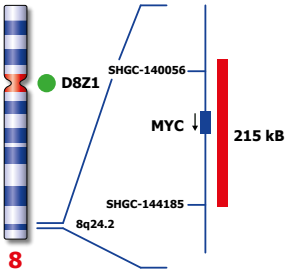
8q24 MYC / SE 8



MYC (8q24) / SE 8 hybridized to a normal metaphase (2R2G).

The MYC (previously known as C-MYC) gene produces an oncogenic transcription factor that affects diverse cellular processes involved in cell growth, cell proliferation, apoptosis and cellular metabolism. The MYC oncogene has been shown to be amplified in many types of human cancer such as bladder, breast and cervical. Amplification at 8q24 including MYC is also observed in 5% of CLL patients. MYC is also the prototype for oncogene activation by chromosomal translocation.

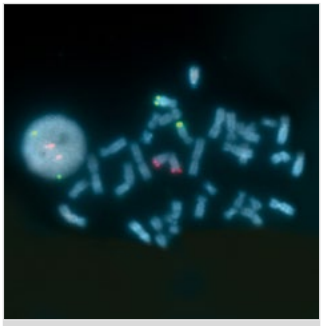
The MYC (8q24) specific FISH probe is optimized to detect copy numbers of the MYC gene region at 8q24. The chromosome 8 Satellite Enumeration FISH probe (SE 8) at D8Z1 is included to facilitate chromosome identification.



References
Greil et al, 1991, Blood, 78; 180-191.

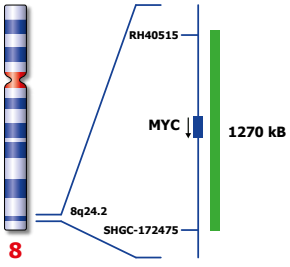
Description	Code	Color	Format	US	ROW
MYC (8q24) / SE 8	KBI-10106	Green/Red	10 Test	-	IVD
MYC (8q24) / SE 8	KI-10106	Green/Red	100 µL	RUO	-

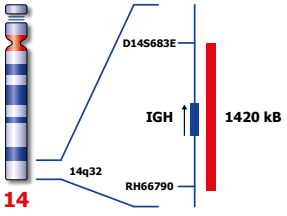
8q24 MYC/IGH t(8;14) Fusion



MYC / IGH t(8;14) Fusion probe hybridized to a normal interphase/ metaphase (2R2G).

The translocation t(8;14)(q24;q32) is the characteristic chromosomal aberration of Burkitt's-type of lymphomas. This translocation fuses the MYC gene at 8q24 next to the IGH locus at 14q32, resulting in overexpression of the transcription factor MYC. Detection of the t(8;14) is aimed to help in the diagnostic process of patients with high-grade B-cell lymphomas because treatment strategies differ between Burkitt and other high-grade lymphomas. The MYC / IGH t(8;14) (q24;q32) specific FISH probe is optimized to detect the reciprocal translocation t(8;14) in a dual-color, dual-fusion assay.



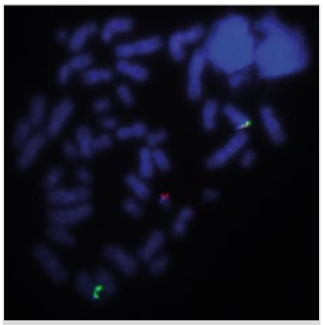


References
Veronese et al, 1995, Blood, 85;2132-2138.
Siebert et al, 1998, Blood, 91; 984-990.

Description	Code	Color	Format	US	ROW
MYC/IGH t(8;14) Fusion	KBI-10603	Green/Red	10 Test	-	IVD
MYC/IGH t(8;14) Fusion	KI-10603	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

8q24 MYC (8q24) Break

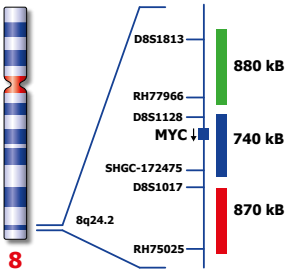


MYC (8q24) Break probe hybridized to patient material showing a 8q24 proximal break (1GBR1G1BR).

Image kindly provided by Prof. Siebert, Kiel.

Rearrangements of the protooncogene MYC (previously known as C-MYC) have been consistently found in tumor cells of patients suffering from Burkitt's lymphoma. In cases with the common t(8;14) chromosomal translocation, the MYC gene is translocated to chromosome 14 and rearranged with the immunoglobulin heavychain genes; the breakpoint occurs 5' to the MYC gene and may disrupt the gene itself separating part of the first untranslated exon from the remaining two coding exons. In Burkitt's lymphoma showing the variant t(2;8) or t(8;22) translocations, the genes coding for the k and l immunoglobulin light chain are translocated to chromosome 8. The rearrangement takes place 3' to the MYC gene.

The MYC (8q24) Break probe is optimized to detect rearrangements involving the 8q24 locus in a triple-color, split assay on metaphase/ interphase spreads, blood smears and bone marrow cells.

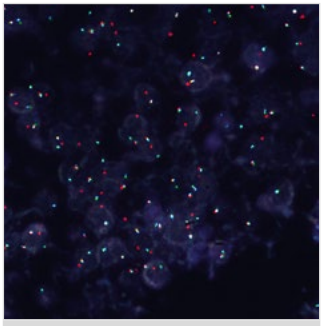


References

Fabris et al, 2003, Genes Chromosomes Cancer, 37;261-269.
Hummel et al, 2006, N Engl J Med, 354; 2419-30.

Description	Code	Color	Format	US	ROW
MYC (8q24), Triple-Color, Break	KBI-10611	Green/Red/Blue	10 Test	-	IVD
MYC (8q24), Triple-Color, Break	KI-10611	Green/Red/Blue	100 µL	RUO	-

8q24 MYC (8q24) Break (tissue)

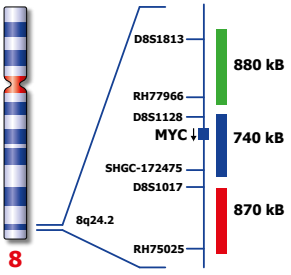


MYC (8q24) Break, TC (tissue) probe hybridized to patient material showing a 8q24 distal break (1GB1R1GBR).

Image kindly provided by N. Van Acker, Antwerp.

Rearrangements of the proto oncogene MYC (or c-myc) have been consistently found in tumor cells of patients suffering from Burkitt's lymphoma. In cases with the common t(8;14) chromosomal translocation, the MYC gene is translocated to chromosome 14 and rearranged with the immunoglobulin heavy chain genes; the breakpoint occurs 5' to the MYC gene and may disrupt the gene itself separating part of the first untranslated exon from the remaining two coding exons. In Burkitt's lymphoma showing the variant t(2;8) or t(8;22) translocations, the genes coding for the k and l immunoglobulin light chain are translocated to v-myc avian myelocytomatosis viral oncogene homolog (MYC or c-myc) chromosome 8.

The MYC (8q24) Break probe is optimized to detect rearrangements involving the 8q24 locus in a triple-color, split assay on formalin fixed paraffin embedded tissue.

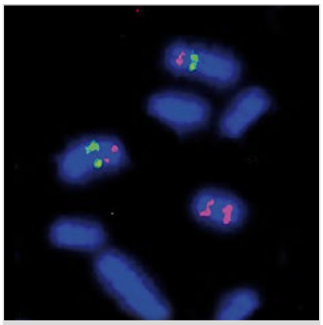


References

Fabris et al, 2003, Genes Chromosomes Cancer, 37;261-269.
Hummel et al, 2006, N Engl J Med, 354; 2419-30.

Description	Code	Color	Format	US	ROW
MYC (8q24) Triple-Color, Break (tissue)	KBI-10749	Green/Red/Blue	10 Test	-	IVD
MYC (8q24) Triple-Color, Break (tissue)	KI-10749	Green/Red/Blue	100 µL	RUO	-

9p21 CDKN2A / 9q21

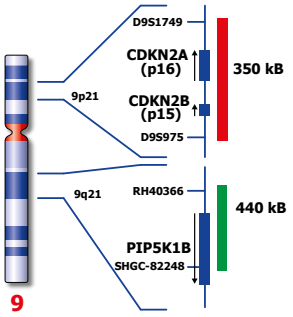


CDKN2A (9p21) / 9q21 hybridized on patient material showing an isochromosome 9.

Image kindly provided by Dr. Wenzel, Basel.

Hemizygous deletions and rearrangements of chromosome 9, band p21 are among the most frequent cytogenetic abnormalities detected in pediatric acute lymphoblastic leukemia (ALL). This deletion includes loss of the CDKN2A (previously known as p16, INK4A or MTS1) / CDKN2B (previously known as p15, INK4B or MTS2) genes, which are cell cycle kinase inhibitors and important in leukemogenesis.

The CDKN2A (9p21) specific FISH probe is optimized to detect copy numbers of the CDKN2A gene region at region 9p21. The 9q21 region probe is included to facilitate chromosome identification.

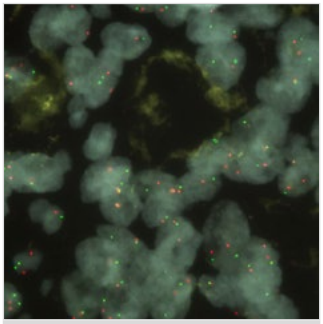


References

Dreyling et al, 1995, Blood, 86; 1931-1938.
Southgate et al, 1995, Br J Cancer, 72; 1214-1218.

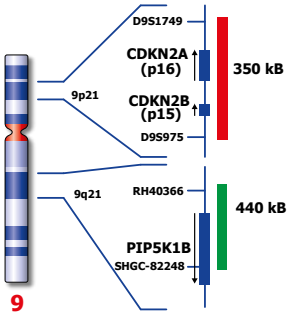
Description	Code	Color	Format	US	ROW
CDKN2A (9p21) / 9q21	KBI-10402	Green/Red	10 Test	-	IVD
CDKN2A (9p21) / 9q21	KI-10402	Green/Red	100 µL	RUO	-

9p21 CDKN2A / 9q21 (tissue)



CDKN2A (9p21) / 9q21 (tissue) probe hybridized to tissue (2R2G).

Homozygous and hemizygous deletions of 9p21 are the earliest and most common genetic alteration in bladder cancer. The CDKN2A (INK4A) gene has been identified as tumor suppressor gene in this region which is commonly deleted in bladder cancer. The loss of DNA sequences on chromosomal bands 9p21-22 has been documented also in a variety of malignancies including leukemias, gliomas, lung cancers, and melanomas. The CDKN2A (9p21) FISH probe is optimized to detect copy numbers of the CDKN2A gene region at region 9p21. The 9q21 region probe is included to facilitate chromosome identification.



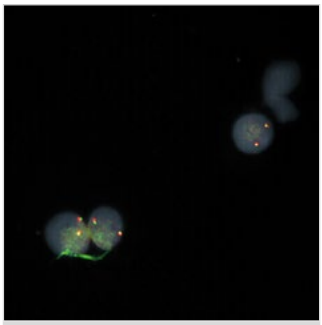
References

Stadler et al, 1994, Cancer Res, 54:2260-2063.
Williams et al, 1995, Hum Mol Genet; 4: 1569-1577.

Description	Code	Color	Format	US	ROW
CDKN2A (9p21) / 9q21 (tissue)	KBI-10710	Green/Red	10 Test	-	IVD
CDKN2A (9p21) / 9q21 (tissue)	KI-10710	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

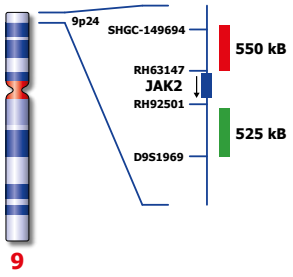
9p24 JAK2 Break



JAK2 (9p24) Break probe hybridized to bone marrow sample (2RG).

Janus Kinase 2 (JAK2) is a tyrosine kinase involved in cytokine signaling. Mutations and translocations involving the JAK2 gene region are observed in myeloproliferative neoplasms. The common JAK2617V>F point mutation and translocations results in constitutive activation of JAK2. Translocations are described with the following fusion partners: PCM1, BCR, ETV6 (TEL), SSBP2 and 3q21. Patients with the JAK2617V>F point mutation can also exhibit a numerical gain of the gene.

The JAK2 (9p24) Break FISH probe is optimized to detect translocations involving the JAK2 gene region at region 9p24 in a dual-color, split assay on metaphase/ interphase spreads. The JAK2 (9p24) Break FISH probe can not be used to detect point mutations, and it has not been optimized to detect gene amplifications.

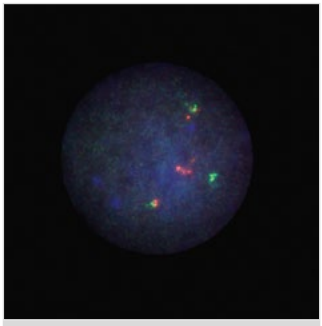


References

Najfeld V et al, 2007, Exp Hematol, 35; 1668-1676.
Smith C et al, 2008, Hum Pathol, 39; 795-810.
Poitras J et al, 2008, Genes Chromosomes Cancer, 47; 884-889.

Description	Code	Color	Format	US	ROW
JAK2 (9p24) Break	KBI-10012	Green/Red	10 Test	-	IVD
JAK2 (9p24) Break	KI-10012	Green/Red	100 µL	RUO	-

9q34 DEK / NUP214

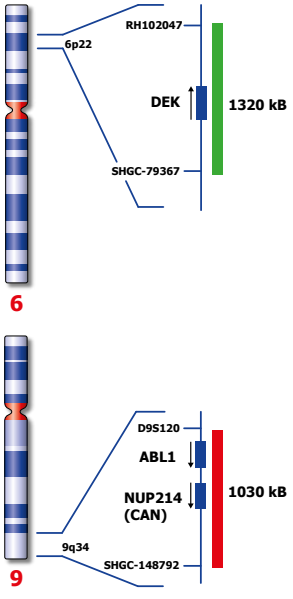


DEK / NUP214 t(6;9) Fusion probe hybridized to patient material showing a t(6;9)(p22;q34) translocation (2RG1R1G).

Image kindly provided by Dr. Stevens-Kroef, UMC St. Radboud, Nijmegen.

The chromosomal translocation t(6;9) (p22;q34) is associated with a specific subtype of acute myeloid leukemia (AML) and constitutes 0.5% to 4% of all AML cases. The translocation results in a fusion between the DEK oncogene (6p22) and the nucleoporin 214 kDa (NUP214 at 9q34; previously known as CAN). The exact mechanism by which the fusion protein DEK-NUP214 contributes to leukemia development has not been identified. Patients with t(6;9) AML have a very poor prognosis. The currently available chemotherapy does not seem to improve overall survival. However, accurate diagnosis is crucial because these patients may benefit from early allogeneic stem cell transplant.

The DEK / NUP214 t(6;9) specific FISH Probe has been optimized to detect the reciprocal translocation t(6;9) in a dual-color, dual-fusion assay on metaphase/ interphase spreads, blood smears and bone marrow cells.

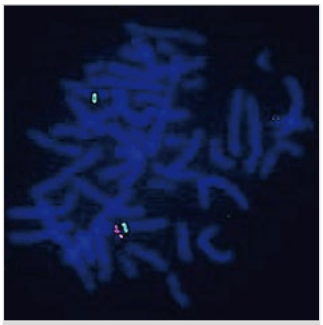


References

Von Lindern et al, 1992, Mol. Cell. Biol.,12; 1687-1697.
Ageberg et al, 2008, Gen. Chrom. Canc., 47; 276-287.
Chi et al, 2008, Arch. Pathol. Lab. Med., 132; 1835-1837.

Description	Code	Color	Format	US	ROW
DEK/NUP214 t(6;9) Fusion	KBI-10306	Green/Red	10 Test	-	IVD
DEK/NUP214 t(6;9) Fusion	KI-10306	Green/Red	100 µL	RUO	-

10p14 DiGeorge II / SE 10

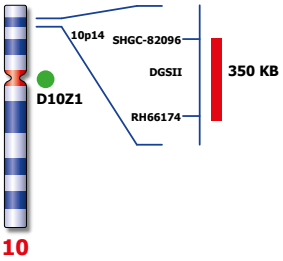


DiGeorge II(10p14) / SE 10 probe hybridized to DiGeorge II patient material showing a deletion of the DGSII region at 10p14 (1R2G).

Image kindly provided by Azzedine Aboura, Hôpital Robert Debré Paris.

DiGeorge and VCFS present many clinical problems and are frequently associated with deletions within 22q11.2, but a number of cases have no detectable molecular defect of this region. A number of single case reports with deletions of 10p suggest genetic heterogeneity of DiGeorge syndrome. FISH analysis demonstrates that these patients have overlapping deletions at the 10p13/10p14 boundary. The shortest region of deletion overlap (SRO) has been identified in a 1 cM interval including makers D10S547 and D10S585.

The DiGeorge II region probe is optimized to detect copy numbers of the DGSII at 10p14. The chromosome 10 satellite enumeration (SE 10) FISH probe at D10Z1 is included to facilitate chromosome identification.

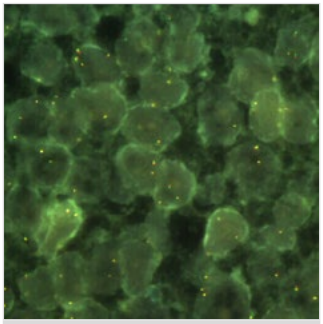


References

Monaco et al, 1991, Am. J. Med. Genet., 39; 215-216.
Schuffenhauer et al, 1998, Eur. J. Hum. Genet., 6; 213-225.

Description	Code	Color	Format	US	ROW
DiGeorge II (10p14) / SE 10	KBI-40105	Green/Red	10 Test	-	IVD
DiGeorge II (10p14) / SE 10	KBI-45105	Green/Red	5 Test	-	IVD
DiGeorge II (10p14) / SE 10	KI-40105	Green/Red	100 µL	RUO	-

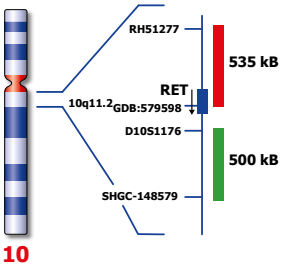
10q11 RET Break



Hybridization of RET (10q11) Break Probe (KBI-10753) to a tissue section (2RG).

Pericentric inversion of chromosome 10 involving the RET (ret proto-oncogene) gene at chromosome 10q11 is known to increase expression of the RET gene by fusion with KIF5B (10p11). Translocations with other fusion partners have also been described. Elevated expression of RET is observed in non-small cell lung cancer (NSCLC), in which the function of tyrosine kinase-based therapeutics is based on the inhibition of such fusion proteins. Translocations involving RET have also been described in thyroid carcinomas.

The RET (10q11) Break probe is optimized to detect translocations involving the RET gene region at 10q11.



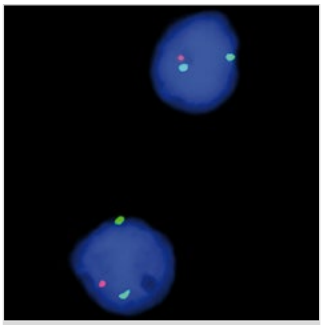
References

Chen et al, Cancer Genet Cytogenet, 2007, 178: 128-134.
Kohno et al, Nat Med, 2012, 18: 375-377.
Takeuchi et al, Nat Med, 2012, 18: 378-381.

Description	Code	Color	Format	US	ROW
RET (10q11) Break	KBI-10753	Green/Red	10 Test	-	IVD
RET (10q11) Break	KI-10753	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

10q23 PTEN / SE 10

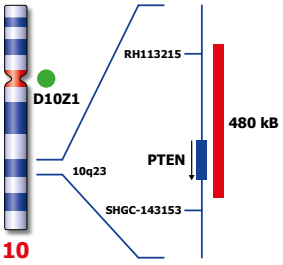


PTEN (10q23) / SE 10 probe hybridized to prostate cancer material showing deletion of PTEN gene region at 10q23 (1R2G).

Image kindly provided by Portuguese Cancer Inst., Porto.

The gene 'phosphatase and tensin homolog' (PTEN), is a tumor suppressor located at chromosome region 10q23, that plays an essential role in the maintenance of chromosomal stability, cell survival and proliferation. Loss of PTEN has been found in a wide number of tumors, and its important role is demonstrated by the fact that it is the second most frequently mutated gene after TP53. Loss of PTEN significantly correlates with the advanced forms of gliomas, but also of prostate cancer and breast tumors.

The PTEN (10q23) FISH probe is optimized to detect copy numbers of the PTEN gene region at region 10q23. The Chromosome 10 Satellite enumeration probe (SE 10) at D10Z1 is included to facilitate chromosome identification.



References

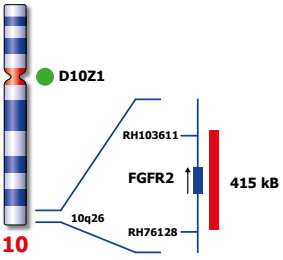
Cairns et al, 1997, Cancer Res, 57 ; 4997-5000.
Hermans et al, 2004, Genes Chrom Cancer, 39; 171-184.

Description	Code	Color	Format	US	ROW
PTEN (10q23) / SE 10	KBI-10718	Green/Red	10 Test	-	IVD
PTEN (10q23) / SE 10	KI-10718	Green/Red	100 µL	RUO	-

10q26 FGFR2 / SE 10

The fibroblast growth factor/fibroblast growth factor receptor (FGF / FGFR) signaling axis plays an important role in normal organ, vascular and skeletal development. It is also well documented that dysregulation of FGF-FGFR signaling via amplification, point mutation or translocations may have an important role in tumor development and progression. Alterations in FGFRs (i.e. overexpression, mutation, translocation, and truncation) are associated with a number of human cancers, including lung, myeloma, breast, gastric, colon, bladder, pancreatic, and hepatocellular carcinomas. A growing body of preclinical data demonstrates that inhibition of FGFR signaling can result in antiproliferative and/or pro-apoptic effects, thus confirming the validity of the FGFR / FGFR axis as a potential therapeutic target.

The FGFR2 (10q26) FISH probe is optimized to detect copy numbers of the FGFR2 gene region at region 10q26. The Chromosome 10 Satellite Enumeration (SE) probe is included to facilitate chromosome identification.



References

Brooks et al, Clin Cancer Res. 2012; 18:1855.
Dutt et al, PLoS ONE 6: e2035.1
Kunii et al, Cancer Res. 2008; 68:2340-8.
Liang et al, Clin Cancer Res. 2013;19: 2572
Liao et al, Cancer Res. 2013;73:5195-205.
Weiss et al, Sci Transl Med. 2010; 2:62ra93.

Description	Code	Color	Format	US	ROW
FGFR2 (10q26) / SE 10	KBI-10757	Green/Red	10 Test	-	IVD
FGFR2 (10q26) / SE 10	KI-10757	Green/Red	100 µL	RUO	-

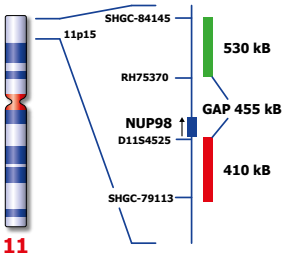
11p15 NUP98 Break

NUP98 (11p15) Break Probe hybridized to AML patient sample showing a rearrangement of 11p15 involving the NUP98 gene (1F1R1G).

Image kindly provided by Prof. Manuel R. Teixeira, Porto.

Nucleoporin 98kDa gene (NUP98) rearrangements have been identified in a wide range of hematologic malignancies, including acute myeloid leukemia (AML), acute lymphoblastic leukemia (ALL), chronic myeloid leukemia in blast crisis (CML-bc), myelodysplastic syndrome (MDS) and bilineage/ biphenotypic leukemia. The NUP98 gene is highly promiscuous with regard to its recombination spectrum, as at least 28 different partner genes have been identified for NUP98 rearrangements, all forming in-frame fusion genes. Patients with NUP98 gene rearrangements have an aggressive clinical course and the outcome of treatment is disappointing.

The NUP98 (11p15) Break FISH Probe is optimized to detect translocations involving the NUP98 gene region at 11p15 in a dual-color assay on metaphase/ interphase spreads, blood smears and bone marrow cells.

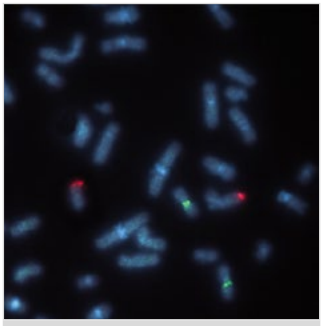


References

Gough et al, 2011, Blood, 118; 62 47-6257.
Nebral et al, 2005, Haematologica, 90; 74 6-752.
Romana et al, 2006, Leukemia, 20; 696-70 6.

Description	Code	Color	Format	US	ROW
NUP98 (11p15) Break	KBI-10311	Green/Red	10 Test	-	IVD
NUP98 (11p15) Break	KI-10311	Green/Red	100 µL	RUO	-

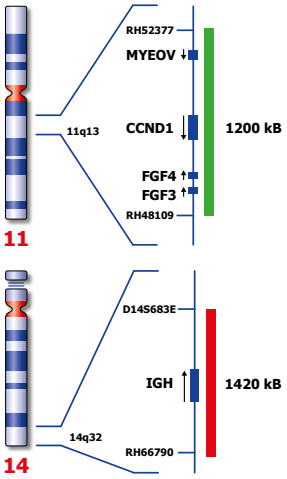
11q13 CCND1 / IGH Fusion



CCND1 / IGH t(11;14) Fusion probe hybridized to a normal interphase/ metaphase (2R2G).

Mantle cell lymphoma is a subtype of non-Hodgkin lymphoma characterized by poor prognosis. Cytogenetically t(11;14) is associated with 75% of mantle cells lymphomas. The translocation breakpoints are scattered within the 120 kb region adjacent to CCND1 (previously known as BCL1). The translocation leads to overexpression of cyclin D1 due to juxtaposition of the Ig heavy chain gene enhancer on 14q32 to the cyclin D1 gene on 11q13.

The CCND1 / IGH t(11;14)(q13;q32) specific FISH probe is optimized to detect the reciprocal translocation t(11;14) in a dual-color, dual-fusion assay.



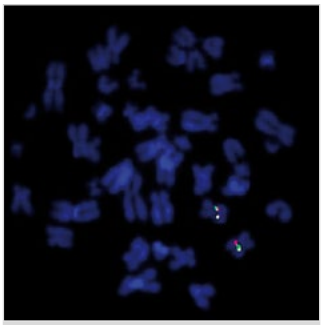
References

Vaandrager et al, 1996, Blood, 88; 1177-1182.

Description	Code	Color	Format	US	ROW
CCND1/IGH t(11;14) Fusion	KBI-10604	Green/Red	10 Test	-	IVD
CCND1/IGH t(11;14) Fusion	KI-10604	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

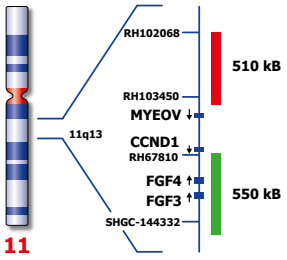
11q13 CCND1 Break



CCND1 (11q13) Break probe hybridized to a normal metaphase (2R2G).

Besides the important functions in cellular growth, metabolism, and cellular differentiation, CCND1 (previously known as Cyclin D1 or BCL1) can also function as a proto-oncogene, often dysregulated after re-arrangement by translocation. In fact, it can juxtapose into many different gene locus to drive tumorigenic effects. To date, the gene has been found to be rearranged in leukemias, in multiple myelomas (MM), and in some cases of benign parathyroid tumors. More specifically, the chromosomal translocation t(11;14)(q13:q32), involving rearrangement of the CCND1 locus, has been reported to be associated with human lymphoid neoplasia affecting mantle cell lymphomas (MCL). The rearrangement has been documented in 40-70% of cases of mantle cell lymphoma, whereas it only rarely occurs in other B cell lymphomas. In MM, the same translocation t(11;14)(q13:q32) is the most common, with a reported frequency of 15% to 20% of the cases.

For this reason, the CCND1 break apart FISH probe KBI-10609 can be considered a very useful tool for routine diagnosis in MCL and MM, to be used in association to the related FISH probes KBI-10604 and KBI-10605 that can detect more specifically the translocation t(11;14) in Mantle Cell Lymphoma (KBI-10604) and MM (KBI-10605).

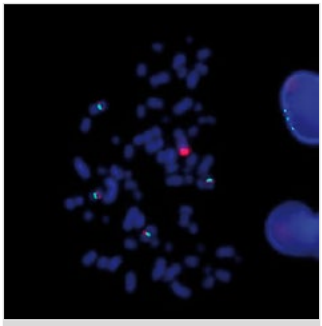


References

Vaandrager et al, 1996, Blood, 88; 1177-1182.
Vaandrager et al, Blood, 89; 349-350.

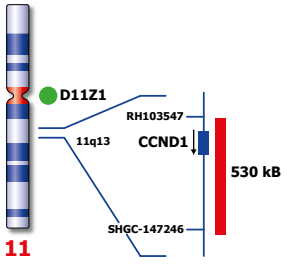
Description	Code	Color	Format	US	ROW
CCND1 (11q13) Break	KBI-10609	Green/Red	10 Test	-	IVD
CCND1 (11q13) Break	KI-10609	Green/Red	100 µL	RUO	-

11q13 CCND1 /SE 11



CCDN1 (11q13) / SE 11 probe hybridized to patient interphases / metaphase showing CCDN1 (11q13) amplification with polyploidy for chromosome 11.

CCND1 (also named Cyclin D1 or BCL1) is a key cell cycle regulator of the G1 to S phase progression. The binding of cyclin D1 to cyclin-dependent kinases (CDKs) leads to the phosphorylation of retinoblastoma protein (pRb), subsequently triggering the release of E2F transcription factors to allow G1 to S phase progression of the cell cycle. Consistent with this function, overexpression of cyclin D1 results in a more rapid progression from the G1 to S phase transition and in a reduced serum dependency in fibroblast cells, characteristics typically seen in cancer cells. The CCND1 (11q13) FISH probe is optimized to detect copy numbers of the CCND1 gene region at region 11q13. The Chromosome 11 Satellite Enumeration (SE 11) probe at D11Z1 is included to facilitate chromosome identification.

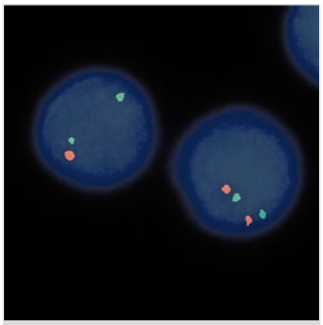


References

Okami et al, 1999, Oncogene 18; 3541-3645.
Freier et al, 2003, Cancer Res; 1179-1182.

Description	Code	Color	Format	US	ROW
CCND1 (11q13) / SE 11	KBI-10734	Green/Red	10 Test	-	IVD
CCND1 (11q13) / SE 11	KI-10734	Green/Red	100 µL	RUO	-

11q22 ATM / SE 11

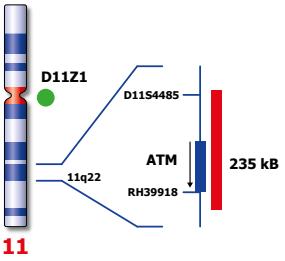


ATM (11q22) / SE 11 hybridized to patient material showing a 11q22 deletion at the ATM gene region (1R2G).

Image kindly provided by Dr. Wenzel, Basel.

Chromosome 11q22.3-23.1 deletions involving the ataxia-teleangiectasia mutated (ATM) locus are detected at diagnosis in 15-20% of cases of B-cell chronic lymphocytic leukemia (CLL) and are associated with a relatively aggressive disease. Loss of the 11q22-23 region, where the ataxia-telangiectasia mutated (ATM) gene is located, is also one of the most frequent secondary chromosomal aberrations in mantle cell lymphoma.

The ATM (11q22.3) specific FISH probe is optimized to detect copy numbers of the ATM gene region at region 11q22.3. The chromosome 11 Satellite Enumeration (SE 11) at D11Z1 FISH probe is included to facilitate chromosome identification.

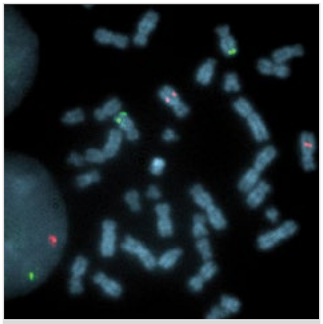


References

Doehner et al, 1997, Blood, 89; 2516-2522.
Bigoni et al, 1997, Leukemia, 11; 1933-1940.

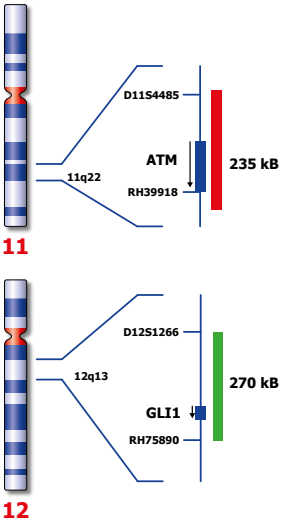
Description	Code	Color	Format	US	ROW
ATM (11q22) / SE 11	KBI-10103	Green/Red	10 Test	-	IVD
ATM (11q22) / SE 11	KI-10103	Green/Red	100 µL	RUO	-

11q22 ATM / GLI1



ATM (11q22) / GLI1 (12q13) hybridized to a normal metaphase (2R2G).

Deletion of ATM at 11q22-q23 indicates a rather poor prognosis, amplification of GLI1 (previously known as GLI) at 12q13 is associated with an intermediate prognosis.



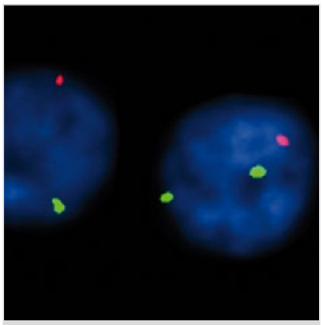
References

Döhner H et al, 1997, Blood, 7; 2516-2522.
Boultwood J, 2001, J. Clin. Pathol., 54; 512-516.
Dierlamm J et al, 1998, Genes Chromosomes Cancer, 20; 155-166.
Döhner H at al, 1999, J. Molec. Med., 77; 266-281.

Description	Code	Color	Format	US	ROW
ATM (11q22) / GLI1 (12q13)	KBI-10108	Green/Red	10 Test	-	IVD
ATM (11q22) / GLI1 (12q13)	KI-10108	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

11q23 11q23 / DLEU1

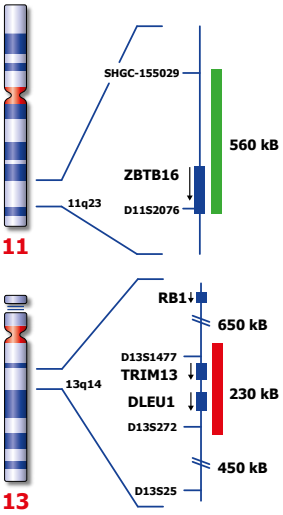


11q23 / DLEU1 13q14 probe hybridized to MM patient material showing a 13q14 deletion (1R2G).

Image kindly provided by Prof. Jauch, Heidelberg.

Hybridization results delineated 11q23 and 11q25 as the most frequently gained regions in Multiple Myeloma (MM) which supports a relevant pathogenetic role of genes in this region. Deletions of 13q14 are frequently detected by interphase FISH in patients with newly diagnosed MM, correlate with increased proliferative activity, and represent an independent adverse prognostic feature in MM.

The 11q23 specific FISH probe is optimized to detect copy numbers at 11q23. The DLEU1 (13q14) specific DNA region is optimized to detect copy numbers of the DLEU1 (previously known as DLEU) gene region at 13q14.

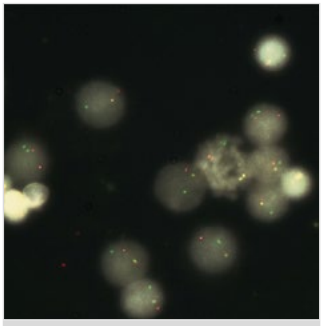


References

Gonzalez et al, 2004, Haematologica, 89; 1213-1218.
Cremer et al, 2005, Genes Chrom Cancer, 44; 194-203.

Description	Code	Color	Format	US	ROW
11q23 / DLEU1 (13q14)	KBI-10502	Green/Red	10 Test	-	IVD
11q23 / DLEU1 (13q14)	KI-10502	Green/Red	100 µL	RUO	-

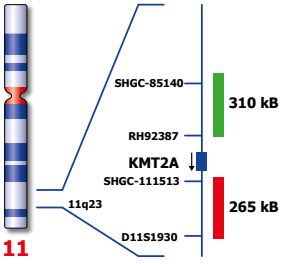
11q23 KMT2A Break



KMT2A (11q23) Break probe hybridized to patient material showing a translocation at 11q23 (1RG1R1G).

The human chromosome band 11q23 is associated with a high number of recurrent chromosomal abnormalities including translocations, insertions, and deletions. It is involved in over 20% of acute leukemias. The KMT2A (previously known as MLL) gene, named for its involvement in myeloid (usually monoblastic) and lymphoblastic leukemia, and less commonly in lymphoma, is located in the 11q23 breakpoint region. Leukemias involving the KMT2A gene usually have a poor prognosis.

The KMT2A (11q23) Break FISH probe is optimized to detect translocations involving the KMT2A gene region at 11q23 in a dual-color split assay.

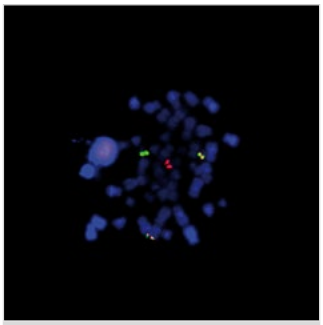


References

Kobayashi et al, 1993, Blood, 81; 3027-3022
Martinez-Climent et al, 1995, Leukemia, 9; 1299-1304.

Description	Code	Color	Format	US	ROW
KMT2A (11q23) Break	KBI-10303	Green/Red	10 Test	-	IVD
KMT2A (11q23) Break	KI-10303	Green/Red	100 µL	RUO	-

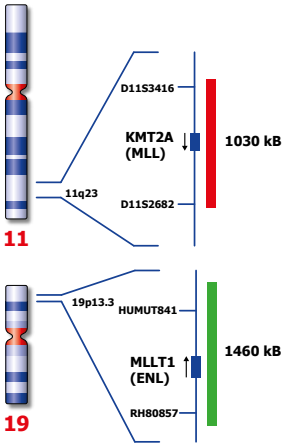
11q23 KMT2A / MLLT1



KMT2A / MLLT1 t(11;19) Fusion probe hybridized to patient material showing t(11;19) translocation (2RG1R1G).

One of the relatively frequently observed translocations (around 10 %) in human Acute Myeloid Leukemia (AML) and Acute Lymphoblastic Leukemia (ALL) involves the genes KMT2A (previously known as MLL) and MLLT1 (aka ENL) at 11q23 and 19p13. The KMT2A / MLLT1 translocation results in the generation of fusion protein that retains the MLL N-terminus, including both an A-T hook domain and a region similar to mammalian DNA methyltransferase. There are several breakpoints within the MLLT1 gene described, without clear differences in clinicohematologic features. Patients with AML and the KMT2A / MLLT1 translocation carry a poor prognosis, but noninfant children with ALL and KMT2A / MLLT1 fusion may have a favorable prognosis.

The KMT2A / MLLT1 Fusion probe is optimized to detect translocations involving the KMT2A and MLLT1 gene regions at 11q23 and 19p13 in a dual-color, fusion assay on metaphase/interphase spreads, blood smears and bone marrow cells in a dual-color, fusion assay.

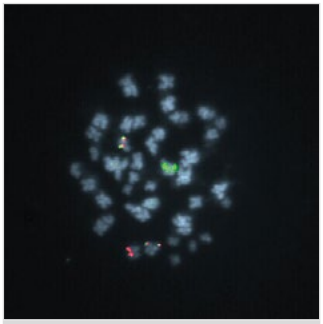


References

Mitterbauer-Hohdanner G et al, 2004, Eur J Clin Invest, 34; 12-24.
Meyer C et al, 2009, Leukemia, 23; 1490-1499.
Fu JF et al, 2007, Am J Clin Pathol, 127; 24-30.

Description	Code	Color	Format	US	ROW
KMT2A/MLLT1 t(11;19) Fusion	KBI-10307	Green/Red	10 Test	-	IVD
KMT2A/MLLT1 t(11;19) Fusion	KI-10307	Green/Red	100 µL	RUO	-

11q23 KMT2A / MLLT3

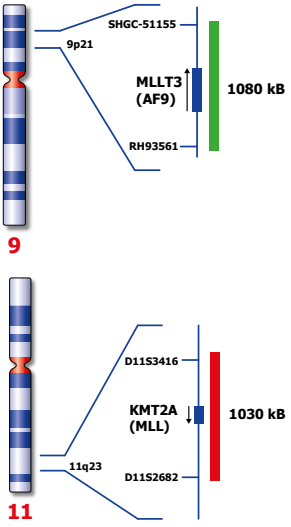


KMT2A/MLLT3 t(9;11) Fusion probe hybridized to patient material showing t(9;11) translocation (2RG1R1G).

Image kindly provided by Dr. Mohr, Dresden.

Chromosomal rearrangements involving the mixed lineage leukemia (MLL) gene at 11q23 are frequently observed in adult and childhood acute leukemia and are, in general, associated with poor prognosis. However, children with Acute Myeloid Leukemia (AML) carrying the t(9;11) KMT2A / MLLT3 (aka AF9) translocation have been described to be more sensitive to chemotherapy than patients with other 11q23 rearrangements.

The KMT2A / MLLT3 Fusion FISH probe is optimized to detect translocations involving the KMT2A (previously known as MLL) and MLLT3 gene regions at 11q23 and 9p21 in a dual-color fusion assay on metaphase/interphase spreads, blood smears and bone marrow cells.



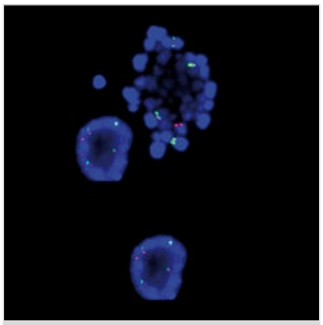
References

Von Lindern et al, 1992, Mol. Cell. Biol.,12; 1687-1697.
Ageberg et al, 2008, Gen. Chrom. Canc., 47; 276-287.
Chi et al, 2008, Arch. Pathol. Lab. Med.,132; 1835-1837.

Description	Code	Color	Format	US	ROW
KMT2A/MLLT3 t(9;11) Fusion	KBI-10308	Green/Red	10 Test	-	IVD
KMT2A/MLLT3 t(9;11) Fusion	KI-10308	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

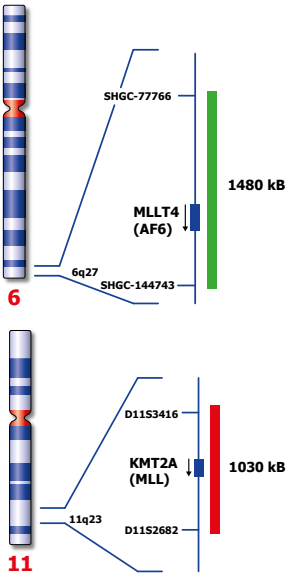
11q23 KMT2A / MLLT4



KMT2A / MLLT4 t(6;11) Fusion probe hybridized to patient material showing 47,XX,t(6;11)(q27;q23),+der(6)t(6;11)(q27;q23).

One of the relatively frequently observed translocations in human Acute Myeloid Leukemia (AML) involves the genes KMT2A and MLLT4 (previously known as AF6) at 11q23 and 6q27. The KMT2A / MLLT4 translocation results in the generation of fusion protein that retains the KMT2A N-terminus, including both an A-T hook domain and a region similar to mammalian DNA methyltransferase. The breakpoint region of the MLLT4 gene is located within intron 1 and downstream of the initiation codon. In all age groups and all phenotypes of leukemia, the KMT2A / MLLT4 translocation carries a poor prognosis.

The KMT2A / MLLT4 t(6;11) Fusion FISH probe is optimized to detect translocations involving the KMT2A (previously known as MLL) and MLLT4 gene regions at 11q23 and 6q27 in a dual-color, fusion assay on metaphase/ interphase spreads, blood smears and bone marrow cells.

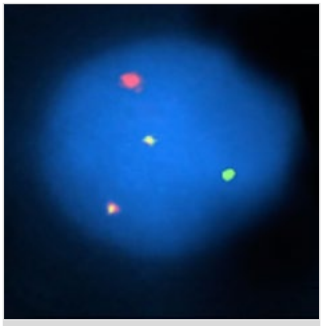


References

Mitterbauer-Hohdanner G et al, 2004, Eur J Clin Invest, 34; 12-24.
Meyer C et al, 2009, Leukemia, 23; 1490-1499.

Description	Code	Color	Format	US	ROW
KMT2A/MLLT4 t(6;11) Fusion	KBI-10309	Green/Red	10 Test	-	IVD
KMT2A/MLLT4 t(6;11) Fusion	KI-10309	Green/Red	100 µL	RUO	-

11q23 KMT2A / AFF1

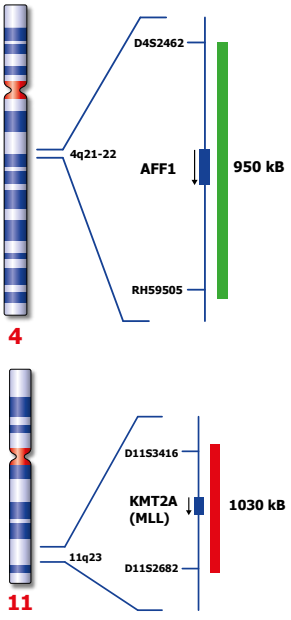


KMT2A / AFF1 t(4;11) Fusion probe. Standard t(4;11) 2 Fusion, 1 Red, 1 Green (2F1R1G).

Image kindly provided by Dr. Christine Harrison, Newcastle.

The t(4;11) KMT2A / AFF1 is the most frequently (approximately 66% according to Meyer et al.) observed translocation involving the KMT2A gene resulting in Acute Lymphoblastic Leukemia (ALL). The KMT2A / AFF1 translocation results in the generation of fusion proteins KMT2A / AFF1 and AFF1 / KMT2A; both seem to have leukemogenic properties. Furthermore, MECOM (3q26) is one of the targets of the KMT2A oncoproteins, which increased expression correlates with unfavorable prognosis in Acute Myeloid Leukemia. Patients with ALL and the KMT2A / AFF1 translocation are associated with a high risk of treatment failure.

The KMT2A / AFF1 t(4;11) Fusion FISH probe is optimized to detect translocations involving the KMT2A (previously known as MLL) and AFF1 gene regions at 4q21-22 and 11q23 in a dual-color, fusion assay on metaphase/ interphase spreads, blood smears and bone marrow cells.

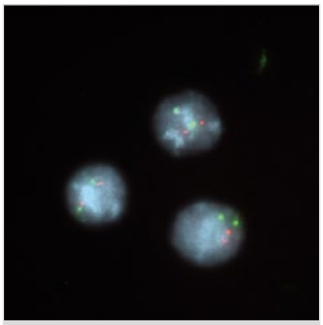


References

Harrison CJ et al, 2010, Br J Haem, 151; 132-142.
Arai S et al, 2011, Blood, 117; 6304-6314
Meyer C et al, 2009, Leukemia, 23; 1490-1499.

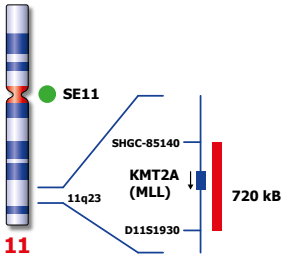
Description	Code	Color	Format	US	ROW
KMT2A/AFF1 t(4;11) Fusion	KBI-10404	Green/Red	10 Test	-	IVD
KMT2A/AFF1 t(4;11) Fusion	KI-10404	Green/Red	100 µL	RUO	-

11q23 KMT2A / SE 11



KMT2A (11q23) / SE 11 hybridized to normal interphases (2R2G).

Deletions of the long arm of chromosome 11 (11q) have been noted in primary neuroblastomas. It is assumed that a tumor suppressor gene mapping within 11q23.3 is commonly inactivated during the malignant evolution of a large subset of neuroblastomas, especially those with unamplified MYCN. The KMT2A (11q23) FISH probe is optimized to detect amplification or deletion involving the KMT2A gene region at 11q23 in a dual-color assay. The Chromosome 11 Satellite Enumeration probe (SE 11) at D11Z1 is included to facilitate chromosome identification.

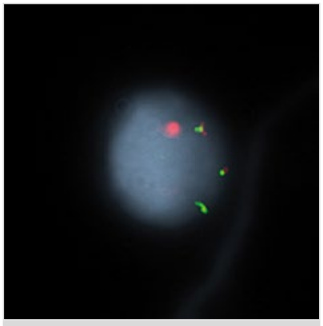


References

Guo et al, 1999, Oncogene, 18: 4948-4957.
Maris et al, 2001, Med Pediatr Oncol, 36: 24-27.

Description	Code	Color	Format	US	ROW
KMT2A (11q23) / SE 11	KBI-10711	Green/Red	10 Test	-	IVD
KMT2A (11q23) / SE 11	KI-10711	Green/Red	100 µL	RUO	-

12p13 ETV6 / RUNX1

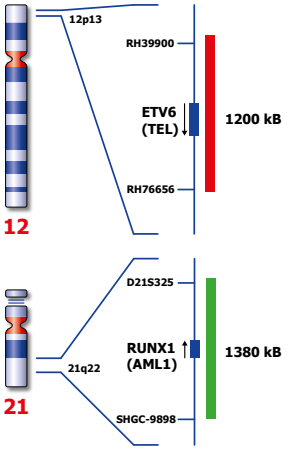


ETV6 / RUNX1 t(12;21) Fusion probe hybridized to patient material showing t(12;21)translocation (2RG1R1G).

Material kindly provided by Dr. Balogh, Budapest.

The t(12;21), a cryptic translocation rarely observed by conventional cytogenetics, was first identified by fluorescence *in situ* hybridization (FISH). In ALL blasts, this translocation fuses the 5' part of the ETV6 (previously known as TEL) gene with almost the entire RUNX1 (previously known as AML) (CBFA2) gene, producing the chimeric transcript ETV6-CBFA2. The t(12;21) (p13;q22) has also been identified as the most frequent chromosomal abnormality in childhood ALL, affecting 20% to 25% of B-lineage cases.

The ETV6 / RUNX1 t(12;21) specific FISH probe is optimized to detect the reciprocal translocation t(12;21) (p13;q22) in a dual-color, dual-fusion assay.



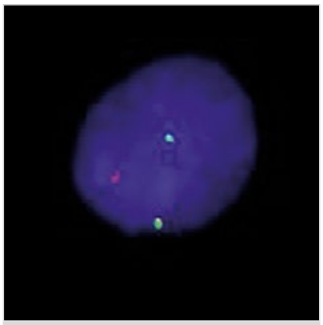
References

Romana et al, 1995, Blood, 85; 3662-3670.

Description	Code	Color	Format	US	ROW
ETV6/RUNX1 t(12;21) Fusion	KBI-10401	Green/Red	10 Test	-	IVD
ETV6/RUNX1 t(12;21) Fusion	KI-10401	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

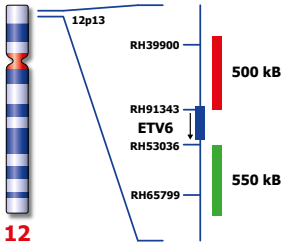
12p13 ETV6 Break



ETV6 (12p13) Break probe hybridized to patient material showing a translocation involving the ETV6 region at 12p13 (1RG1R1G).

Image kindly provided by Magret Ratjen, Kiel.

ETV6 (previously known as TEL) gene is the abbreviation for -ETS variant 6- gene. It encodes an ETS family factor which functions as a transcriptional repressor in hematopoiesis and in vascular development. The gene is located on chromosome 12p13, and is frequently rearranged in human leukemias of myeloid or lymphoid origins. Also systematic deletion of the normal ETV6 allele in patients with ETV6-RUNX1 fusions can be found.

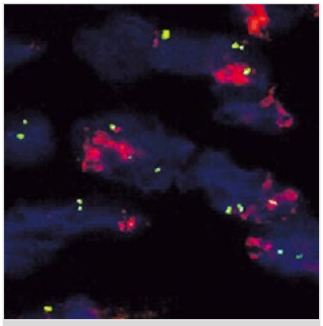


References

Golub et al, 1995, PNAS 92; 4917-4921.
Ford et al, 2001, Blood 98; 558-564.

Description	Code	Color	Format	US	ROW
ETV6 (12p13) Break	KBI-10403	Green/Red	10 Test	-	IVD
ETV6 (12p13) Break	KI-10403	Green/Red	100 µL	RUO	-

12q13 CDK4 / SE 12

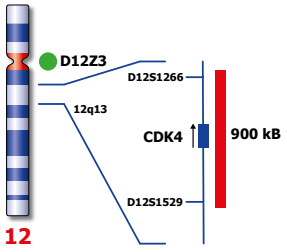


CDK4 (12q13) / SE 12 probe hybridized to liposarcoma tissue showing multiple amplification involving the CDK4 gene region at 12q13 (3+R2G).

Image kindly provided by Dr. Sapi, Hungary.

Amplification of the CDK4 gene region at 12q13-q15 has been observed in several types of cancer, especially in gliomas and sarcomas. CDK4 codes for a cyclin dependent kinase which is involved in controlling progression through the G1 phase of the cell cycle. The oncogenic potential of CDK4 activation has been related to the deregulation of the G1 phase by increasing the hyperphosphorylation of retinoblastoma tumor suppressor protein helping to cancel its growth-inhibitory effects.

The CDK4 (12q13) FISH probe is optimized to detect copy numbers of the CDK4 gene region at 12q13. The chromosome 12 satellite enumeration probe (SE 12) at D12Z3 is included to facilitate chromosome identification.

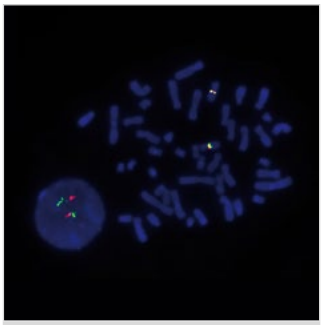


References

Kuhnen et al, 2002, Virchows Arch 441 ; 299-302.
Shimada et al, 2006, Hum Path 37(9) ; 1123-1129.

Description	Code	Color	Format	US	ROW
CDK4 (12q13) / SE 12	KBI-10725	Green/Red	10 Test	-	IVD
CDK4 (12q13) / SE 12	KI-10725	Green/Red	100 µL	RUO	-

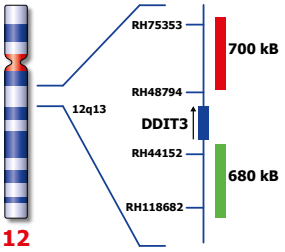
12q13 DDIT3 Break



DDIT3 (12q13) Break probe hybridized to a normal metaphase (2RG).

Liposarcoma is one of the most frequent sarcomas in adults, representing 10 to 16 percent of soft tissue sarcomas. Most patients with round cell / myxoid liposarcoma have an acquired t(12;16)(DDIT3-FUS) or t(12;22)(DDIT3-EWS) translocation, both of which involve the DDIT3 gene at 12q13. A break or split probe for DDIT3 is best used to analyze translocation of the DDIT3 (12q13) gene on formalin fixed paraffin embedded tissue for routine clinical diagnosis.

The DDIT3 (12q13) Break probe is optimized to detect translocations involving the DDIT3 gene region at 12q13 in a dual-color, break assay.

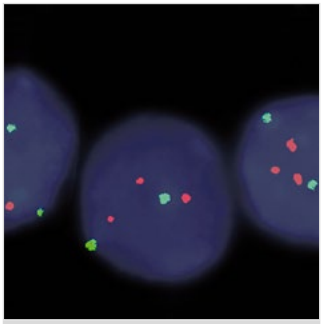


References

Panagopoulos et al, 1994, Cancer Res, 54; 6500-6503.
Schoenmakers et al, 1994, Genomics, 20; 210-222.

Description	Code	Color	Format	US	ROW
DDIT3 (12q13) Break	KBI-10714	Green/Red	10 Test	-	IVD
DDIT3 (12q13) Break	KI-10714	Green/Red	100 µL	RUO	-

12q13 GLI1 / SE 12

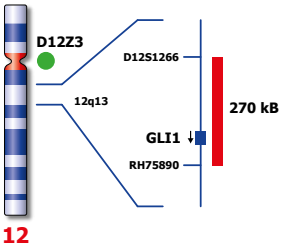


GLI1 (12q13) / SE 12 hybridized to patient material showing GLI (12q13) amplification (3R2G).

Image kindly provided by Dr. Wenzel, Basel.

Trisomy 12 is the most common numerical chromosomal aberration in patients with B-cell chronic lymphocytic leukemia (B-CLL). Partial trisomy 12 of the long arm of chromosome 12 consistently includes a smaller region at 12q13-15 and has been observed in CLL and several other tumors. A number of loci located close to either MDM2 or CDK4 / SAS, including the genes GADD153, GLI1 (previously known as GLI), RAP1B, A2MR, and IFNG, were found to be coamplified.

The GLI1 (12q13) specific FISH probe is optimized to detect copy numbers of the GLI1 gene region at region 12q13. The chromosome 12 Satellite Enumeration FISH probe (SE 12) D12Z3 is included to facilitate chromosome identification.



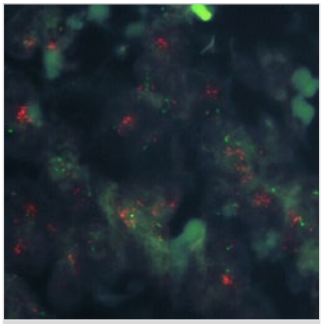
References

Merup et al, 1997, Eur J Haematol, 58; 174-180.
Dierlamm et al., 1997, Genes Chrom Cancer, 20; 155-166.

Description	Code	Color	Format	US	ROW
GLI1 (12q13) / SE 12	KBI-10104	Green/Red	10 Test	-	IVD
GLI1 (12q13) / SE 12	KI-10104	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

12q15 MDM2 / SE 12

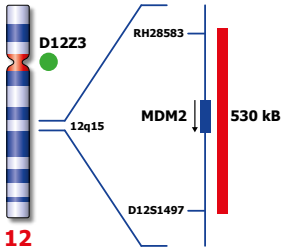


MDM2 (12q15) / SE 12 Amplification probe hybridized to patient material showing amplification of the MDM2 gene region at 12q15.

Well-differentiated liposarcoma/atypical lipomatous tumor and dedifferentiated liposarcoma are among the most common malignant soft tissue tumors presented in older adults. These tumors can be difficult to distinguish from benign lipomatous neoplasms and other high-grade sarcomas.

Amplification of the MDM2 gene has been identified in lipomatous neoplasms. The use of fluorescence *in situ* hybridization in identifying MDM2 amplification has made the MDM2 amplification probe a valuable diagnostic tool in well-differentiated liposarcomas/atypical lipomatous tumors. The MDM2 (12q15) specific DNA probe is optimized to detect copy numbers of the MDM2 region on chromosome 12. The chromosome 12 satellite enumeration probe (SE 12) at D12Z3 is included to facilitate chromosome identification.

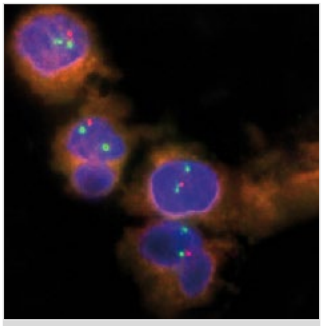
The MDM2 (12q15) FISH probe is optimized to detect copy numbers of the MDM2 gene region at region 12q15.



References
Uchida et al, 2010, Cancer Genet Cytogenet 203; 324-327.
Lucas et al, 2010, Am J Surg Pathol 34: 844-851.
Weaver et al, 2008, Mod Pathol 21: 943-949.
Mitchell et al, 1995, Chrom. Res., 3; 261-262.
Reifenberger et al, 1996, Cancer Res., 15; 5141-5145.

Description	Code	Color	Format	US	ROW
MDM2 (12q15) / SE 12	KBI-10717	Green/Red	10 Test	-	IVD
MDM2 (12q15) / SE 12	KI-10717	Green/Red	100 µL	RUO	-

13q14 DLEU1 / 13qter

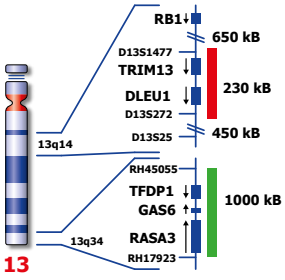


DLEU1 (13q14) / 13qter probe hybridized to patient material showing a 13q14 deletion (1R2G).

Image kindly provided by Dr. Dastugue, Toulouse.

Deletions of chromosome 13q14 have been reported not only in CLL but in a variety of human tumors, including other types of lymphoid and myeloid tumors, as well as prostate, head and neck, and non-small cell lung cancers. The deletion of 13q may be limited to a single locus (13q14), or accompanied with the loss of a larger interstitial region of the long arm of chromosome 13. A minimal critical region of 400 kb has been described containing the DLEU1, DLEU2 and RFP2 genes.

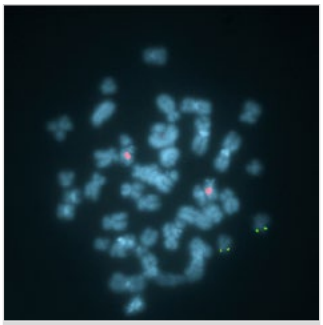
The DLEU1 (13q14) specific FISH probe is optimized to detect copy numbers of the DLEU1 (previously known as DLEU) gene region at 13q14. The 13qter (13q34) region is included to facilitate chromosome identification.



References
Wolf et al, 2001, Hum Mol Genet, 10; 1275-1285.
Corcoran et al, 1998, Blood, 91; 1382-1390.

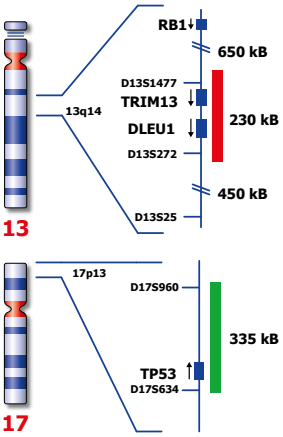
Description	Code	Color	Format	US	ROW
DLEU1 (13q14) / 13qter	KBI-10102	Green/Red	10 Test	-	IVD
DLEU1 (13q14) / 13qter	KI-10102	Green/Red	100 µL	RUO	-

13q14 DLEU1 / TP53



DLEU1 (13q14) / TP53 (17p13) hybridized to a normal metaphase (2R2G).

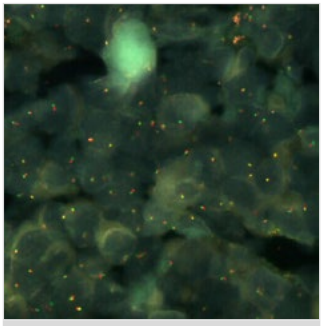
Deletion of DLEU1 (previously known as DLEU) at 13q14 indicates a rather good prognosis, deletion of TP53 (previously known as p53) at 17p13 is associated with poor prognosis.



References
Amiel A et al, 1997, Cancer Gener.Cytogenet, 97; 97-100.
Drach J et al, 1998, Blood, 92; 802-809.
Stilgenbauer S et al, 1998, Oncogene, 16; 1891 – 1897.
Wolf S et al, 2001, Hum. Molec. Genet., 10; 1275-1285.

Description	Code	Color	Format	US	ROW
DLEU1 (13q14) / TP53 (17p13)	KBI-10113	Green/Red	10 Test	-	IVD
DLEU1 (13q14) / TP53 (17p13)	KI-10113	Green/Red	100 µL	RUO	-

13q14 FOXO1 Break

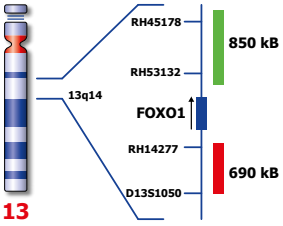


FOXO1 (13q14) Break probe hybridized to patient material (2RG).

The t(2;13) is associated with alveolar rhabdomyo-sarcomas. This translocation results in the formation of a chimeric transcript consisting of the 5' portion of PAX3, including an intact DNA-binding domain fused to the FOXO1 gene on chromosome 13. The t(1;13)(p36;q14) also seen in alveolar rhabdomyosarcomas results in the fusion of another member of the PAX family, PAX7 to the FOXO1 gene on chromosome 13.

A break or split probe for FOXO1 is best used to analyze translocation of the FOXO1 (13q14) gene on formalin fixed paraffin embedded tissue for routine clinical diagnosis.

The FOXO1 (13q14) Break probe is optimized to detect translocations involving the FOXO1 gene region at 13q14 in a dual-color, split assay on metaphase/ interphase spreads and paraffin embedded tissue sections.



References
Barr et al, 1996, Hum. Mol. Genet., 5; 15-21.
Coignet et al, 1999, Genes Chrom. Cancer, 25; 222-229.

Description	Code	Color	Format	US	ROW
FOXO1 (13q14) Break	KBI-10716	Green/Red	10 Test	-	IVD
FOXO1 (13q14) Break	KI-10716	Green/Red	100 µL	RUO	-

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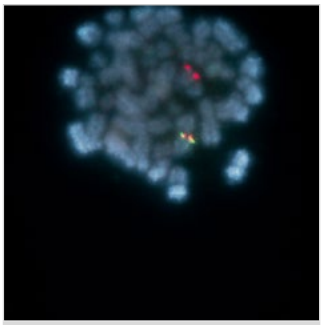
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

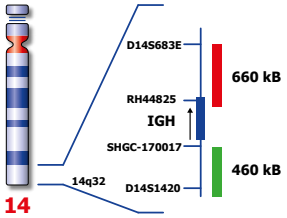
14q32 IGH Break



IGH (14q32) Break probe hybridized to patient material showing a partial deletion of 14q32 (1RG1R).

Multiple myeloma is characterized by complex rearrangements involving the IgH gene, particularly at the constant locus. The IgH rearrangement provides a useful marker of clonality in B-cell malignancies and amplification of this rearrangement is the method of choice to monitor the residual tumor cells in multiple myeloma.

The IGH (14q32) break probe is optimized to detect translocations involving the IGH gene region at 14q32 in a dual-color, split assay.

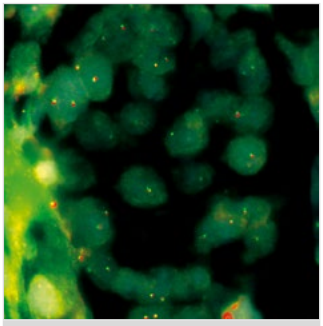


References

Taniwaki et al, 1994, Blood, 83; 2962-1969.
Gozetti et al, 2002, Cancer Research, 62; 5523-5527.

Description	Code	Color	Format	US	ROW
IGH (14q32) Break	KBI-10601	Green/Red	10 Test	-	IVD
IGH (14q32) Break	KI-10601	Green/Red	100 µL	RUO	-

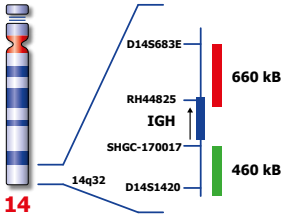
14q32 IGH Break (tissue)



IGH (14q32) Break probe hybridized to patient material showing a partial deletion of 14q32 (1RG1R).

Chromosomal rearrangements involving the immunoglobulin heavy chain gene (IGH) at 14q32 are observed in 50% of patients with B-cell non-Hodgkin's lymphoma (NHL) and many other types of Lymphomas. More than 50 translocation partners with IGH have been described. In particular t(8;14) is associated with Burkitt's lymphoma, t(11;14) is associated with Mantle cell lymphoma, t(14;18) is observed in a high proportion of follicular lymphomas and t(3;14) is associated with Diffuse Large B-Cell Lymphoma.

The IGH (14q32) Break probe is optimized to detect translocations involving the IGH gene region at 14q32 in a dual-color, split assay.

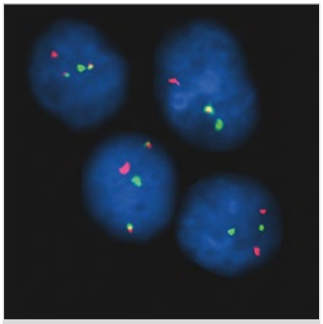


References

Taniwaki et al, 1994, Blood, 83: 2962-1969.
Gozetti et al, 2002, Cancer Research, 62: 5523-5527.

Description	Code	Color	Format	US	ROW
IGH (14q32) Break (tissue)	KBI-10729	Green/Red	10 Test	-	IVD
IGH (14q32) Break (tissue)	KI-10729	Green/Red	100 µL	RUO	-

14q32 MYEOV / IGH

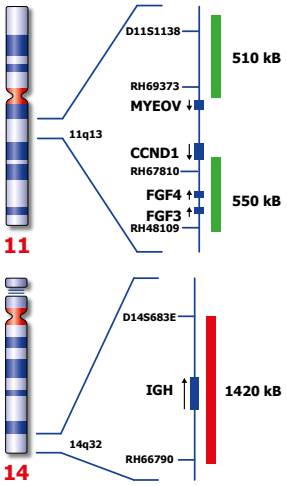


MYEOV / IGH t(11;14) Fusion probe hybridized to MM patient material showing t(11;14) translocation (2RG1R1G).

Image kindly provided by Prof. Jauch, Heidelberg.

The most common chromosomal translocation in multiple myeloma (MM) is t(11;14), resulting in up-regulation of cyclin D1. In MM the breakpoints are scattered within a 360-kb region between CCND1 and MYEOV. This breakpoint is more proximal than the t(11;14) breakpoints observed in mantle cell lymphoma or other leukemias. Patients with MM who have t(11;14)(q13;q32) seem to have an aggressive clinical course.

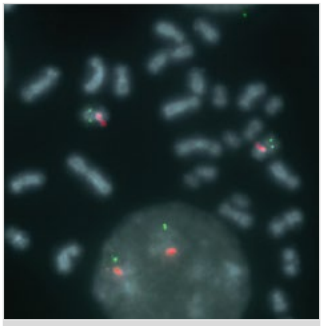
The MYEOV / IGH t(11;14)(q13;q32) Fusion specific FISH probe is optimized to detect the reciprocal translocation t(11;14) in a dual-color, dual-fusion assay.



References
Janssen et al., 2000, Blood, 95; 2691-2698.
Fonseca et al, 2002, Blood, 99; 3735-3741.

Description	Code	Color	Format	US	ROW
MYEOV/IGH t(11;14) Fusion	KBI-10605	Green/Red	10 Test	-	IVD
MYEOV/IGH t(11;14) Fusion	KI-10605	Green/Red	100 µL	RUO	-

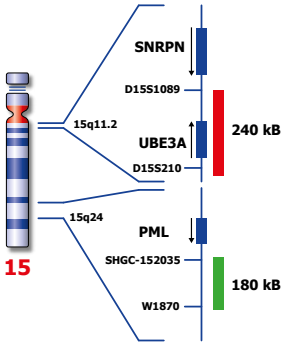
15q11 UBE3A / PML



Angelman UBE3A (15q11) / PML (15q24) probe hybridized to a normal interphase/ metaphase (2R2G).

Angelman syndrome (AS) is characterized by severe developmental delay or mental retardation, severe speech impairment, gait ataxia and/or tremulousness of the limbs, and an unique behavior with an inappropriate happy demeanor that includes frequent laughing, smiling, and excitability. In addition, microcephaly and seizures are common. AS is caused by absence of a maternal contribution to the imprinted region on chromosome 15q11-q13 including the UBE3A gene.

The AS UBE3A region probe is optimized to detect copy numbers of the UBE3A gene region at 15q11. The PML (promyelocytic leukemia) gene specific FISH probe at 15q24 is included as control probe.

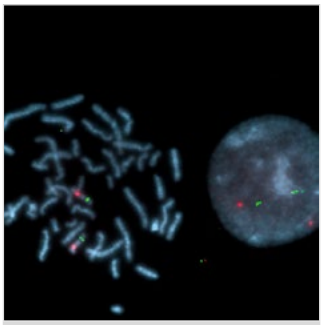


References
Matsuura et al, 1997, Nat. Genet., 15; 74-77.
Burger et al, 2002, Am. J. Med. Genet., 111; 233-237.

Description	Code	Color	Format	US	ROW
Angelman UBE3A (15q11) / PML (15q24)	KBI-40110	Green/Red	10 Test	-	IVD
Angelman UBE3A (15q11) / PML (15q24)	KBI-45110	Green/Red	5 Test	-	IVD
UBE3A (15q11) / PML (15q24)	KI-40110	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

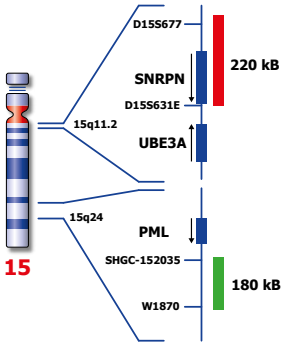
15q11 SNRPN / PML



Prader-Willi SNRPN (15q11) / PML (15q24) probe hybridized to a normal interphase/metaphase (2R2G).

Prader-Willi syndrome (PWS) is a clinically distinct disorder including diminished fetal activity, obesity, hypotonia, mental retardation, short stature, hypogonadotropic hypogonadism, strabismus, and small hands and feet.

Approximately 70% of cases of PWS arise from paternal deletion of the 15q11-q13 region including the gene SNRPN (small nuclear ribonucleoprotein polypeptide N). The PWS SNRPN region probe is optimized to detect copy numbers of the SNRPN gene region at 15q11. The PML (promyelocytic leukemia) gene specific FISH probe at 15q24 is included as control probe.

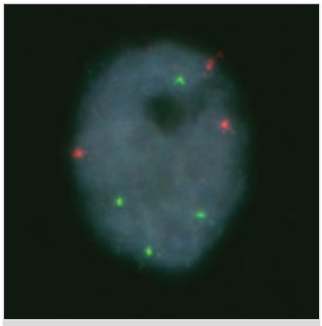


References

Knoll et al, 1989, Am. J. Med. Genet., 32; 285-290.
Ozcelik et al, 1992, Nat. Genet., 2; 265-269.

Description	Code	Color	Format	US	ROW
Prader-Willi SNRPN (15q11) / PML (15q24)	KBI-40109	Green/Red	10 Test	-	IVD
Prader-Willi SNRPN (15q11) / PML (15q24)	KBI-45109	Green/Red	5 Test	-	IVD
SNRPN (15q11) / PML (15q24)	KI-40109	Green/Red	100 µL	RUO	-

15q22 15q22 / 6q21

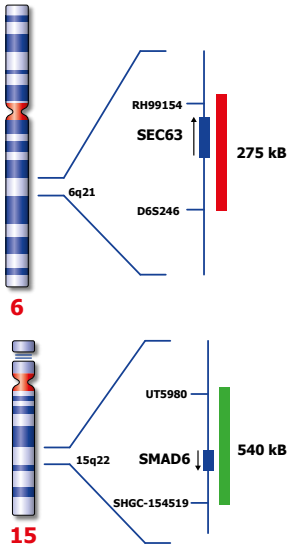


15q22 / 6q21 hybridized to MM patient material with gain of both critical regions 6q21 and 15q22.

Image kindly provided by Prof. Jauch, Heidelberg.

Chromosome 6q amplifications encompassing 6q21-22 have been observed in MM including the same region as in CLL. Amplification including band 15q22 has been reported in MM. The 15q22 specific FISH probe is optimized to detect copy numbers at 15q22.

The 6q21 specific DNA region is optimized to detect copy numbers at 6q21.

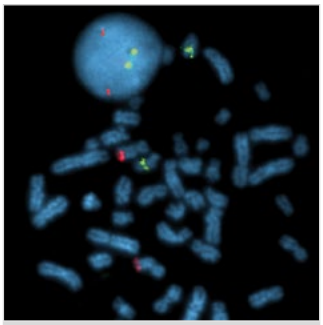


References

Cremer et al, 2005, Genes Chrom Cancer, 44; 194-203.

Description	Code	Color	Format	US	ROW
15q22 / 6q21	KBI-10504	Green/Red	10 Test	-	IVD
15q22 / 6q21	KI-10504	Green/Red	100 µL	RUO	-

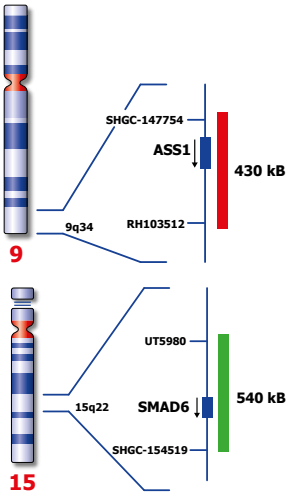
15q22 15q22 / 9q34



15q22 / 9q34 hybridized to a normal interphase/metaphase (2R2G).

The hyperdiploid subtype in MM is defined by presence of multiple trisomic chromosomes. Combination of the chromosome 9q34 and 15q22 specific regions are important regions to detect the hyperdiploid subtype in MM which is usually associated with a low frequency of IGH translocations.

The 15q22 and 9q34 FISH probe is designed as a dual-color assay to detect amplifications at 15q22 and 9q34.

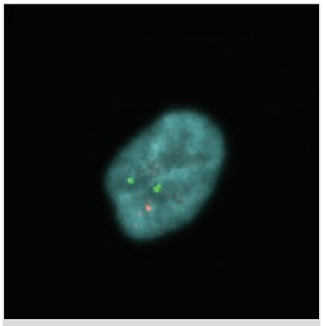


References

Cremer et al, 2005, Genes Chrom Cancer, 44; 194-203.

Description	Code	Color	Format	US	ROW
15q22 / 9q34	KBI-10508	Green/Red	10 Test	-	IVD
15q22 / 9q34	KI-10508	Green/Red	100 µL	RUO	-

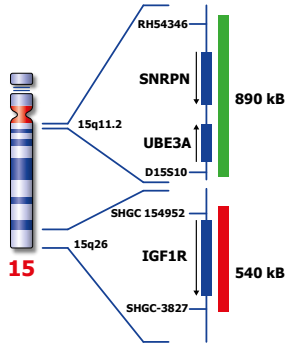
15q26 IGF1R / 15q11



IGF1R (15q26) / 15q11 probe hybridized to patient material showing a deletion of the IGF1R gene region at 15q26 (1R2G).

Congenital diaphragmatic hernia (CDH) is a severe, life-threatening, congenital anomaly characterized by variable defect in the diaphragm, pulmonary hypoplasia, and postnatal pulmonary hypertension. Deletion of the IGF1R (insulin-like growth factor 1 receptor) gene region at 15q25 is the most frequent anomaly found in CDH. The type 1 IGF receptor at 15q26 is required for normal embryonic and postnatal growth. Deletions, but also gain of an approximately 5 Mb region including the IGF1R gene has been found to have a profound effect on prenatal and early postnatal growth.

The IGF1R (15q26) specific FISH probe is optimized to detect copy numbers of the IGF1R gene region at region 15q26. The 15q11 (SNRPN / UBE3A) specific region probe is included to facilitate chromosome identification.



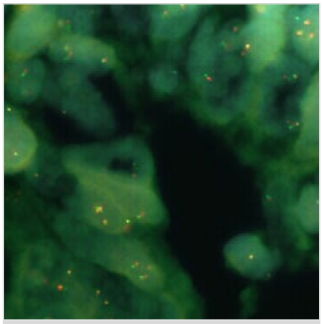
References

Faivre et al, 2002, Eur, J, Hum, Genet., 10; 699-706.
Okubo et al, 2003, J. Clin. Endocrinol. Metab, 88; 5981-5988.

Description	Code	Color	Format	US	ROW
IGF1R (15q26) / 15q11	KBI-40116	Green/Red	10 Test	-	IVD
IGF1R (15q26) / 15q11	KBI-45116	Green/Red	5 Test	-	IVD
IGF1R (15q26) / 15q11	KI-40116	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

16p11 FUS Break

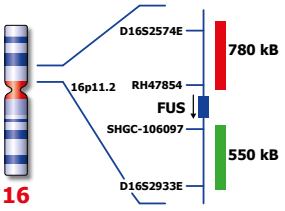


FUS (16p11) Break probe hybridized to liposarcoma material.

The fused in sarcoma (FUS) gene was originally shown to be rearranged in myxoid liposarcomas harboring a t(12;16)(q13;p11) translocation. FUS has also been shown to be involved in other recombinations: with ERG in acute myeloid leukemia carrying a t(16;21), with ATF1 in band 12q13 in angiomatoid fibrous histiocytoma, and with CREB3L2 in fibromyxoid sarcoma.

A break or split probe for FUS is best used to analyze translocation of the FUS (16p11) gene on formalin fixed paraffin embedded tissue for routine clinical diagnosis.

The FUS (16p11) Break probe is optimized to detect translocations involving the FUS gene region at 16p11 in a dual-color, split assay on metaphase/interphase spreads and paraffin embedded tissue sections.

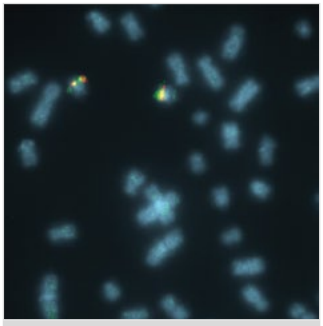


References

Shing et al, 2003, Cancer Res, 63: 4568-4576.
Storlazzi et al, 2003, Hum. Mol. Genet., 12: 2349-2358.

Description	Code	Color	Format	US	ROW
FUS (16p11) Break	KBI-10715	Green/Red	10 Test	-	IVD
FUS (16p11) Break	KI-10715	Green/Red	100 µL	RUO	-

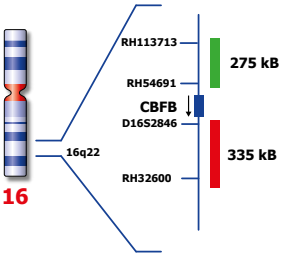
16q22 CBFB



CBFB t(16;16); inv(16) Break probe hybridized to a normal metaphase (2RG).

Inv(16)(p13;q22) and t(16;16)(p13;q22) are recurring chromosomal rearrangements in AML. In both the inversion and translocation, the critical genetic event is the fusion of the CBFB gene at 16q22 to the smooth muscle myosin heavy chain (MYH11) at 16p13. A deletion of between 150 and 350 kb centromeric to the p-arm inversion breakpoint cluster region can be observed in some patients containing the 5′ portion of the myosin heavy chain (MYH11) gene.

The CBFB t(16;16) inv(16) break FISH probe is optimized to detect the inversion of chromosome 16 involving the CBFB gene region at 16q22 in a dual-color, split assay.

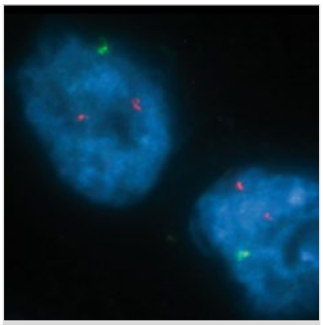


References

Dauwerse et al, 1993, Hum.Mol.Genet., 2; 1527-1534.
Marlton et al, 1995, Blood, 85; 772-779.

Description	Code	Color	Format	US	ROW
CBFB t(16;16), inv(16) Break	KBI-10304	Green/Red	10 Test	-	IVD
CBFB t(16;16), inv(16) Break	KI-10304	Green/Red	100 µL	RUO	-

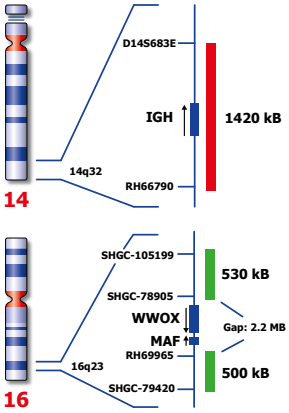
16q23 MAF/ IGH



MAF / IGH t(14;16) Fusion probe hybridized to patient material showing a deletion of the MAF gene region at 16q23 (2R1G).

Chromosome translocations involving the immunoglobulin heavy chain gene (IGH) on 14q32 are a fundamental event in the pathogenesis of many B-cell malignancies. It often is preceded by a stable pre-malignant tumor called Monoclonal Gammopathy of Undetermined Significance (MGUS), which can sporadically progress to Multiple Myeloma (MM). One of the recurrent primary rearrangements involving the IGH locus on chromosome 14q32 identified in MGUS and MM tumors is the MAF / IGH t(14;16) translocation. Following MGUS appearance, the pathogenesis of MM is thought to involve at least two pathways, which generate hyperdiploid (HRD) or nonhyperdiploid (NHRD) tumors, respectively.

The MAF / IGH is mainly present in NHRD tumors, providing important information on MM patient sub-types. Since these translocations are caused by aberrant IgH switch recombination, and possibly by aberrant somatic hypermutation in germinal center B cells, they provide information of an early and perhaps initiating event of transformation.

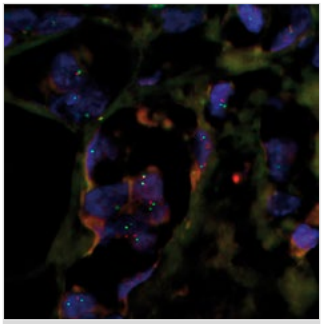


References

Chesi et at, 1998, Blood 91; 4457-4463.
Sawyer et al, 1998, Blood 92; 4269-4278.

Description	Code	Color	Format	US	ROW
MAF/IGH t(14;16) Fusion	KBI-10610	Green/Red	10 Test	-	IVD
MAF/IGH t(14;16) Fusion	KI-10610	Green/Red	100 µL	RUO	-

17p13 AURKB

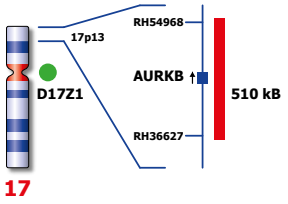


AURKB (17p13) / SE 17 probe hybridized to tumor tissue (2R2G).

Aurora kinase B (AURKB) localizes to microtubules, and is a key regulator of the mitotic cell division and chromosome segregation processes. Gain of function of AURKB correlates with cell proliferation, induction of multinuclear cells, and chromosomal instability.

The significant interest of the gene in cancer diagnostics is related to the driving function of AURKB in tumor progression, histological differentiation, and metastasis. AURKB is predictive for the aggressive recurrence of many different types of tumors, including hepatocellular carcinoma and oral squamous cell carcinoma.

The AURKB (17p13) FISH probe is optimized to detect copy numbers of the AURKB gene region at region 17p13. The Chromosome 17 Satellite Enumeration (SE 17) probe at D17Z1 is included to facilitate chromosome identification.



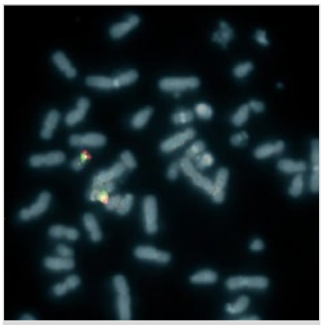
References

Smith et al, 2005, Br J Cancer, 93; 719-729.

Description	Code	Color	Format	US	ROW
AURKB (17p13) / SE 17	KBI-10722	Green/Red	10 Test	-	IVD
AURKB (17p13) / SE 17	KI-10722	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

17p13 PAFAH1B1 / 17p11



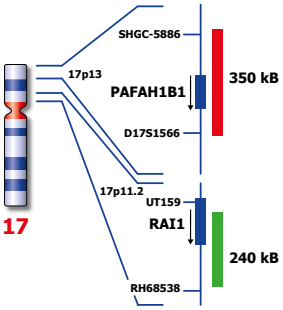
Miller-Dieker PAFAH1B1 (17p13)/ Smith-Magenis RAI1 (17p11) probe hybridized to a normal metaphase (2RG).

Miller-Dieker Syndrome (MDS) is characterized by classical lissencephaly and distinct facial features. The lissencephaly represents the severe end of the spectrum with generalized agyria or agyria with some frontal pachygyria. Submicroscopic deletions of 17p13.3 including the PAFAH1B1 (previously called LIS, platelet-activating factor acetylhydrolase) gene are found in almost 100% of patients.

The Miller-Dieker region probe is optimized to detect copy numbers of the PAFAH1B1 gene region at 17p13.3. The Smith-Magenis RAI1 region probe at 17p11.2 is serving as internal control.

Smith-Magenis Syndrome (SMS) is characterized by distinctive facial features that progress with age, developmental delay, cognitive impairment, and behavioral abnormalities. Molecular cytogenetic analysis by FISH using a DNA probe specific for the SMS critical region is recommended in cases of submicroscopic deletions and/or to resolve equivocal cases. RAI1 is the only gene known to account for a majority of features in SMS. All 17p11.2 deletions associated with SMS include a deletion of RAI1.

The Smith-Magenis region probe is optimized to detect copy numbers of the RAI1 gene region involved in Smith-Magenis syndrome at 17p11.2. The Miller-Dieker PAFAH1B1 probe at 17p13.3 is serving as internal control.

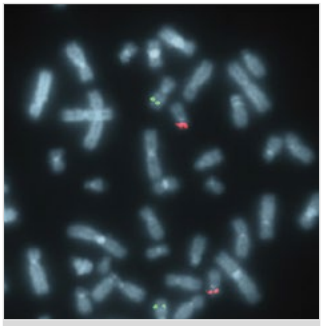


References

Kuwano et al, 1991, Am. J. Hum. Genet., 49; 707-714.
Cardoso et al, 2003, Am. J. Hum. Genet., 72; 918-930.
Smith et al, 1986, Am. J. Med. Genet., 24; 393-414.
Greenberg et al, 1991, Am. J. Med. Genet., 49; 1207-1218.
Vlangos et al, 2005, Am. J. Med. Genet., 132; 278-282.

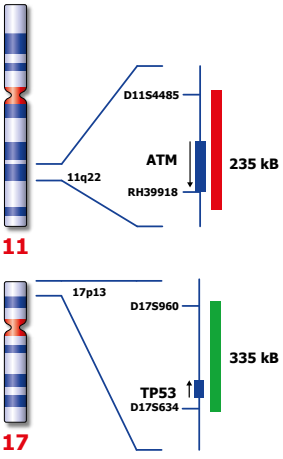
Description	Code	Color	Format	US	ROW
Miller-Dieker PAFAH1B1 (17p13) / Smith-Magenis RAI1 (17p11)	KBI-40101	Green/Red	10 Test	-	IVD
Miller-Dieker PAFAH1B1 (17p13) / Smith-Magenis RAI1 (17p11)	KBI-45101	Green/Red	5 Test	-	IVD
PAFAH1B1 (17p13) / RAI1 (17p11)	KI-40101	Green/Red	100 µL	RUO	-

17p13 TP53 / ATM



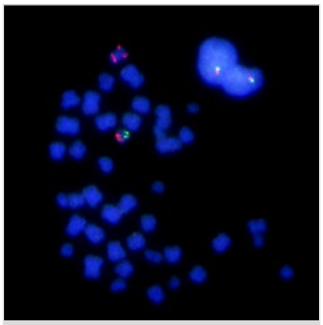
TP53 (17p13) / ATM (11q22) hybridized to a normal metaphase (2R2G).

Deletion of TP53 (previously known as p53) and ATM are both indicating poor prognosis in CLL.



Description	Code	Color	Format	US	ROW
TP53 (17p13) / ATM (11q22)	KBI-10114	Green/Red	10 Test	-	IVD
TP53 (17p13) / ATM (11q22)	KI-10114	Green/Red	100 µL	RUO	-

17p13 TP53 / MPO

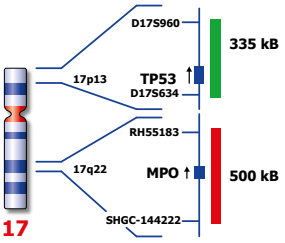


TP53 (17p13) / MPO (17q22) "ISO 17q" probe hybridized to peripheral blood of a CLL patient with an isochromosome 17 (3R1G).

Image kindly provided by Dr. Lana Harder, Kiel.

Isochromosome 17q is the most common isochromosome in cancer. It plays an important role in tumor development and progression. Hematologic malignancies such as chronic myeloid leukemia (CML) with isochromosome 17q carry a poor prognosis. Isochromosome 17q is the most common chromosome abnormality in primitive neuroectodermal tumors and medulloblastoma. Isochromosome 17q is, by convention, symbolized as i(17q).

The TP53 (17p13) / MPO (17q22) "ISO 17q" FISH probe is optimized to detect copy numbers of the TP53 gene region at 17p13 and MPO gene region at 17q22. In case of i(17q) a signal pattern of three red signals for MPO (17q22) and one signal for TP53 at 17p13 is expected.

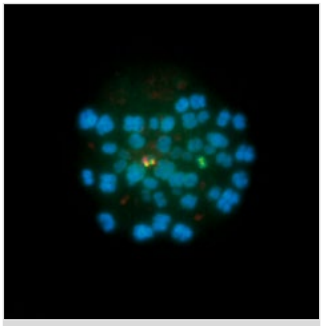


References

Becher et al, 1990, Blood, 75; 1679-1683.
Fioretos et al, 1999, Blood, 94; 225-232.

Description	Code	Color	Format	US	ROW
TP53 (17p13) / MPO (17q22) "ISO 17q"	KBI-10011	Green/Red	10 Test	-	IVD
TP53 (17p13) / MPO (17q22) "ISO 17q"	KI-10011	Green/Red	100 µL	RUO	-

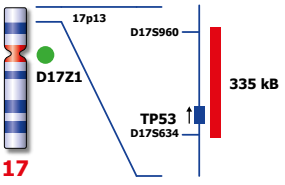
17p13 TP53 / SE 17



TP53 (17p13) / SE 17 probe hybridized to patient material showing a 17p13 deletion at the TP53 gene region (1R2G).

The TP53 tumor suppressor gene at 17p13, has been shown to be implicated in the control of normal cellular proliferation, differentiation, and apoptosis. Allelic loss, usually by deletion, and inactivation of TP53 have been reported in numerous tumor types and are associated with poor prognosis in CLL.

The TP53 (17p13) FISH probe is optimized to detect copy numbers of the TP53 gene region at 17p13. The chromosome 17 satellite enumeration probe (SE 17) at D17Z1 is included to facilitate chromosome identification. Kreatech has developed this probe for the specific use on cell material (KBI-10112 / KBI-12112), or for the use on tissue (KBI-10738).



References

Amiel A et al, 1997, Cancer Gener. Cytogenet, 97; 97-100.
Drach J et al, 1998, Blood, 92; 802-809.

Description	Code	Color	Format	US	ROW
TP53 (17p13) / SE 17	KBI-10112	Green/Red	10 Test	-	IVD
TP53 (17p13) / SE 17	KBI-12112	Green/Red	20 Test	-	IVD
TP53 (17p13) / SE 17	KI-10112	Green/Red	100 µL	RUO	-
TP53 (17p13) / SE 17	KI-12112	Green/Red	200 µL	RUO	-

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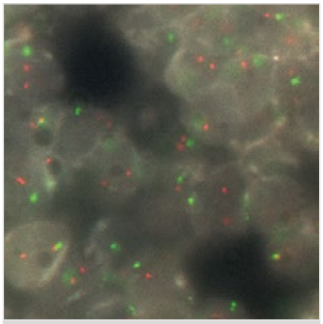
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

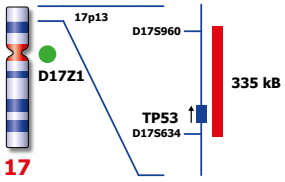
17p13 TP53 / SE 17 (tissue)



TP53 (17p13) / SE 17 (tissue) probe hybridized to paraffin embedded tissue (2R2G).

The TP53 tumor suppressor gene at 17p13, has been shown to be implicated in the control of normal cellular proliferation, differentiation, and apoptosis. Allelic loss, usually by deletion, and inactivation of TP53 have been reported in numerous tumor types and are associated with poor prognosis in CLL.

The TP53 (17p13) FISH probe is optimized to detect copy numbers of the TP53 gene region at 17p13. The chromosome 17 satellite enumeration probe (SE 17) at D17Z1 is included to facilitate chromosome identification. Kreatech has developed this probe for the specific use on cell material (KBI-10112 / KBI-12112), or for the use on tissue (KBI-10738).

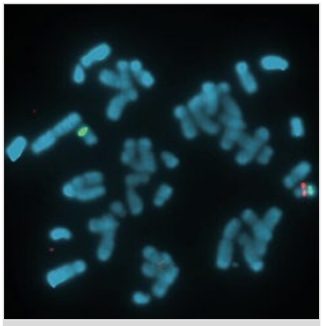


References

Amiel A et al, 1997, Cancer Gener.Cytogenet,, 97; 97-100.
Drach J et al, 1998, Blood, 92; 802-809.

Description	Code	Color	Format	US	ROW
TP53 (17p13) / SE 17 (tissue)	KBI-10738	Green/Red	10 Test	-	IVD
TP53 (17p13) / SE 17 (tissue)	KI-10738	Green/Red	100 µL	RUO	-

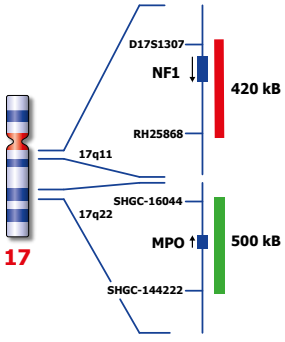
17q11 NF1 / MPO



NF1 (17q11) / MPO (17q22) probe hybridized to patient material showing a deletion of NF1 gene region at 17q11 (1R2G).

NF1, or von Recklinghausen disease, is one of the most common hereditary neurocutaneous disorders in humans and one of the most common single gene syndromes. Clinically, NF1 is characterized by café-au-lait spots, freckling, skin neurofibroma, plexiform neurofibroma, bone defects, Lisch nodules and tumors of the central nervous system. The responsible gene, NF1 (neurofibromin), was identified on chromosome 17q11. Whole NF1 gene deletions occur in 4%-5% of individuals with NF1 and can be detected by FISH analysis.

The NF1 (17q11) region probe is optimized to detect copy numbers of the NF1 gene region at 17q11.2. The MPO region specific FISH probe at 17q22 is included as control probe.

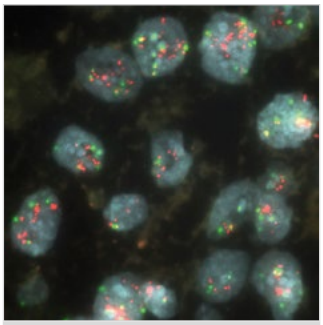


References

Riva P et al, 2000, Am. J. Hum. Genet., 66; 100-109.
Dorschner et al, 2000, Hum. Mol. Genet., 9; 35-46.

Description	Code	Color	Format	US	ROW
NF1 (17q11) / MPO (17q22)	KBI-40114	Green/Red	10 Test	-	IVD
NF1 (17q11) / MPO (17q22)	KBI-45114	Green/Red	5 Test	-	IVD
NF1 (17q11) / MPO (17q22)	KI-40114	Green/Red	100 µL	RUO	-

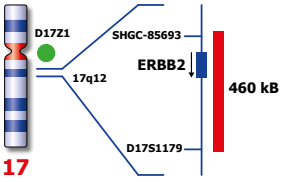
17q12 ERBB2 / SE 17



ERBB2 (17q12) / SE 17 probe hybridized to breast tumor tissue showing amplification of ERBB2 / SE 17.

The ERBB2 gene encodes a receptor tyrosine kinase involved in growth factor signaling. Overexpression of this gene is seen in about 20% of invasive breast cancers and is without proper treatment associated with poor survival. ERBB2 gene amplification is a permanent genetic change that results in this continuous overexpression of ERBB2. Trastuzumab (commonly known as Herceptin) has been developed to be effective against ERBB2-positive breast cancer. ERBB2 amplification is also observed in a variety of other tumors, such as prostate, lung, colon and ovary carcinoma.

The ERBB2 (17q12) FISH probe is optimized to detect copy numbers of the ERBB2 gene region at region 17q12. The chromosome 17 satellite enumeration probe (SE 17) at D17Z1 is included to facilitate chromosome identification/enumeration.

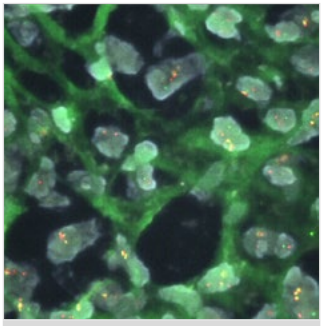


References

Pauletti et al, 1996, Oncogene, 13: 63-72.
Xing et al, 1996, Breast Cancer Res Treat, 39: 203-212.

Description	Code	Color	Format	US	ROW
ERBB2 (17q12) / SE 17	KBI-10701	Green/Red	10 Test	-	IVD
ERBB2 (17q12) / SE 17	KBI-14701	Green/Red	50 Test	-	IVD
ERBB2 (17q12) / SE 17	KI-10701	Green/Red	100 µL	RUO	-
ERBB2 (17q12) / SE 17	KI-14701	Green/Red	500 µL	RUO	-

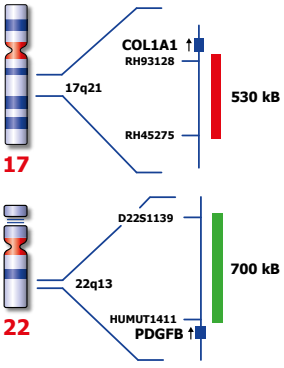
17q21 COL1A1 / PDGFB



Interphase FISH result of COL1A1/ PDGFB Fusion probe hybridized to dermatofibrosarcoma protuberans tumor tissue, showing co-localization and amplification of the fusion gene.

The diagnosis of primary soft tissue and bone tumors is often challenging as they are relatively rare. The misdiagnosis between dermatofibroma (DF) and dermatofibrosarcoma protuberans (DFSP) or giant cell fibroblastoma (GCF) might result in incorrect primary management. DFSP and GCF have in most cases diagnosed today a translocation involving the COL1A1 (collagen, type I, alpha 1) gene at 17q21 and the PDGFB (platelet-derived growth factor beta polypeptide) gene at 22q13. Also, a supernumerary ring chromosome derived from the translocation t(17;22) can be present.

The CCOL1A1/PDGFB t(17;22) Dual-Color Single-Fusion probe is optimized to detect the t(17;22)(q21;q13) involving the COL1A1 (17q21) and PDGFB (22q13) gene regions in dual-color, single-fusion assay on paraffin embedded tissue sections.



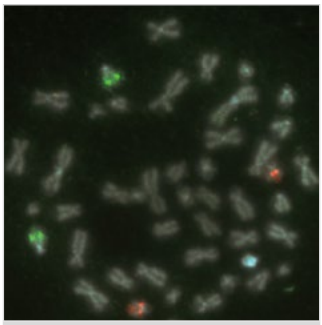
References

Maire et al, 2007, Arch Dermatol, 143; 203-210.
Labropoulos et al, 2007, Biologics, 1; 347-353.
Patel et al, 2008, Hum Path, 39; 184-193.
Sandberg, 2003, Cancer Genet Cytogenet, 140; 1-12.

Description	Code	Color	Format	US	ROW
COL1A1/PDGFB t(17;22) Dual-Color, Single-Fusion	KBI-10742	Green/Red	10 Test	-	IVD

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

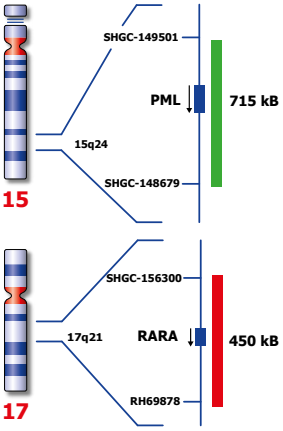
17q21 PML / RARA



PML / RARA t(15;17) Fusion probe hybridized to a normal metaphase (2R2G).

A structural rearrangement involving chromosomes 15 and 17 in acute promyelocytic leukemia (APL) was first recognized in 1977. The critical junction is located on the der(15) chromosome and consists of the 5' portion of PML fused to virtually all of the RARA gene. The PML/RARA fusion protein interacts with a complex of molecules known as nuclear co-repressors and histone deacetylase. This complex binds to the fusion protein and blocks the transcription of target genes. Other less common variant translocations fuse the RARA gene on 17q21 to the PLZF, NPM, NUMA, and STAT5b genes, respectively.

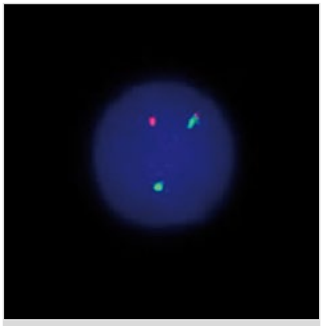
The PML/RARA t(15;17) Fusion specific FISH probe is optimized to detect the reciprocal translocation t(15;17) (q24;q21) in a dual-color, dual-fusion assay.



References
Schad et al, 1994, Mayo Clin Proc, 69; 1047-1053.
Brockman et al, 2003, Cancer Genet Cytogenet, 145; 144-151.

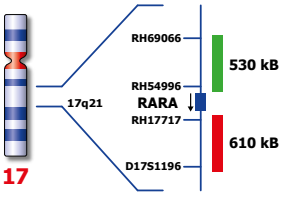
Description	Code	Color	Format	US	ROW
PML/RARA t(15;17) Fusion	KBI-10302	Green/Red	10 Test	-	IVD
PML/RARA t(15;17) Fusion	KBI-12302	Green/Red	20 Test	-	IVD
PML/RARA t(15;17) Fusion	KI-10302	Green/Red	100 µL	RUO	-
PML/RARA t(15;17) Fusion	KI-12302	Green/Red	200 µL	RUO	-

17q21 RARA Break



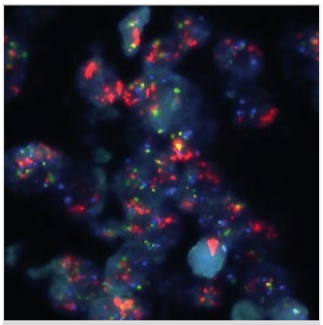
RARA (17q21) Break probe hybridized to patient material showing a translocation at 17q21 (1RG1R1G).

This break apart probe can detect the numerous types of recurrent rearrangement of the RAR_ (Retinoid acid receptor, alpha) gene with various gene partners (e.g., PML, NPM, MLL, FIP1L1, NuMA1, PLZF, amongst the others), leading to the formation of different reciprocal fusion proteins. The importance of retinoid metabolism in acute promyelocytic leukemia (APL) is highlighted by the numerous recent studies, but the different leukemogenic functions of the RAR_ fusion proteins in the neoplastic myeloid development still has to be defined, as well as the distinct clinical outcome of the patients with the variant forms of APL.



Description	Code	Color	Format	US	ROW
RARA (17q21) Break	KBI-10305	Green/Red	10 Test	-	IVD
RARA (17q21) Break	KI-10305	Green/Red	100 µL	RUO	-

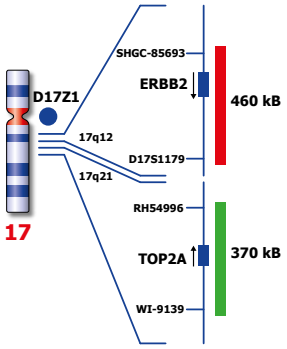
17q21 TOP2A / ERBB2 / SE 17



TOP2A (17q21) / ERBB2 (17q12) / SE 17 TC probe hybridized to breast tumor tissue showing amplification of TOP2A / ERBB2.

The presence of both TOP2A amplification and deletion in advanced cancer are associated with decreased survival, and occur frequently and concurrently with ERBB2 gene amplification.

The TOP2A (17q21) / ERBB2 (17q12) / SE 17 probe is designed as a triple-color assay to detect amplification at 17q12 as well as amplifications or deletions at 17q21. The chromosome 17 satellite enumeration probe (SE 17) at D17Z1 in blue is included to facilitate chromosome identification/enumeration.

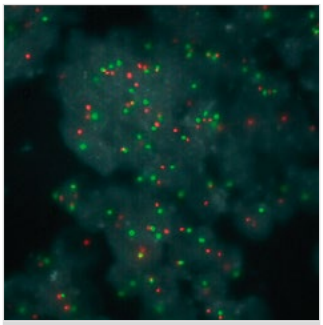


References

Järvinen et al, 1999, Genes Chromosomes Cancer 26; 142-150.
Järvinen et al, 2000, Am. J. Pathology 156; 639-647.

Description	Code	Color	Format	US	ROW
TOP2A (17q21) / ERBB2 (17q12) / SE 17, Triple-Color	KBI-10735	Green/Red/Blue	10 Test	-	IVD
TOP2A (17q21) / ERBB2 (17q12) / SE 17, Triple-Color	KI-10735	Green/Red/Blue	100 µL	RUO	-

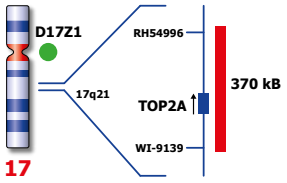
17q21 TOP2A / SE 17



TOP2A (17q21) / SE 17 probe hybridized to breast tissue (2R2G).

The Topoisomerase2A (TOP2A) enzyme, which is vital for the cell because of its role in cell replication and repair, catalyzes the relaxation of supercoiled DNA molecules to create a reversible double-strand DNA break. This enzyme is also the target of a number of cytotoxic agents, namely TOP2A inhibitors (anthracyclines, etoposide, teniposide).

The TOP2A (17q21) / SE 17 FISH probe is optimized to detect amplifications (copy numbers) or deletions of the TOP2A gene region at the 17q21. The chromosome 17 satellite enumeration probe (SE 17) at D17Z1 is included to facilitate chromosome identification.



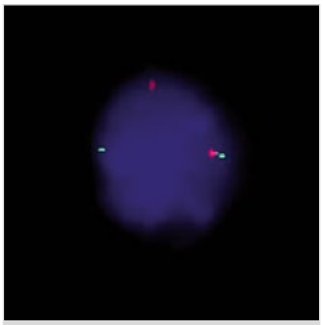
References

Järvinen et al, 1999, Genes Chromosomes Cancer 26; 142-150.
Järvinen et al, 2000, Am. J. Pathology 156; 639-647.

Description	Code	Color	Format	US	ROW
TOP2A (17q21) / SE 17	KBI-10724	Green/Red	10 Test	-	IVD
TOP2A (17q21) / SE 17	KI-10724	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

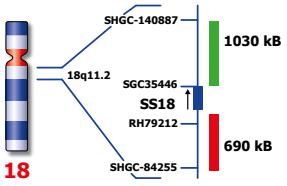
18q11 SS18 Break



SS18 (18q11) Break probe hybridized to patient material showing translocation of the SYT (SS18) gene region at 18q11 (1RG1R1G).

The characteristic chromosomal abnormality in synovial sarcoma t(X;18) (p11.2;q11.2) is present in 90% of the patients. This translocation results in the fusion of the synovial sarcoma translocation, chromosome 18 (SS18) gene to either of two distinct genes, SSX1 or SSX2, located on the X chromosome.

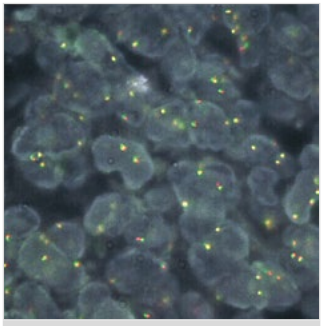
The SS18 (18q11) Break probe is optimized to detect translocations involving the SS18 gene region at 18q11 in a dual-color, split assay on paraffin embedded tissue sections.



References
Kawai et al, 1998, NEJM, 338; 153-160.
Surace et al, 2004, LabInvest., 84; 1185-1192.

Description	Code	Color	Format	US	ROW
SS18 (18q11) Break	KBI-10713	Green/Red	10 Test	-	IVD
SS18 (18q11) Break	KI-10713	Green/Red	100 µL	RUO	-

18q21 BCL2 Break (tissue)

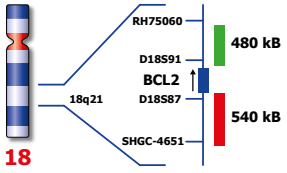


BCL2 (18q21) Break hybridized to paraffin embedded tissue (2RG).

Follicular lymphoma is a mature B-cell lymphoma characterized by the presence of the t(14;18) translocation that juxtaposes the BCL2 locus on chromosome 18q21 to the immunoglobulin H (IGH) locus on chromosome 14q32, resulting in the overexpression of the anti-apoptotic protein BCL2. Besides IGH, additional translocation partners to BCL2 have been identified (e.g. IGK at 2p11.2 and IGL at 22q11). A break or split assay is therefore best suited to detect rearrangements of the BCL2 gene region at 18q21.

The BCL2 (18q21) Break probe is optimized to detect translocations involving the BCL2 gene region at 18q21 in a dual-color, split assay on paraffin embedded tissue sections.

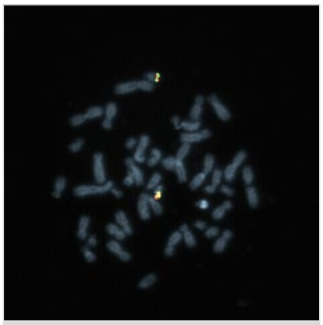
Kreatech has developed this probe for the specific use on cell material (KBI-10612), or for the use on tissue (KBI-10745).



References
Taniwaki M et al, 1995, Blood, 86; 1481-1486.
Poetsch M et al, 1996, J Clin Oncol, 14; 963- 969.
Einers R et al, 2005, Am J Clin Pathol, 124; 421-429.

Description	Code	Color	Format	US	ROW
BCL2 (18q21) Break (tissue)	KBI-10745	Green/Red	10 Test	-	IVD
BCL2 (18q21) Break (tissue)	KI-10745	Green/Red	100 µL	RUO	-

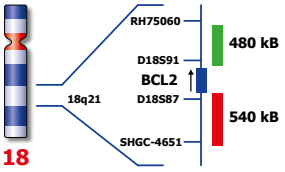
18q21 BCL2 Break



BCL2 (18q21) Break probe hybridized to a normal metaphase.

Follicular lymphoma is a mature B-cell lymphoma characterized by the presence of the t(14;18) translocation that juxtaposes the BCL2 locus on chromosome 18q21 to the immunoglobulin H (IGH) locus on chromosome 14q32, resulting in the overexpression of the anti-apoptotic protein BCL2. Next to IGH, other translocation partners to BCL2 are also known (e.g. IGK at 2p11.2 and IGL at 22q11). A break or split assay is therefore best suited to detect rearrangements of the BCL2 gene region at 18q21.

The BCL2 (18q21) Break FISH probe is optimized to detect translocations involving the BCL2 gene region at 18q21 in a dual-color, split assay on metaphase/interphase spreads, bloodsmears and bone marrow cells.

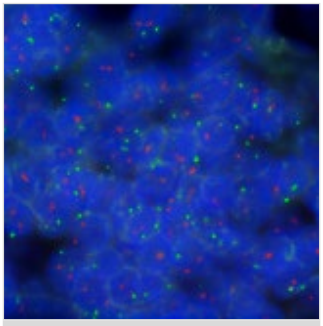


References

Taniwaki M et al, 1995, Blood, 86; 1481-1486.
Poetsch M et al, 1996, J Clin Oncol, 14; 963- 969.
Einerson R et al, 2005, Am J Clin Pathol, 124; 421-429.

Description	Code	Color	Format	US	ROW
BCL2 (18q21) Break	KBI-10612	Green/Red	10 Test	-	IVD
BCL2 (18q21) Break	KI-10612	Green/Red	100 µL	RUO	-

18q21 BCL2 / IGH (tissue)

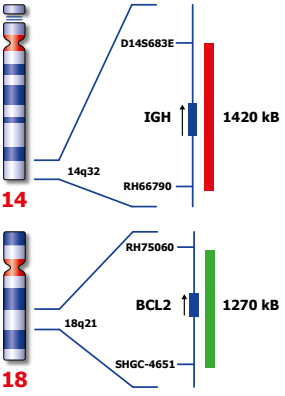


BCL2/IGH t(14;20) Fusion Probe hybridized to paraffin embedded lymph node material (2R2G).

Image kindly provided by P. May, Imperial College, Hammersmith Hospital, London

Follicular lymphoma is a mature B-Cell lymphoma, characterized by the presence of the t(14;18) translocation that juxtaposes the BCL2 locus on chromosome 18q21 to the immunoglobulin H (IGH) locus on chromosome 14q32, resulting in the overexpression of the antiapoptotic protein BCL2.

The BCL2/IGH t(14;18) Fusion probe is optimized to detect the reciprocal translocation t(14;18) in a dual-color, dual-fusion assay on formalin fixed paraffin embedded tissue samples. In addition Kreatech has developed a probe for the specific use on cell material (KBI-10606).



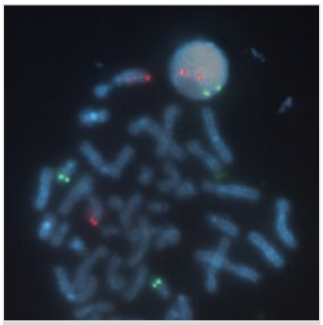
References

Taniwaki M et al, 1995, Blood, 86; 1481-1486.
Poetsch M et al, 1996, J Clin Oncol, 14; 963-969.

Description	Code	Color	Format	US	ROW
BCL2/IGH t(14;18) Fusion (tissue)	KBI-10755	Green/Red	10 Test	-	IVD
BCL2/IGH t(14;18) Fusion (tissue)	KI-10755	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

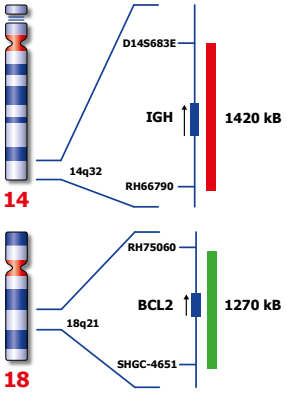
18q21 BCL2 / IGH



BCL2 / IGH t(14;18) probe hybridized to a normal interphase/metaphase (2R2G).

The t(14;18) chromosomal translocation that results in the juxtaposition of the BCL2 proto-oncogene with the heavy chain JH locus. It a common cytogenetic abnormality in human lymphoma and is observed in about 85% of follicular lymphoma (FL) and up to one-third of diffuse lymphomas (DL). Two breakpoint region clusters (brc) have been identified: a major breakpoint region (mbr) within the 3' untranslated region of the BCL2 proto-oncogene accounting for approximately 60% of the cases and a minor cluster region (mcr) 30 kb 3' of BCL2 accounting for approximately 25% of the breakpoints.

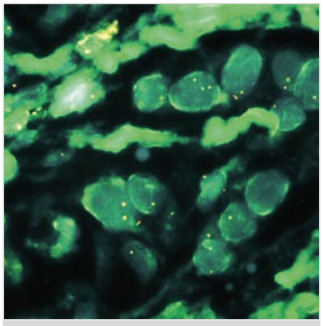
The BCL2 / IGH t(14;18)(q21;q32) specific FISH probe is optimized to detect the reciprocal translocation t(18;14), involving either of the two brc in the BCL2 gene in a dual-color, dual-fusion assay. Kreatech has optimized this FISH probe for the specific use on cell material (KBI-10606), or for the use on tissue (KBI-10755).



References
Poetsch et al, 1996, J Clin Oncol, 14; 963-969.
Vaandrager et al, 2000, Genes Chrom Cancer, 27; 85-94.

Description	Code	Color	Format	US	ROW
BCL2/IGH t(14;18) Fusion	KBI-10606	Green/Red	10 Test	-	IVD
BCL2/IGH t(14;18) Fusion	KI-10606	Green/Red	100 µL	RUO	-

18q21 MALT1 Break (tissue)

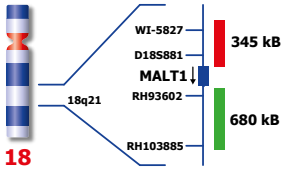


MALT1 (18q21) Break tissue probe hybridized to paraffin embedded material (2RG).

Low grade malignant lymphomas arising from mucosa associated lymphoid tissue (MALT) represent a distinct clinicopathological entity. The three major translocations seen in MALT lymphomas are t(11;18)(q21;q21) / API2-MALT1, t(14;18)(q32;q21) / IGH-MALT1 and t(1;14)(p22;q32) / IGHBCL10. A break or split probe for MALT1 (18q21) is best used to analyze translocation of the MALT1 gene on formalin fixed paraffin embedded tissue for routine clinical diagnosis.

The MALT1 (18q21) Break probe is optimized to detect translocations involving the MALT1 gene region at 18q21 in a dual-color, split assay.

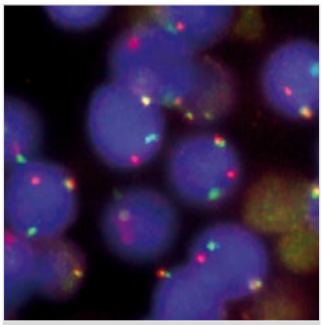
Kreatech has developed this probe for the specific use on cell material (KBI-10608), or for the use on tissue (KBI-10731).



References
Morgan et al, 1999, Cancer Res, 59; 6205-6213.
Dierlamm et al, 2000, Blood, 96; 2215-2218.

Description	Code	Color	Format	US	ROW
MALT1 (18q21) Break (tissue)	KBI-10731	Green/Red	10 Test	-	IVD
MALT1 (18q21) Break (tissue)	KI-10731	Green/Red	100 µL	RUO	-

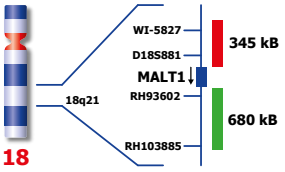
18q21 MALT1 Break



MALT1 (18q21) Break probe hybridized to patient material showing a translocation at 18q21 (1RG1RG).

Low grade malignant lymphomas arising from mucosa associated lymphoid tissue (MALT) represent a distinct clinicopathological entity. The three major translocations seen in MALT lymphomas are t(11;18)(q21;q21) / API2-MALT1, t(14;18)(q32;q21) / IGH-MALT1 and t(1;14)(p22;q32) / IGH-BCL10. A break or split probe for MALT1 (18q21) is best used to analyze translocation of the MALT1 gene on formalin fixed paraffin embedded tissue for routine clinical diagnosis.

Kreatech has optimized this FISH probe for the specific use on cell material (KBI-10608), or for the use on tissue (KBI-10731).

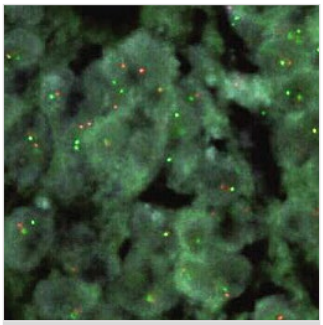


References

Morgan et al, 1999, Cancer Res, 59; 6205-6213.
Dierlamm et al, 2000, Blood, 96; 2215-2218.

Description	Code	Color	Format	US	ROW
MALT1 (18q21) Break	KBI-10608	Green/Red	10 Test	-	IVD
MALT1 (18q21) Break	KI-10608	Green/Red	100 µL	RUO	-

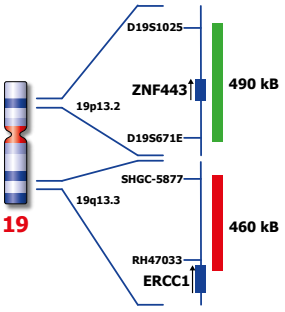
19p13 ERCC1 / ZNF443



ERCC1 (19q13) / ZNF443 (19p13) probe hybridized to paraffin embedded tissue (2R2G).

Nucleotide excision repair (NER) is the primary DNA repair mechanism that removes platinum-DNA adducts from genomic DNA. Excision repair cross-complementing rodent repair deficiency, complementation group 1 (ERCC1) is a critical gene in the NER pathway. A growing list of reports links cisplatin, carboplatin, and oxaliplatin based chemotherapy resistance to ERCC1 expression levels in several tumors. This relationship has been suggested for patients with gastric, bladder, ovarian, colorectal and non–small cell lung cancers (NSCLC). ERCC1 has been shown to be an important marker to predict responsiveness to cisplatin-based chemotherapy. Low ERCC1 gene expression correlates with prolonged survival after cisplatin-based chemotherapy.

The ERCC1 (19q13) FISH probe has been optimized to detect copy numbers of the ERCC1 gene region at 19q13. The ZNF443 (19p13) probe is included to facilitate chromosome identification.



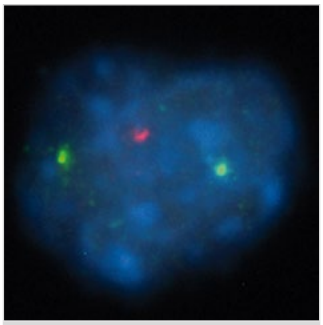
References

Olaussen et al, 2006, N. Engl. J. Med. 335; 983-991.
Ceppi et al, 2006, Ann. Oncol. 17; 1818-1825.

Description	Code	Color	Format	US	ROW
ERCC1 (19q13) / ZNF443 (19p13)	KBI-10739	Green/Red	10 Test	-	IVD
ERCC1 (19q13) / ZNF443 (19p13)	KI-10739	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

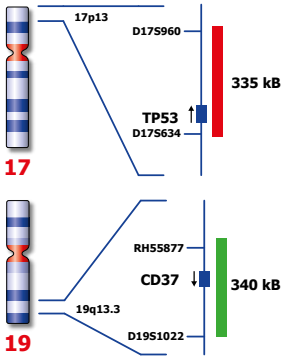
19q13 19q13 / TP53



19q13 / TP53 (17p13) hybridized to patient material showing a TP53 (17p13) deletion (1R2G).

TP53 (previously known as p53) gene deletion, which can be identified by interphase FISH in almost a third of patients with newly diagnosed MM, is a novel prognostic factor predicting for short survival of MM patients treated with conventional-dose chemotherapy. Amplification of 19q13 has been reported in a variety of cancer. The 19q13 specific FISH probe is optimized to detect copy numbers at 19q13.

The TP53 (17p13) specific DNA region is optimized to detect copy numbers of the TP53 gene region at 17p13.

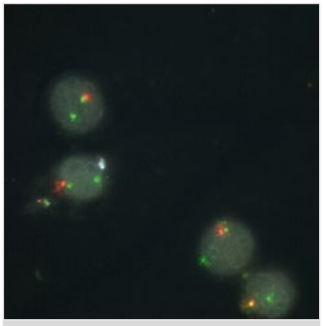


References

Drach et al, 1998, Blood, 92; 802-809.
Cremer et al, 2005, Genes Chrom Cancer, 44; 194-203.

Description	Code	Color	Format	US	ROW
19q13 / TP53 (17p13)	KBI-10509	Green/Red	10 Test	-	IVD
19q13 / TP53 (17p13)	KI-10509	Green/Red	100 µL	RUO	-

20q 20q-

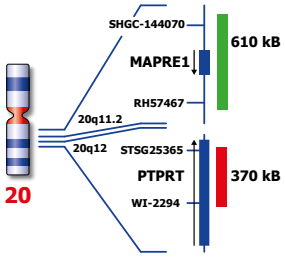


20q- (20q12) / 20q11 probe hybridized to patient material showing 20q- deletion (1R2G).

Material kindly provided by Labdia Labordiagnostik, Vienna.

Acquired deletions of the long arm of chromosome 20 are found in several hematologic conditions and particularly in the myeloproliferative disorders (MPD) and myelodysplastic syndromes and acute myeloid leukemia (MDS / AML). A minimal critical region deleted in MPD and MDS has been identified at 20q12 which includes a protein tyrosine phosphatase receptor gene.

The 20q- (20q12) specific FISH probe is optimized to detect copy numbers of 20q at region 20q12. A 20q11 region specific probe is included to facilitate chromosome identification.

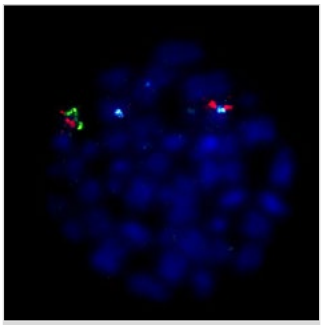


References

Bench et al, 2000, Oncogene, 19; 3902-3913.
Asimakopoulos et al, 1994, Blood, 84; 3086-3094.

Description	Code	Color	Format	US	ROW
20q- (20q12) / 20q11	KBI-10203	Green/Red	10 Test	-	IVD
20q- (20q12) / 20q11	KI-10203	Green/Red	100 µL	RUO	-

20q11.2 dic(9;20)

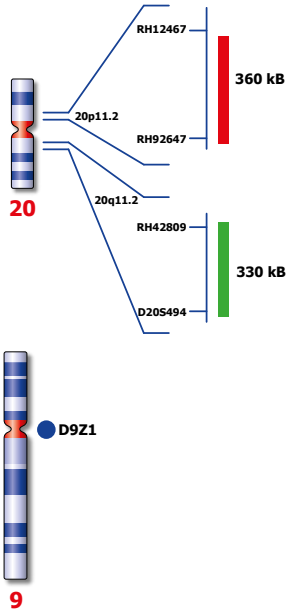


dic(9;20) Triple-Color.

Image kindly provided by Dr. Ann Nordgren, Stockholm.

The dic(9;20)(p13.2;q11.2) is a recurrent chromosomal abnormality in pediatric Bcell precursor acute lymphoblastic leukemia (BCP-ALL), which occurs in ~2% of the cases. It is associated with an intermediate outcome with relapses being relatively frequent, compared to other common cytogenetic subgroups of BCP-ALL (e.g. high hyperploidy and t(12;21)). The recent Nordic Society of Pediatric Hematology and Oncology (NOPHO) ALL treatment protocol dictates that the dic(9;20) aberration is to be excluded before assigning a patient to standard risk treatment. The dic(9;20) is an unbalanced rearrangement involving chromosomes 9 and 20, resulting in the co-localisation of the respective centromeres and concomitant loss of the chromosome arms 9p and 20q.

The dic(9;20) Triple-Color FISH probe is optimized to detect the dicentric (9;20) (p13.2;q11.2) in a triple-color assay on metaphase/interphase spreads, blood smears and bone marrow cells.

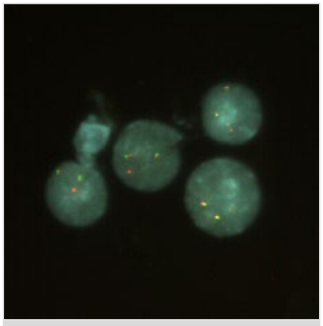


References

Forestier et al., Genes Chromosome Cancer, 2008, 47; 149-158.
Pichler H et al., Br J Haematol, 2010, 149; 93-100.
Schmiegelow K et al., Leukemia, 2010, 24; 345-54.
Zachariadis V et al., Leukemia, 2011, 25; 22-628.
Zachariadis V et al., Br J Haematol, 2012, 159; 488-491.

Description	Code	Color	Format	US	ROW
dic(9;20) Triple-Color	KBI-10405	Green/Red/Blue	10 Test	-	IVD
dic(9;20) Triple-Color	KI-10405	Green/Red/Blue	100 µL	RUO	-

20q12 MAFB /IGH

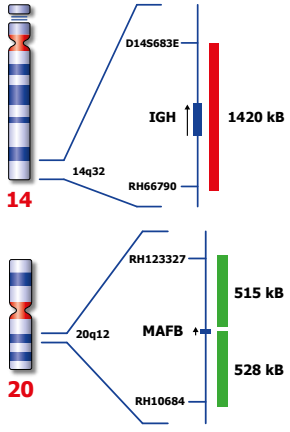


The MAFB / IGH t(14;20) Fusion FISH probe hybridized to patient material showing a complex pattern with a t(14;20) translocation.

Image kindly provided by Erasmus Medical Center, Rotterdam.

The immunoglobulin heavy chain (IGH) gene at 14q32 is an important cause of genetic deregulation in MM. Among the known fusion partners for the IGH (previously known as IGH@) gene, reciprocal translocation with the MAFB gene at 20q12 is relatively rare in MM (~2% occurrence). However, the MAFB / IGH t(14;20) translocation is associated with poor prognosis in multiple myeloma patients.

The MAFB / IGH t(14;20) Fusion FISH probe is optimized to detect the reciprocal translocation t(14;20) in a dual-color, dual-fusion assay on metaphase/ interphase spreads and bone marrow cells.

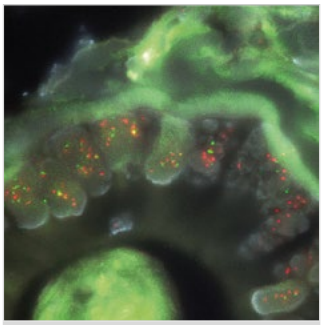


References

Boersma-Vreugdenhil GR et al, 2004, Br J Haematol, 126; 355-363.
Bergsagel PL et al, 2005, JCO, 23; 6333-6338.

Description	Code	Color	Format	US	ROW
MAFB/IGH t(14;20) Fusion	KBI-10510	Green/Red	10 Test	-	IVD
MAFB/IGH t(14;20) Fusion	KI-10510	Green/Red	100 µL	RUO	-

20q13 AURKA

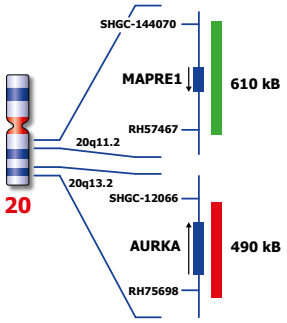


AURKA (20q13) / 20q11 probe hybridized to colorectal carcinoma material showing amplification of AURKA, gene region at 20q13.

Material kindly provided by Dr. Carvalho, Amsterdam.

Aurora kinase A (AURKA) gene amplification has been detected in approximately 12% of primary breast tumors, as well as in bladder, ovarian, colon, prostate, neuroblastoma and cervical cancer cell lines. Recent research into new drug development has focused on the importance of aurora kinases for tumor suppression. The AURKA (20q13) / 20q11 probe is designed to detect copy numbers of the AURKA gene region at region 20q13.

The AURKA (20q13) FISH probe is optimized to detect copy numbers of the AURKA gene region at region 20q13. The 20q11 specific DNA probe is included to facilitate chromosome identification.

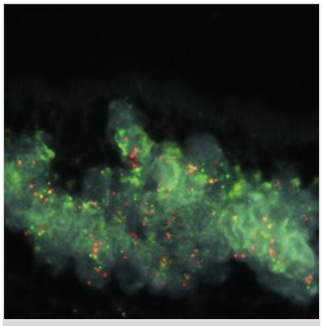


References

Uchida et al, 2010, Cancer Genet Cytogenet 203; 324-327.
Sen et al, 2002, J of Nat Canc Inst 94; 1320-1329.
Lassmann et al, 2007, Clin Cancer Res 13; 4083-4091.

Description	Code	Color	Format	US	ROW
AURKA (20q13) / 20q11	KBI-10721	Green/Red	10 Test	-	IVD
AURKA (20q13) / 20q11	KI-10721	Green/Red	100 µL	RUO	-

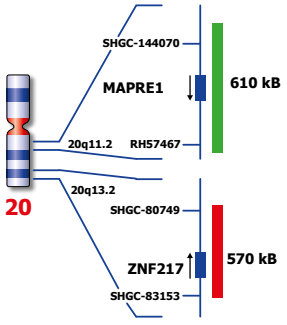
20q13 ZNF217 / 20q11



ZNF217 (20q13) / 20q11 probe hybridized to tissue (2R2G).

Zinc-finger protein 217 (ZNF217) is a Kruppel-like zinc-finger protein located at 20q13.2, within a region of recurrent maximal amplification in a variety of tumor types, and especially breast cancer cell lines and primary breast tumors. Copy number gains at 20q13 are also found in more than 25% of cancers of the ovary, colon, head and neck, brain, and pancreas, often in association with aggressive tumor behavior. ZNF217 is considered a strong candidate oncogene that may have profound effects on cancer progression, which is transcribed in multiple normal tissues, and overexpressed in almost all cell lines and tumors in which it is amplified.

The ZNF217 (20q13) FISH probe is optimized to detect copy numbers of 20q at 20q13. The 20q11 probe is included to facilitate chromosome identification.

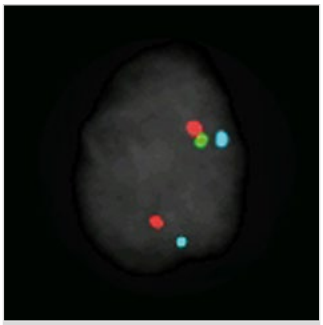


References

Tanner M et al, 2000, Clin Cancer Res, 6; 1833-1839.
Ginestier C et al, 2006, Clin Cancer Res, 12; 4533-4544.

Description	Code	Color	Format	US	ROW
ZNF217 (20q13) / 20q11	KBI-10733	Green/Red	10 Test	-	IVD
ZNF217 (20q13) / 20q11	KI-10733	Green/Red	100 µL	RUO	-

21q22 TMPRSS2-ERG



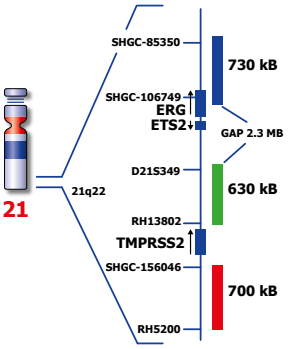
TMPRSS2-ERG (21q22) rearrangement probe hybridized to prostate carcinoma tissue showing a deletion of the TMPRSS2 (21q22) gene region associated with TMPRSS2-ERG fusion (1RGB 1RB).

Image kindly provided by Dr. Teixeira, Porto.

The transmembrane protease serine 2 gene (TMPRSS2) is involved in gene fusions with ERG, ETV1 or ETV4 in prostate cancer. It has been reported that the expression of the TMPRSS2-ERG fusion gene is a strong prognostic factor for the risk of prostate cancer recurrence in prostate cancer patients treated by surgery.

The TMPRSS2-ERG rearrangement probe is optimized to detect the deletion between TMPRSS2 and ERG at 21q22 associated with the TMPRSS2-ERG fusion in a triple-color deletion assay.

It also detects translocations involving the TMPRSS2 region such as ETV1 t(7;21), or ETV4 t(17;21).

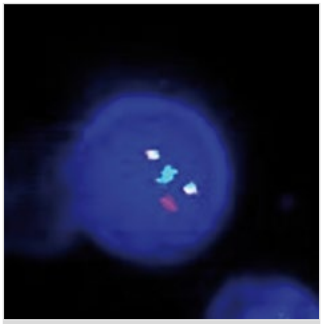


References

Perner et al, 2006 Cancer Res 66; 8337-8341.
Hermans et al, 2006, Cancer Res 66; 10658-10663.
Attard et al, 2008, Oncogene 27; 253-263.

Description	Code	Color	Format	US	ROW
TMPRSS2-ERG (21q22) Deletion, Break, Triple-Color	KBI-10726	Green/Red/Blue	10 Test	-	IVD
TMPRSS2-ERG (21q22) Deletion, Break, Triple-Color	KI-10726	Green/Red/Blue	100 µL	RUO	-

22q11 BCR / ABL1

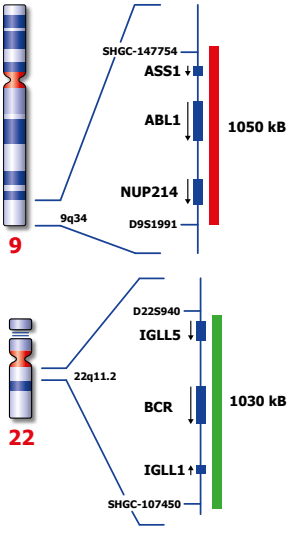


BCR / ABL1 t(9;22) Fusion probe hybridized on patient material showing t(9;22) (q34;q11) reciprocal translocation (2RG1R1G).

Image kindly provided by Monika Conchon, São Paulo.

The BCR / ABL1 t(9;22) Fusion FISH probe is optimized to detect the t(9;22) (q34;q11) reciprocal translocation in a dual-color, dual-fusion assay on metaphase/interphase spreads, blood smears and bone marrow cells.

This probe will also detect cryptic insertions of ABL1 (previously known as ABL) into the BCR region not detectable by karyotyping and therefore described as Ph-negative.



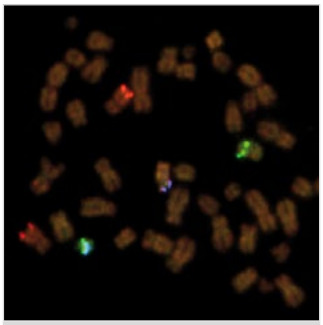
References

Morris et al, 1990, Blood, 76; 1812-1818.
Dewald et al, 1998, Blood, 91; 3357-3365.
Kolomietz et al, 2001, Blood, 97; 3581-3588.
Huntly et al, 2003, Blood, 102; 1160-1168.
Tkachuk et al., 1990, Science, 250; 559-562.

Description	Code	Color	Format	US	ROW
BCR/ABL1 t(9;22) Fusion	KBI-10005	Green/Red	10 Test	-	IVD
BCR/ABL1 t(9;22) Fusion	KBI-12005	Green/Red	20 Test	-	IVD
BCR/ABL1 t(9;22) Fusion	KI-10005	Green/Red	100 µL	RUO	-
BCR/ABL1 t(9;22) Fusion	KI-12005	Green/Red	200 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

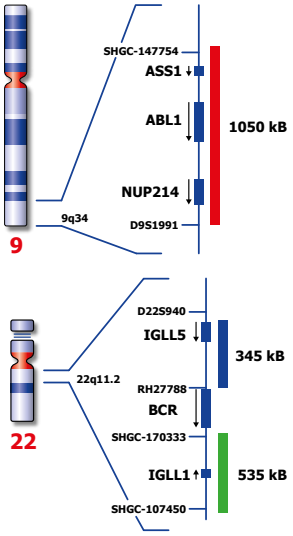
22q11 BCR / ABL1 TC



BCR / ABL1 t(9;22),Triple-Color, Dual Fusion probe hybridized on patient material showing translocation of distal BCR (1BG1RB1R1G).

Image kindly provided by Prof. Siebert, Kiel.

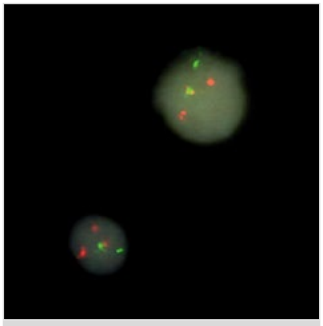
The BCR / ABL1 t(9;22) FISH probe is a triple-color, dual-fusion probe built from the same regions as the dual-color, dual-fusion probe, but the proximal BCR region is labeled in blue. Using the triple-color probe allows to distinguish between the derivative chromosome 22, the Philadelphia chromosome, which will be observed as purple (red/blue) color, while the derivative chromosome 9 will show a yellow (red/green) signal.



References
Morris et al, 1990, Blood, 76; 1812-1818.
Dewald et al, 1998, Blood, 91; 3357-3365.
Kolomietz et al, 2001, Blood, 97; 3581-3588.
Huntly et al, 2003, Blood, 102; 1160-1168.
Tkachuk et al., 1990, Science, 250; 559-562.

Description	Code	Color	Format	US	ROW
BCR/ABL1 t(9;22) Triple-Color, Dual-Fusion	KBI-10006	Green/Red/Blue	10 Test	-	IVD
BCR/ABL1 t(9;22) Triple-Color, Dual-Fusion	KI-10006	Green/Red/Blue	100 µL	RUO	-

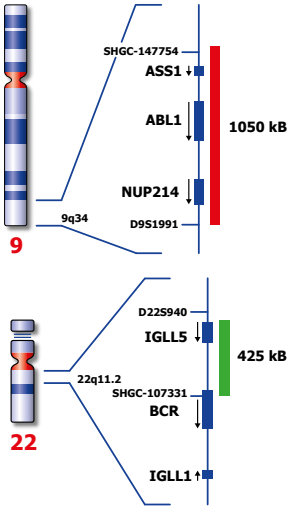
22q11 BCR / ABL1 DC



BCR / ABL1 t(9;22), Dual-Color, Single-Fusion probe hybridized to patient material showing t(9;22) translocation (1RG1R1G).

Material kindly provided by Dr. Balogh, Budapest.

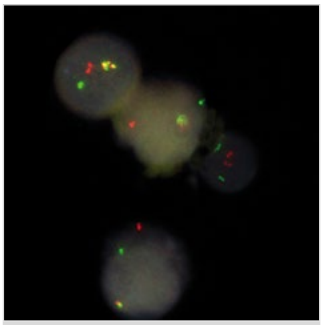
A simple dual-color, single-fusion assay is preferably used for the initial screening of CML and ALL patients. The Philadelphia chromosome, der(22q), is visualized by a fusion signal while the der(9q) shows no signal.



References
Morris et al, 1990, Blood, 76; 1812-1818.
Dewald et al, 1998, Blood, 91; 3357-3365.
Kolomietz et al, 2001, Blood, 97; 3581-3588.
Huntly et al, 2003, Blood, 102; 1160-1168.
Tkachuk et al., 1990, Science, 250; 559-562.

Description	Code	Color	Format	US	ROW
BCR/ABL1 t(9;22) Dual-Color, Single-Fusion, Extra Signal	KBI-10008	Green/Red	10 Test	-	IVD
BCR/ABL1 t(9;22) Dual-Color, Single-Fusion, Extra Signal	KI-10008	Green/Red	100 µL	RUO	-

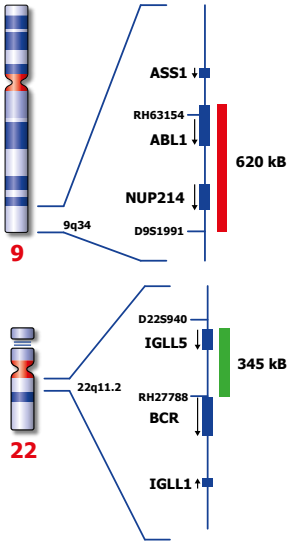
22q11 BCR / ABL1 DC



BCR / ABL1 t(9;22), Dual-Color, Single-Fusion probe hybridized to patient material showing t(9;22) translocation (1RG1R1G).

Material kindly provided by Dr. Balogh, Budapest.

A simple dual-color, single-fusion assay is preferably used for the initial screening of CML and ALL patients. The Philadelphia chromosome, der(22q), is visualized by a fusion signal while the der(9q) shows no signal.

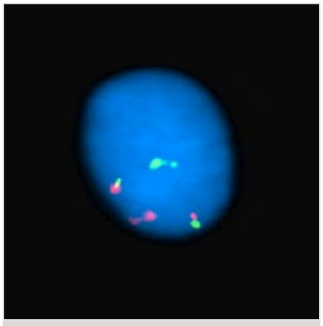


References

Morris et al, 1990, Blood, 76; 1812-1818.
Dewald et al, 1998, Blood, 91; 3357-3365.
Kolomietz et al, 2001, Blood, 97; 3581-3588.
Huntly et al, 2003, Blood, 102; 1160-1168.
Tkachuk et al., 1990, Science, 250; 559-562.

Description	Code	Color	Format	US	ROW
BCR/ABL1 t(9;22) Dual-Color, Single-Fusion	KBI-10009	Green/Red	10 Test	-	IVD
BCR/ABL1 t(9;22) Dual-Color, Single-Fusion	KI-10009	Green/Red	100 µL	RUO	-

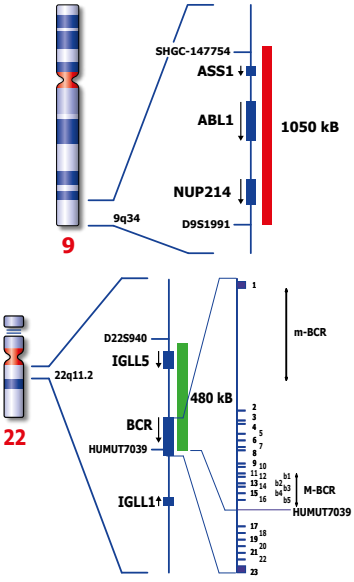
22q11 Mm-BCR / ABL1



Mm-BCR / ABL1 probe hybridized to patient material showing t(9;22) with M-BCR (1F1r1R1G).

Breakpoints in the BCR gene region can occur in different regions, predominantely in a major breakpoint cluster region (M-BCR) but can also occur in a minor breakpoint cluster region (m-BCR) or micro breakpoint cluster region (µ-BCR). Further research has indicated that CML patients with different BCR-ABL1 transcripts respond differently to treatment with Gleevec.

The Mm-BCR / ABL1 t(9;22), Dual-Color (DC), Single-Fusion (SF), Extra -Signal (ES) FISH probe is designed to differentiate between a M-BCR and m-BCR gene rearrangement by giving different signal patterns.



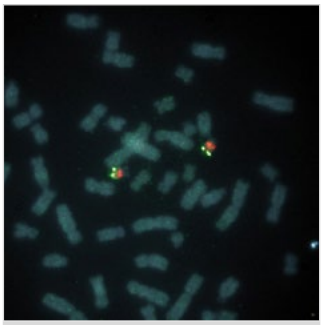
References

Dewald et al., 1998, Blood, 91; 3357-3365.
Huntly et al., 2003, Blood, 102; 1160-1168.
Sharma et al., 2010, Ann Hematol, 89; 241-7.
Tkachuk et al., 1990, Science, 250; 559-56.
Kolomietz et al., 2001. Blood, 97; 3581-3588.

Description	Code	Color	Format	US	ROW
Mm-BCR/ABL1 t(9;22) Dual-Color, Single-Fusion, Extra Signal	KBI-10013	Green/Red	10 Test	-	IVD

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

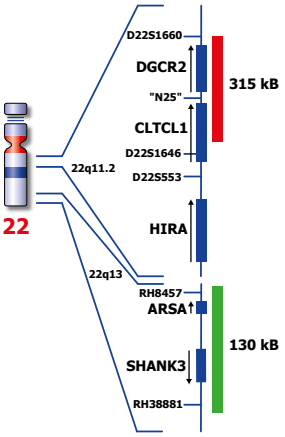
22q11 N25 / SHANK3



DiGeorge "N25" (22q11) / 22q13 (SHANK3) probe hybridized to a normal metaphase (2R2G).

The DiGeorge "N25" FISH probe was the first commercial microdeletion probe for chromosome 22q and detects the locus D22S75. This marker is located between DGCR2 and CLTCL1 (Clathrin). Both genes have been extensively investigated and their role in DiGeorge syndrome is well established.

The DiGeorge "N25" region probe covers the marker "N25" (D22S75) and adjacent region of CLTCL1 (Clathrin gene region) and DGCR2 (DiGeorge critical region gene 2). The SHANK3 FISH probe at 22q13 is serving as internal control.

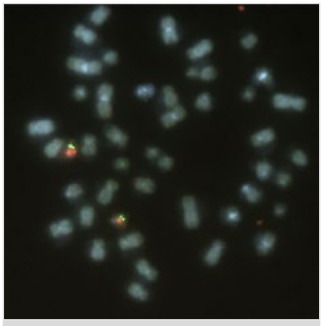


References

Sirotkin et al, 1996, Hum. Mol. Genet., 5; 617-624.
Holmes et al, 1997, Hum. Mol. Genet., 6; 357-367.
Wilson, et al, 2003, J. Med. Genet., 40; 575-584.
Luciani, et al, 2003, J. Med. Genet., 40; 690-696.

Description	Code	Color	Format	US	ROW
DiGeorge "N25" (22q11) / 22q13 (SHANK3)	KBI-40102	Green/Red	10 Test	-	IVD
DiGeorge "N25" (22q11) / 22q13 (SHANK3)	KBI-45102	Green/Red	5 Test	-	IVD
"N25" (22q11) / 22q13 (SHANK3)	KI-40102	Green/Red	100 µL	RUO	-

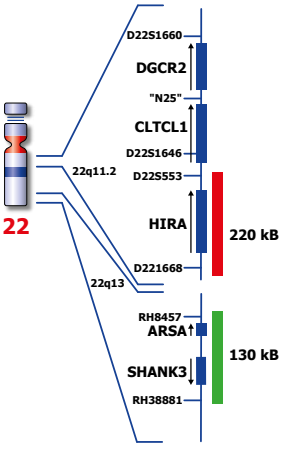
22q11 HIRA / SHANK3



DiGeorge HIRA (22q11) / 22q13 (SHANK3) probe hybridized to a normal metaphase (2R2G).

The DiGeorge HIRA (TUPLE) probe targets a putative transcriptional regulator (TUPLE1 or HIRA, HIR histone cell cycle regulation defective homolog A) which also has been identified to lie within the commonly deleted region DiGeorge syndrome. This probe is located distally to the "N25" probe.

The DiGeorge HIRA region probe is optimized to detect copy numbers of the HIRA gene region at 22q11.2. The SHANK3 probe at 22q13 is serving as internal control.

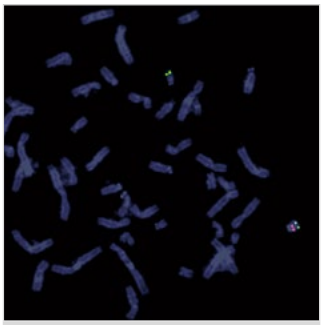


References

Lorain at al, 1996, Genome Res, 6; 43-50.

Description	Code	Color	Format	US	ROW
DiGeorge HIRA (22q11) / 22q13 (SHANK3)	KBI-40103	Green/Red	10 Test	-	IVD
DiGeorge HIRA (22q11) / 22q13 (SHANK3)	KBI-45103	Green/Red	5 Test	-	IVD
HIRA (22q11) / 22q13 (SHANK3)	KI-40103	Green/Red	100 µL	RUO	-

22q11 TBX1 / SHANK3

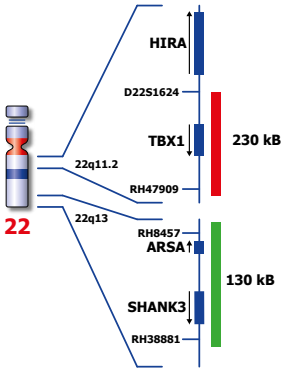


DiGeorge TBX1 (22q11) / 22q13 (SHANK3) probe hybridized to DiGeorge patient material showing a deletion of the TBX1 gene region at 22q11 (1R2G).

Image kindly provided by Dr. F. Girard- Lemaire Service de Cytogénétique (Dr. Flori), CHU Strasbourg.

The 22q11 deletion in DiGeorge syndrome/VCFS is characterized by defects in the derivatives of the pharyngeal apparatus. TBX1, a member of the T-box transcription factor family, is required for normal development of the pharyngeal arch arteries. Haploinsufficiency of TBX1 has been demonstrated to be sufficient to generate at least one important component of the DiGeorge syndrome phenotype in mice. The TBX1 is also located within the minimal critical DiGeorge region in humans.

The DiGeorge TBX1 region probe is optimized to detect copy numbers of the TBX1 gene region at 22q11.2. The subtelomeric (ST) 22qter FISH probe is included as control probe. The SHANK3 FISH probe at 22q13 is serving as internal control.

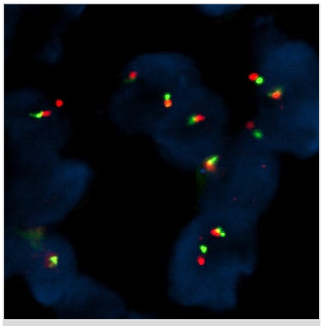


References

Lindsay et al, 2001, Nature, 410; 97-101.
Merscher et al, 2001, Cell, 104; 619-629.
Paylor et al, 2006, PNAS, 103; 7729-7734.

Description	Code	Color	Format	US	ROW
DiGeorge TBX1 (22q11) / 22q13 (SHANK3)	KBI-40104	Green/Red	10 Test	-	IVD
DiGeorge TBX1 (22q11) / 22q13 (SHANK3)	KBI-45104	Green/Red	5 Test	-	IVD
TBX1 (22q11) / 22q13 (SHANK3)	KI-40104	Green/Red	100 µL	RUO	-

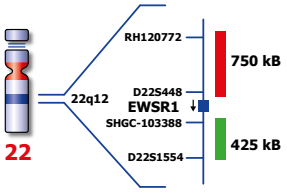
22q12 EWSR1 Break



EWSR1 (22q12) break probe hybridized to a tissue section showing co-localized and split signals.

Ewing's sarcoma is the second most frequent primary bone cancer. In most cases a translocation involving the EWSR1 gene at 22q12 and the FLI1 gene at 11q24 are observed, but several other translocation partners (ERG, ETV1, FEV, and E1A3) can also be involved.

The EWSR1 (22q12) Break probe is optimized to detect translocations involving the EWSR1 gene region at 22q12 in a dual-color, split assay on paraffin embedded tissue sections.



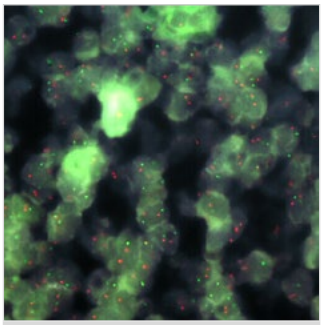
References

Zucman-Rossi, et al, 1998, PNAS, 95; 11786-11791.
Bernstein et al, 2006, Oncologist, 11; 503-519.

Description	Code	Color	Format	US	ROW
EWSR1 (22q12) Break	KBI-10750	Green/Red	10 Test	-	IVD
EWSR1 (22q12) Break	KI-10750	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

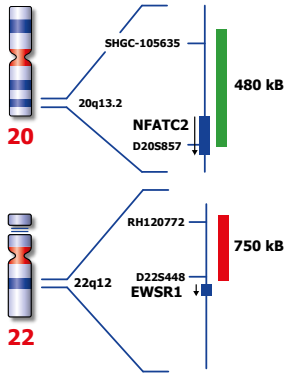
22q12 EWSR1 / NFATC



FISH result of the EWSR1/NFATC2 t(20;22) DC, S-Fusion probe.

Ewing's sarcoma is the second most frequent primary bone cancer. In most cases a translocation involving the EWSR1 gene at 22q12 and the FLI1 gene at 11q24 is observed. Several other translocation partners of the ETS gene family can also be involved. The first non-ETS family translocation partner described is the NFATC2 gene (nuclear factor of activated T-cells, cyto-plasmic, calcineurin-dependent 2) at 20q13.

The EWSR1/NFATC2 t(20;22) Dual-Color Single-Fusion probe is optimized to detect the t(20;22)(q13;q12) involving the NFATC2 (20q13) and EWSR1 (22q12) gene regions in a dual-color, single fusion assay on paraffin embedded tissue sections.

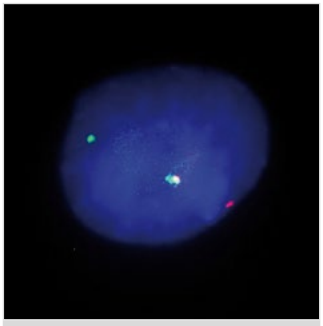


References

Szuhai et al, 2009, Clin Cancer Res, 15; 2259-2268.
Zucman-Rossi et al, 1998, PNAS, 95; 11786-11791.
Bernstein et al, 2006, Oncologist, 11; 503-519.

Description	Code	Color	Format	US	ROW
EWSR1/NFATC2 t(20;22) Dual-Color, Single-Fusion	KBI-10751	Green/Red	10 Test	-	IVD
EWSR1/NFATC2 t(20;22) Dual-Color, Single-Fusion	KI-10751	Green/Red	100 µL	RUO	-

Xp11 TFE3 Break

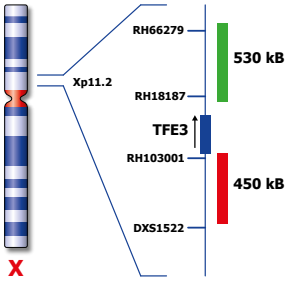


TFE3 (Xp11) Break probe hybridized to renal cell carcinoma showing a translocation at Xp11 (1RG1R1G).

Image kindly provided by Dr. Desangles, Paris.

Abnormalities of Xp11.2 region have often been observed in papillary renal cell carcinomas and are sometimes the sole cytogenetic abnormality present. The transcription factor binding to IGHM enhancer 3 (TFE3) gene, which encodes a member of the helix-loop-helix family of transcription factors, is located in this critical region and can be fused to various other chromosomal regions by translocation. Known fusion partners are NONO (Xq12), PRCC (1q21), SFPQ (1p34), CLTC (17q23) and ASPSCR1 (17q25).

The TFE3 (Xp11) Break probe is optimized to detect translocations involving the TFE3 gene region at Xp11.2 in a dual-color, break assay.



References

Sidhar et al, 1996, Hum Mol Genet, 5; 1333-1338.
Weterman et al, 1996, Proc Natl, Acad Sci, 93; 15294-15298.

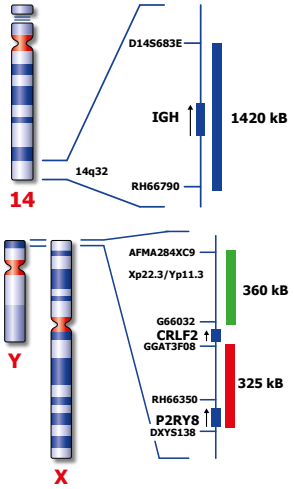
Description	Code	Color	Format	US	ROW
TFE3 (Xp11) Break	KBI-10741	Green/Red	10 Test	-	IVD
TFE3 (Xp11) Break	KI-10741	Green/Red	100 µL	RUO	-

Xp22 CRLF2 / IGH

Rearrangement of the CRLF2 (Xp22/Yp11) gene is associated with poor outcome in pediatric B-progenitor and Down syndrome-associated acute lymphoblastic leukemia (ALL).

CRLF2-IGH fusions between Xp22-14q32 or Yp11-14q32 results in a deregulated expression of the cytokine receptor gene (CRLF2). This can also be the result of the fusion with the P2RY8 promoter on Xp22 or Yp11.

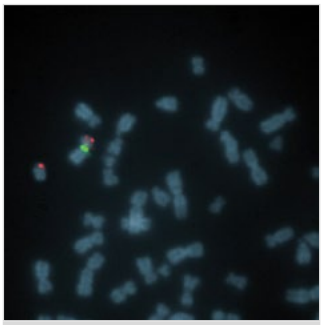
Gain of chromosome X has been observed in Down syndrome-associated ALL.



References
Mullighan et al., 2009, Nat. Genet. 41(11): 1243-1246
Russell et al., 2009, Blood, 114(13): 2688-2698

Description	Code	Color	Format	US	ROW
CRLF2 (Xp22/Yp11) Break / IGH (14q32) Fusion, Triple-Color	KBI-10406	Green/Red/Blue	10 Test	-	IVD

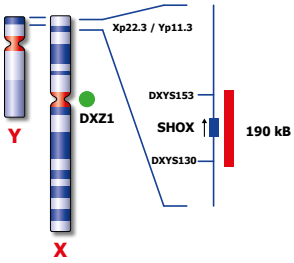
Xp22 SHOX / SE X



Short Stature SHOX (Xp22) / SE X probe hybridized to a male metaphase (2R1G).

Individuals with SHOX-related short stature have disproportionate short stature and/or wrist abnormalities consistent with those described in Madelung deformity. The SHOX genes located on the pseudoautosomal regions of the X and Y chromosomes are the only genes known to be associated with SHOX-related haploinsufficiency.

The SHOX region probe is optimized to detect copy numbers of the SHOX gene region at Xp22. The chromosome X Satellite Enumeration (SE X) FISH probe at DXZ1 is added to facilitate chromosome identification.

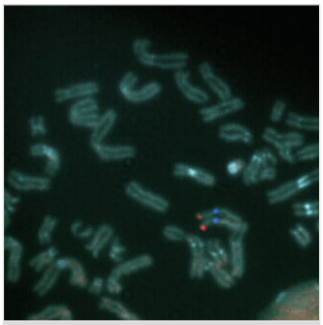


References
Rao et al, 1997, Hum. Genet., 100; 236-239.
Morizio et al, 2003, Am. J. Med. Genet., 119; 293-296.

Description	Code	Color	Format	US	ROW
Short Stature SHOX (Xp22) / SE X	KBI-40112	Green/Red	10 Test	-	IVD
Short Stature SHOX (Xp22) / SE X	KBI-45112	Green/Red	5 Test	-	IVD
SHOX (Xp22) / SE X	KI-40112	Green/Red	100 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Xp22 STS / KAL1 / SE X

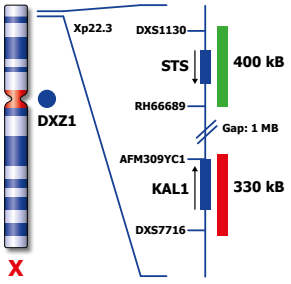


STS (Xp22) / KAL1 (Xp22) / SE X Triple-Color probe hybridized to male patient material showing a deletion of the STS gene region (1R1B).

Material kindly provided by Necker hospital, Paris.

STS (Steroid Sulfatase) disease is a chromosome X-linked disorder associated with a microdeletion of the gene within the Xp22.3 region. Deletion of the steroid sulfatase gene has been detected in individuals with recessive X-linked ichtyosis, the disease been considered one of the most frequent human enzyme deficient disorders. KAL1 (Kallmann syndrome interval gene-1) maps to the Kallmann syndrome critical region on the distal short arm of the human X chromosome. Individuals with Kallmann syndrome suffers of hypogonadotropic hypogonadism and anosmia, with clinical features of variable phenotype. It affects approximately 1 in 8000 males and 1 in 40000 females.

The STS (Xp22) region probe is optimized to detect copy numbers of the STS gene region at Xp22. The KAL1 (Xp 22) region probe is optimized to detect copy numbers of the KAL1 gene region at Xp22. The Chromosome X Satellite Enumeration (SE X) FISH probe at DXZ1 is included to facilitate chromosome identification.

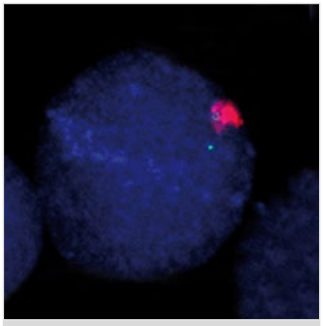


References

Alper in et al, 1997, J. Biol. Chem., 272; 20756-20763.
Meroni et al, 1996, Hum. Mol. Genet., 5; 423-431.

Description	Code	Color	Format	US	ROW
STS (Xp22) / KAL1 (Xp22) / SE X Triple-Color	KBI-40115	Green/Red/Blue	10 Test	-	IVD
STS (Xp22) / KAL1 (Xp22) / SE X Triple-Color	KBI-45115	Green/Red/Blue	5 Test	-	IVD
STS (Xp22) / KAL1 (Xp22) / SE X Triple-Color	KI-40115	Green/Red/Blue	100 µL	RUO	-

Xq12 AR / SE X

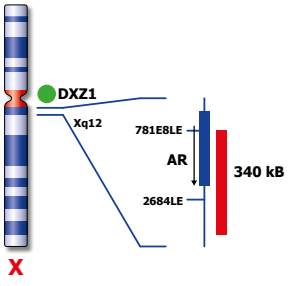


AR (Xq12) / SE X probe hybridized to VCaP prostate cancer cell showing highlevel AR gene amplification.

Image kindly provided by Prof. Trapman, Erasmus Medical Centre, Rotterdam.

The androgen receptor (AR) gene has been identified as a target gene for the Xq12 amplification found in one-third of hormone-refractory prostate cancers. The findings suggest that AR gene amplification and overexpression is involved in the emergence of prostate cancer.

The AR (Xq12) FISH probe is optimized to detect copy numbers of the AR gene region at region Xq12. The chromosome X satellite enumeration probe (SE X) at DXZ1 is included to facilitate chromosome identification.

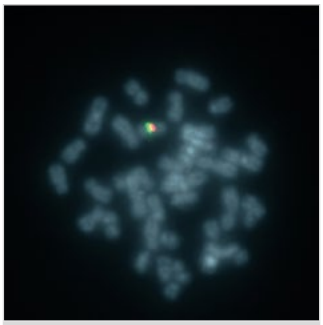


References

Visakorpi T et al, 1995, Nat. Genet. 9; 401-406.
Koivisto P et al, 1997, Cancer Res. 57 ; 314-319.

Description	Code	Color	Format	US	ROW
AR (Xq12) / SE X	KBI-10720	Green/Red	10 Test	-	IVD
AR (Xq12) / SE X	KI-10720	Green/Red	100 µL	RUO	-

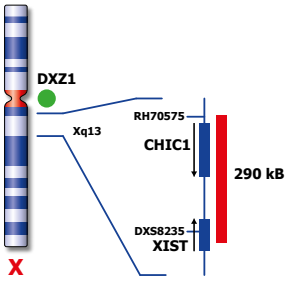
Xq13 XIST / SE X



X-Inactivation XIST (Xq13) / SE X probe hybridized to a male metaphase (1R1G).

The XIST locus is expressed only from the inactive X chromosome, resides at the putative X inactivation center, and is considered a prime player in the initiation of mammalian X dosage compensation. The severe phenotype of human females whose karyotype includes tiny ring X chromosomes has been attributed to the inability of the small ring X chromosome to inactivate. Many of the ring chromosomes lack the XIST locus, consistent with XIST being necessary for cis inactivation.

The XIST specific FISH probe is optimized to detect copy numbers of the XIST region at Xq13. The chromosome X Satellite Enumeration (SE X) FISH probe at DXZ1 is added to facilitate chromosome identification.



References
Migeon et al, 1993, PNAS, 90; 12025-12029.
Jani et al, 1995, Genomics, 27; 182-188.

Description	Code	Color	Format	US	ROW
X-Inactivation XIST (Xq13) / SE X	KBI-40108	Green/Red	10 Test	-	IVD
X-Inactivation XIST (Xq13) / SE X	KBI-45108	Green/Red	5 Test	-	IVD
XIST (Xq13) / SE X	KI-40108	Green/Red	100 µL	RUO	-

Acro-P-Arms Acro-P-Arms

Description	Code	Color	Format	US	ROW
Acro-P-Arms NOR Blue	KBI-20033B	Blue	10 Test	-	IVD
Acro-P-Arms NOR Green	KBI-20033G	Green	10 Test	-	IVD
Acro-P-Arms NOR Red	KBI-20033R	Red	10 Test	-	IVD

Human Centromere Human Centromere

Description	Code	Color	Format	US	ROW
All Human Centromere Green	KBI-20000G	Green	10 Test	-	RUO
All Human Centromere Red	KBI-20000R	Red	10 Test	-	RUO
All Human Centromere, green	KI-20000G	Green	100 µL	RUO	-
All Human Centromere, red	KI-20000R	Red	100 µL	RUO	-

Human Telomere Human Telomere

Description	Code	Color	Format	US	ROW
All Human Telomere Green	KBI-40200G	Green	10 Test	-	RUO
All Human Telomere red	KBI-40200R	Red	10 Test	-	RUO

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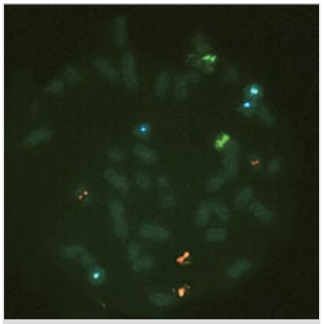
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Pre-imp Screen PreimpScreen PolB



Pseudo color image using PreimpScreen PolB (KBI-40050) on a metaphase spread from lymphocytes showing two signals each of chromosomes 13, 16, 18, 21, and 22, respectively.

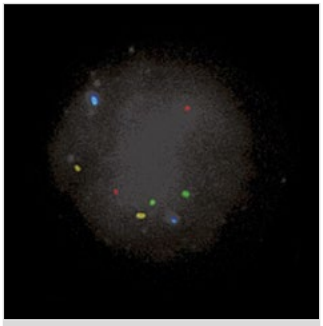
PreimpScreen PolB is designed for determining chromosome copy number in polar bodies.

The first polar body is removed from the unfertilized oocyte, and the second polar body from the zygote, shortly after fertilization. The main advantage of the use of polar bodies in preimplantation genetic screening (PGS) is that they are not necessary for successful fertilization or normal embryonic development, thus ensuring no deleterious effect for the embryo. In some countries, where the legislation bans the selection of preimplantation embryos, polar body analysis is the only possible method to perform PGS. The biopsy and analysis of the first and second polar bodies can be completed before syngamy, which is the moment from which the zygote is considered an embryo and becomes protected by the law.

References
Iaonnou D et al, 2012, Chromosome Res, 20; 447-60.
Iaonnou D et al, 2011, Mol and Cel Probes, 25;199-205.

Description	Code	Color	Format	US	ROW
PreimpScreen PolB (13 / 16 / 18 / 21 / 22)	KBI-40050	Five color	20 Test	-	IVD

Pre-imp Screen PreimpScreen Blas



Pseudo-color image on a healthy female blastomer using PreimpScreen Blas (13,18,21,X,Y) FISH panel.

Image kindly provided by Prof. D. Griffin, University of Kent, United Kingdom.

PreimpScreen Blas is designed for determination of chromosome copy number in blastomeres.

Cleavage-stage biopsy is generally performed the morning of day three post-fertilization, when normally developing embryos reach the eight-cell stage. The biopsy is usually performed on embryos with less than 50% of anucleated fragments and at an 8-cell or later stage of development. The main advantage of cleavage-stage biopsy over polar body (PB) analysis is that the genetic input of both parents can be studied, and therefore currently is the prevalent method when doing *in situ* hybridizations in preimplantation genetic screening.

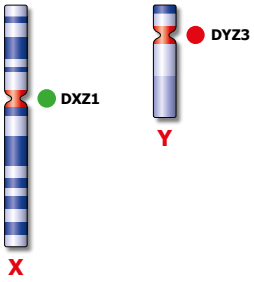
Description	Code	Color	Format	US	ROW
PreimpScreen Blas (13 / 18 / 21 / X / Y)	KBI-40051	Five color	20 Test	-	IVD

Satellite Enumeration SE X / SE Y

Sex Chromosome Abnormalities

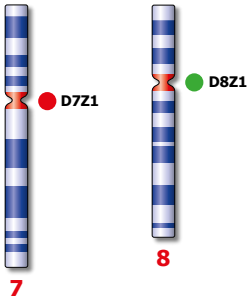
Chromosomal abnormalities involving the X and Y chromosome (sex chromosomes) are slightly less common than autosomal abnormalities and are usually much less severe in their effects. The high frequency of people with sex chromosome aberrations is partly due to the fact that they are rarely lethal conditions.

- Turner syndrome occurs when females inherit only one X chromosome – their genotype is X0.
- Metafemales or triple-X females, inherit three X chromosomes – their genotype is XXX or more rarely XXXX or XXXXX.
- Klinefelter syndrome males inherit one or more extra X chromosomes – their genotype is XXY or more rarely XXXY, XXXXY, or XY/XXY mosaic.



Description	Code	Color	Format	US	ROW
SE X (DXZ1) / SE Y (DYZ3)	KBI-20030	Green/Red	10 Test	-	IVD
SE X (DXZ1) / SE Y (DYZ3)	KI-20030	Green/Red	100 µL	RUO	-

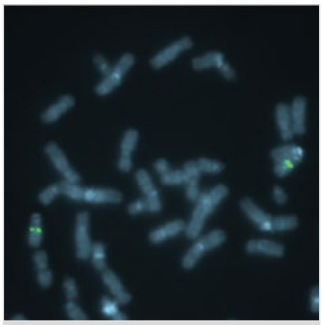
Satellite Enumeration SE 7 / SE 8



Description	Code	Color	Format	US	ROW
SE 7 (D7Z1) / SE 8 (D8Z1)	KBI-20031	Green/Red	10 Test	-	IVD
SE 7 (D7Z1) / SE 8 (D8Z1)	KI-20031	Green/Red	100 µL	RUO	-

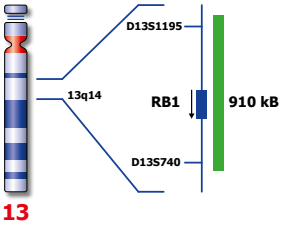
IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Prenatal RB1



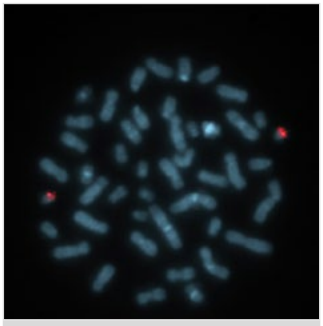
RB1 (13q14) probe hybridized to a normal metaphase (2G).

The chromosome 13 specific region probe is optimized to detect copy numbers of chromosome 13 at 13q14.2 on uncultured amniotic cells. In all PN combinations the 13q14 specific FISH probe is direct-labeled in green with PlatinumBright 495.



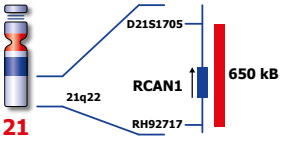
Description	Code	Color	Format	US	ROW
RB1 (13q14)	KBI-40001	Green	10 Test	-	IVD

Prenatal RCAN1



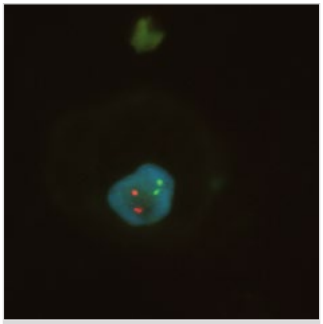
RCAN1 (21q22) probe hybridized to a normal metaphase (2R).

The chromosome 21 specific region probe is optimized to detect copy numbers of chromosome 21 at 21q22.1 on uncultured amniotic cells. In all PN combinations the 21q specific FISH probe is direct-labeled in red with PlatinumBright 550.

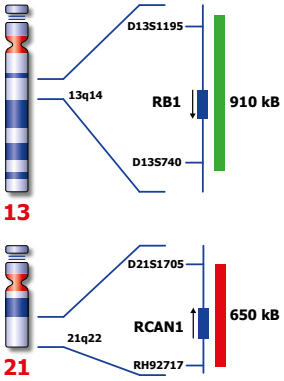


Description	Code	Color	Format	US	ROW
RCAN1 (21q22)	KBI-40002	Red	10 Test	-	IVD

Prenatal RB1 / RCAN1



RB1 (13q14)/RCAN1 (21q22) probe hybridized to a normal interphase (2R2G).



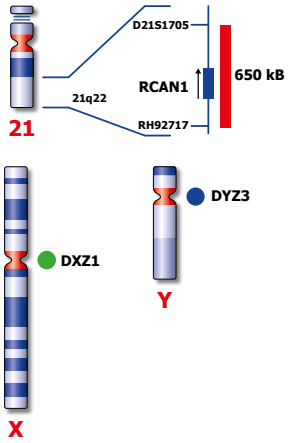
Description	Code	Color	Format	US	ROW
RB1 (13q14)/RCAN1 (21q22)	KBI-40003	Green/Red	10 Test	-	IVD
RB1 (13q14)/RCAN1 (21q22)	KI-40003	Green/Red	100 µL	RUO	-

Prenatal RCAN1 / SE X / SE Y

Sex Chromosome Abnormalities

Chromosomal abnormalities involving the X and Y chromosome (sex chromosomes) are slightly less common than autosomal abnormalities and are usually much less severe in their effects. The high frequency of people with sex chromosome aberrations is partly due to the fact that they are rarely lethal conditions.

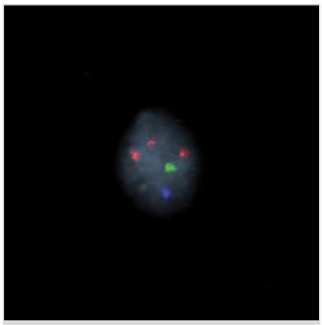
- Turner syndrome occurs when females inherit only one X chromosome – their genotype is X0.
- Metafemales or triple-X females, inherit three X chromosomes – their genotype is XXX or more rarely XXXX or XXXXX.
- Klinefelter syndrome males inherit one or more extra X chromosomes – their genotype is XXY or more rarely XXXY, XXXXY, or XY/XXY mosaic.



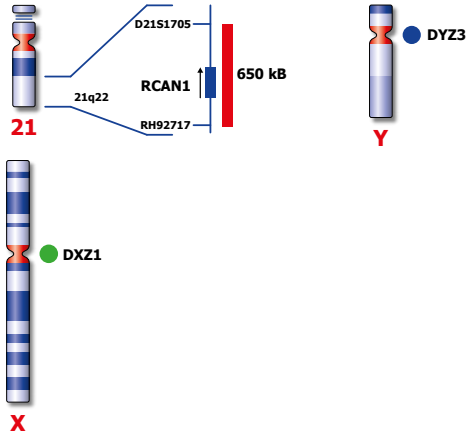
Description	Code	Color	Format	US	ROW
RCAN1 (21q22), SE X, SE Y	KBI-40008	Green/Red/Blue	20 Test	-	IVD
RCAN1 (21q22), SE X, SE Y	KBI-45008	Green/Red/Blue	5 Test	-	IVD
RCAN1 (21q22), SE X, Y	KI-40008	Green/Red/Blue	200 µL	RUO	-

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Prenatal RB1 / RCAN1, SE X/SE Y/ SE 18



RCAN1 (21q22), SE X, Y showing trisomy 21.



Material kindly provided by Dr. Carvalho, Amsterdam.

References

Uchida et al, 2010, Cancer Genet Cytogenet, 203; 324-327.
Sen et al, 2002, J of Nat Canc Inst, 94; 1320-1329.
Lassmann et al, 2007, Clin Cancer Res, 13; 4083-4091.

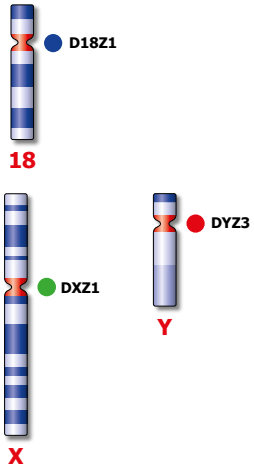
Description	Code	Color	Format	US	ROW
RB1 (13q14)/RCAN1 (21q22), SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KBI-40005	Green/Red/Blue	10 Test	-	IVD
RB1 (13q14)/RCAN1 (21q22), SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KBI-40006	Green/Red/Blue	30 Test	-	IVD
RB1 (13q14)/RCAN1 (21q22), SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KBI-40007	Green/Red/Blue	50 Test	-	IVD
RB1 (13q14)/RCAN1 (21q22), SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KI-40005	Green/Red/Blue	100 µL	RUO	-
RB1 (13q14)/RCAN1 (21q22), SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KI-40006	Green/Red/Blue	300 µL	RUO	-
RB1 (13q14)/RCAN1 (21q22), SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KI-40007	Green/Red/Blue	500 µL	RUO	-

Prenatal SE X / SE Y / SE 18

Sex Chromosome Abnormalities

Chromosomal abnormalities involving the X and Y chromosome (sex chromosomes) are slightly less common than autosomal abnormalities and are usually much less severe in their effects. The high frequency of people with sex chromosome aberrations is partly due to the fact that they are rarely lethal conditions.

- Turner syndrome occurs when females inherit only one X chromosome – their genotype is X0.
- Metafemales or triple-X females, inherit three X chromosomes – their genotype is XXX or more rarely XXXX or XXXXX.
- Klinefelter syndrome males inherit one or more extra X chromosomes – their genotype is XXY or more rarely XXXY, XXXXY, or XY/XXY mosaic.



Description	Code	Color	Format	US	ROW
SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KBI-20032	Green/Red/Blue	10 Test	-	IVD
SE X (DXZ1) / SE Y (DYZ3) / SE 18 (D18Z1)	KI-20032	Green/Red/Blue	100 µL	RUO	-

Arm Specific

Product Name	Product Code	Color	Content	CONC
Acro-P-Arms	KBI-20033B	BLUE	10 Test	5x
Acro-P-Arms	KBI-20033G	GREEN	10 Test	5x
Acro-P-Arms	KBI-20033R	RED	10 Test	5x
Arm Specific 1	KBI-30100G	GREEN	5 Test	RTU
Arm Specific 1	KBI-30100R	RED	5 Test	RTU
Arm Specific 1	KBI-30101G	GREEN	5 Test	RTU
Arm Specific 1	KBI-30101R	RED	5 Test	RTU
Arm Specific 2	KBI-30102G	GREEN	5 Test	RTU
Arm Specific 2	KBI-30102R	RED	5 Test	RTU
Arm Specific 2	KBI-30103G	GREEN	5 Test	RTU
Arm Specific 2	KBI-30103R	RED	5 Test	RTU
Arm Specific 3	KBI-30104G	GREEN	5 Test	RTU
Arm Specific 3	KBI-30104R	RED	5 Test	RTU
Arm Specific 3	KBI-30105G	GREEN	5 Test	RTU
Arm Specific 3	KBI-30105R	RED	5 Test	RTU
Arm Specific 4	KBI-30106G	GREEN	5 Test	RTU
Arm Specific 4	KBI-30106R	RED	5 Test	RTU
Arm Specific 4	KBI-30107G	GREEN	5 Test	RTU
Arm Specific 4	KBI-30107R	RED	5 Test	RTU
Arm Specific 5	KBI-30108G	GREEN	5 Test	RTU
Arm Specific 5	KBI-30108R	RED	5 Test	RTU
Arm Specific 5	KBI-30109G	GREEN	5 Test	RTU
Arm Specific 5	KBI-30109R	RED	5 Test	RTU
Arm Specific 6	KBI-30110G	GREEN	5 Test	RTU
Arm Specific 6	KBI-30110R	RED	5 Test	RTU
Arm Specific 6	KBI-30111G	GREEN	5 Test	RTU
Arm Specific 6	KBI-30111R	RED	5 Test	RTU
Arm Specific 7	KBI-30112G	GREEN	5 Test	RTU
Arm Specific 7	KBI-30112R	RED	5 Test	RTU
Arm Specific 7	KBI-30113G	GREEN	5 Test	RTU
Arm Specific 7	KBI-30113R	RED	5 Test	RTU
Arm Specific 8	KBI-30114G	GREEN	5 Test	RTU
Arm Specific 8	KBI-30114R	RED	5 Test	RTU
Arm Specific 8	KBI-30115G	GREEN	5 Test	RTU
Arm Specific 8	KBI-30115R	RED	5 Test	RTU
Arm Specific 9	KBI-30116G	GREEN	5 Test	RTU
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Arm Specific 9	KBI-30117G	GREEN	5 Test	RTU
Arm Specific 9	KBI-30117R	RED	5 Test	RTU
Arm Specific 10	KBI-30118G	GREEN	5 Test	RTU
Arm Specific 10	KBI-30118R	RED	5 Test	RTU
Arm Specific 10	KBI-30119G	GREEN	5 Test	RTU
Arm Specific 10	KBI-30119R	RED	5 Test	RTU
Arm Specific 11	KBI-30120G	GREEN	5 Test	RTU
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Arm Specific 11	KBI-30121G	GREEN	5 Test	RTU
Arm Specific 11	KBI-30121R	RED	5 Test	RTU
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Arm Specific 12	KBI-30123G	GREEN	5 Test	RTU
Arm Specific 12	KBI-30123R	RED	5 Test	RTU
Arm Specific 13	KBI-30124G	GREEN	5 Test	RTU
Arm Specific 13	KBI-30124R	RED	5 Test	RTU
Arm Specific 14	KBI-30125G	GREEN	5 Test	RTU
Arm Specific 14	KBI-30125R	RED	5 Test	RTU
Arm Specific 15	KBI-30126G	GREEN	5 Test	RTU
Arm Specific 15	KBI-30126R	RED	5 Test	RTU
Arm Specific 16	KBI-30127G	GREEN	5 Test	RTU
Arm Specific 16	KBI-30127R	RED	5 Test	RTU
Arm Specific 16	KBI-30128G	GREEN	5 Test	RTU
Arm Specific 16	KBI-30128R	RED	5 Test	RTU
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Arm Specific 17	KBI-30129R	RED	5 Test	RTU
Arm Specific 17	KBI-30130G	GREEN	5 Test	RTU
Arm Specific 17	KBI-30130R	RED	5 Test	RTU
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Arm Specific 18	KBI-30131R	RED	5 Test	RTU
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Arm Specific 19	KBI-30133R	RED	5 Test	RTU
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Arm Specific 20	KBI-30136G	GREEN	5 Test	RTU
Arm Specific 20	KBI-30136R	RED	5 Test	RTU
Arm Specific 21	KBI-30137G	GREEN	5 Test	RTU
Arm Specific 21	KBI-30137R	RED	5 Test	RTU
Arm Specific 22	KBI-30138G	GREEN	5 Test	RTU
Arm Specific 22	KBI-30138R	RED	5 Test	RTU
Arm Specific X	KBI-30139G	GREEN	5 Test	RTU
Arm Specific X	KBI-30139R	RED	5 Test	RTU
Arm Specific X	KBI-30140G	GREEN	5 Test	RTU
Arm Specific X	KBI-30140R	RED	5 Test	RTU
Arm Specific Y	KBI-30141G	GREEN	5 Test	RTU
Arm Specific Y	KBI-30141R	RED	5 Test	RTU

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Band Specific

Product Name	Product Code	Color	Content	CONC
Band Specific 1	KBI-30200G	GREEN	20 Test	RTU
Band Specific 1	KBI-30200R	RED	20 Test	RTU
Band Specific 1	KBI-30201G	GREEN	20 Test	RTU
Band Specific 1	KBI-30201R	RED	20 Test	RTU
Band Specific 1	KBI-30202G	GREEN	20 Test	RTU
Band Specific 1	KBI-30202R	RED	20 Test	RTU
Band Specific 1	KBI-30203G	GREEN	20 Test	RTU
Band Specific 1	KBI-30203R	RED	20 Test	RTU
Band Specific 1	KBI-30204G	GREEN	20 Test	RTU
Band Specific 1	KBI-30204R	RED	20 Test	RTU
Band Specific 1	KBI-30205G	GREEN	20 Test	RTU
Band Specific 1	KBI-30205R	RED	20 Test	RTU
Band Specific 1	KBI-30206G	GREEN	20 Test	RTU
Band Specific 1	KBI-30206R	RED	20 Test	RTU
Band Specific 2	KBI-30207G	GREEN	20 Test	RTU
Band Specific 2	KBI-30207R	RED	20 Test	RTU
Band Specific 2	KBI-30208G	GREEN	20 Test	RTU
Band Specific 2	KBI-30208R	RED	20 Test	RTU
Band Specific 2	KBI-30209G	GREEN	20 Test	RTU
Band Specific 2	KBI-30209R	RED	20 Test	RTU
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Band Specific 2	KBI-30210R	RED	20 Test	RTU
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Band Specific 2	KBI-30211R	RED	20 Test	RTU
Band Specific 2	KBI-30212G	GREEN	20 Test	RTU
Band Specific 2	KBI-30212R	RED	20 Test	RTU
Band Specific 2	KBI-30213G	GREEN	20 Test	RTU
Band Specific 2	KBI-30213R	RED	20 Test	RTU
Band Specific 2	KBI-30214G	GREEN	20 Test	RTU
Band Specific 2	KBI-30214R	RED	20 Test	RTU
Band Specific 3	KBI-30215G	GREEN	20 Test	RTU
Band Specific 3	KBI-30215R	RED	20 Test	RTU
Band Specific 3	KBI-30216G	GREEN	20 Test	RTU
Band Specific 3	KBI-30216R	RED	20 Test	RTU
Band Specific 3	KBI-30217G	GREEN	20 Test	RTU
Band Specific 3	KBI-30217R	RED	20 Test	RTU
Band Specific 3	KBI-30218G	GREEN	20 Test	RTU
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Band Specific 3	KBI-30219G	GREEN	20 Test	RTU
Band Specific 3	KBI-30219R	RED	20 Test	RTU
Band Specific 3	KBI-30220G	GREEN	20 Test	RTU
Band Specific 3	KBI-30220R	RED	20 Test	RTU
Band Specific 3	KBI-30221G	GREEN	20 Test	RTU
Band Specific 3	KBI-30221R	RED	20 Test	RTU

Product Name	Product Code	Color	Content	CONC
Band Specific 3	KBI-30222G	GREEN	20 Test	RTU
Band Specific 3	KBI-30222R	RED	20 Test	RTU
Band Specific 3	KBI-30223G	GREEN	20 Test	RTU
Band Specific 3	KBI-30223R	RED	20 Test	RTU
Band Specific 3	KBI-30224G	GREEN	20 Test	RTU
Band Specific 3	KBI-30224R	RED	20 Test	RTU
Band Specific 3	KBI-30225G	GREEN	20 Test	RTU
Band Specific 3	KBI-30225R	RED	20 Test	RTU
Band Specific 3	KBI-30226G	GREEN	20 Test	RTU
Band Specific 3	KBI-30226R	RED	20 Test	RTU
Band Specific 3	KBI-30227G	GREEN	20 Test	RTU
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Band Specific 3	KBI-30229R	RED	20 Test	RTU
Band Specific 3	KBI-30230G	GREEN	20 Test	RTU
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Band Specific 4	KBI-30231R	RED	20 Test	RTU
Band Specific 4	KBI-30232G	GREEN	20 Test	RTU
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Band Specific 4	KBI-30233R	RED	20 Test	RTU
Band Specific 4	KBI-30234G	GREEN	20 Test	RTU
Band Specific 4	KBI-30234R	RED	20 Test	RTU
Band Specific 5	KBI-30235G	GREEN	20 Test	RTU
Band Specific 5	KBI-30235R	RED	20 Test	RTU
Band Specific 5	KBI-30236G	GREEN	20 Test	RTU
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Band Specific 6	KBI-30241R	RED	20 Test	RTU
Band Specific 6	KBI-30242G	GREEN	20 Test	RTU
Band Specific 6	KBI-30242R	RED	20 Test	RTU
Band Specific 6	KBI-30243G	GREEN	20 Test	RTU
Band Specific 6	KBI-30243R	RED	20 Test	RTU

Band Specific (continued)

Product Name	Product Code	Color	Content	CONC
Band Specific 7	KBI-30244G	GREEN	20 Test	RTU
Band Specific 7	KBI-30244R	RED	20 Test	RTU
Band Specific 7	KBI-30245G	GREEN	20 Test	RTU
Band Specific 7	KBI-30245R	RED	20 Test	RTU
Band Specific 7	KBI-30246G	GREEN	20 Test	RTU
Band Specific 7	KBI-30246R	RED	20 Test	RTU
Band Specific 7	KBI-30247G	GREEN	20 Test	RTU
Band Specific 7	KBI-30247R	RED	20 Test	RTU
Band Specific 7	KBI-30248G	GREEN	20 Test	RTU
Band Specific 7	KBI-30248R	RED	20 Test	RTU
Band Specific 7	KBI-30249G	GREEN	20 Test	RTU
Band Specific 7	KBI-30249R	RED	20 Test	RTU
Band Specific 8	KBI-30250G	GREEN	20 Test	RTU
Band Specific 8	KBI-30250R	RED	20 Test	RTU
Band Specific 8	KBI-30251G	GREEN	20 Test	RTU
Band Specific 8	KBI-30251R	RED	20 Test	RTU
Band Specific 8	KBI-30252G	GREEN	20 Test	RTU
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Band Specific 8	KBI-30259R	RED	20 Test	RTU
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Band Specific 8	KBI-30260R	RED	20 Test	RTU
Band Specific 8	KBI-30261G	GREEN	20 Test	RTU
Band Specific 8	KBI-30261R	RED	20 Test	RTU
Band Specific 9	KBI-30262G	GREEN	20 Test	RTU
Band Specific 9	KBI-30262R	RED	20 Test	RTU
Band Specific 9	KBI-30263G	GREEN	20 Test	RTU
Band Specific 9	KBI-30263R	RED	20 Test	RTU
Band Specific 9	KBI-30264G	GREEN	20 Test	RTU
Band Specific 9	KBI-30264R	RED	20 Test	RTU
Band Specific 9	KBI-30265G	GREEN	20 Test	RTU
Band Specific 9	KBI-30265R	RED	20 Test	RTU

Product Name	Product Code	Color	Content	CONC
Band Specific 9	KBI-30266G	GREEN	20 Test	RTU
Band Specific 9	KBI-30266R	RED	20 Test	RTU
Band Specific 10	KBI-30267G	GREEN	20 Test	RTU
Band Specific 10	KBI-30267R	RED	20 Test	RTU
Band Specific 10	KBI-30268G	GREEN	20 Test	RTU
Band Specific 10	KBI-30268R	RED	20 Test	RTU
Band Specific 11	KBI-30269G	GREEN	20 Test	RTU
Band Specific 11	KBI-30269R	RED	20 Test	RTU
Band Specific 11	KBI-30270G	GREEN	20 Test	RTU
Band Specific 11	KBI-30270R	RED	20 Test	RTU
Band Specific 11	KBI-30271G	GREEN	20 Test	RTU
Band Specific 11	KBI-30271R	RED	20 Test	RTU
Band Specific 11	KBI-30272G	GREEN	20 Test	RTU
Band Specific 11	KBI-30272R	RED	20 Test	RTU
Band Specific 11	KBI-30273G	GREEN	20 Test	RTU
Band Specific 11	KBI-30273R	RED	20 Test	RTU
Band Specific 11	KBI-30274G	GREEN	20 Test	RTU
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Band Specific 12	KBI-30277R	RED	20 Test	RTU
Band Specific 12	KBI-30278G	GREEN	20 Test	RTU
Band Specific 12	KBI-30278R	RED	20 Test	RTU
Band Specific 12	KBI-30279G	GREEN	20 Test	RTU
Band Specific 12	KBI-30279R	RED	20 Test	RTU
Band Specific 12	KBI-30280G	GREEN	20 Test	RTU
Band Specific 12	KBI-30280R	RED	20 Test	RTU
Band Specific 13	KBI-30281G	GREEN	20 Test	RTU
Band Specific 13	KBI-30281R	RED	20 Test	RTU
Band Specific 13	KBI-30282G	GREEN	20 Test	RTU
Band Specific 13	KBI-30282R	RED	20 Test	RTU
Band Specific 14	KBI-30283G	GREEN	20 Test	RTU
Band Specific 14	KBI-30283R	RED	20 Test	RTU
Band Specific 14	KBI-30284G	GREEN	20 Test	RTU
Band Specific 14	KBI-30284R	RED	20 Test	RTU
Band Specific 15	KBI-30285G	GREEN	20 Test	RTU
Band Specific 15	KBI-30285R	RED	20 Test	RTU
Band Specific 15	KBI-30286G	GREEN	20 Test	RTU
Band Specific 15	KBI-30286R	RED	20 Test	RTU
Band Specific 16	KBI-30287G	GREEN	20 Test	RTU
Band Specific 16	KBI-30287R	RED	20 Test	RTU

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Product Name	Product Code	Color	Content	CONC
Band Specific 18	KBI-30288G	GREEN	20 Test	RTU
Band Specific 18	KBI-30288R	RED	20 Test	RTU
Band Specific 18	KBI-30289G	GREEN	20 Test	RTU
Band Specific 18	KBI-30289R	RED	20 Test	RTU
Band Specific 18	KBI-30290G	GREEN	20 Test	RTU
Band Specific 18	KBI-30290R	RED	20 Test	RTU
Band Specific 19	KBI-30291G	GREEN	20 Test	RTU
Band Specific 19	KBI-30291R	RED	20 Test	RTU
Band Specific 19	KBI-30292G	GREEN	20 Test	RTU
Band Specific 19	KBI-30292R	RED	20 Test	RTU
Band Specific 20	KBI-30293G	GREEN	20 Test	RTU
Band Specific 20	KBI-30293R	RED	20 Test	RTU
Band Specific 21	KBI-30294G	GREEN	20 Test	RTU
Band Specific 21	KBI-30294R	RED	20 Test	RTU
Band Specific X	KBI-30295G	GREEN	20 Test	RTU
Band Specific X	KBI-30295R	RED	20 Test	RTU
Band Specific X	KBI-30296G	GREEN	20 Test	RTU
Band Specific X	KBI-30296R	RED	20 Test	RTU
Band Specific X	KBI-30297G	GREEN	20 Test	RTU
Band Specific X	KBI-30297R	RED	20 Test	RTU
Band Specific X	KBI-30298G	GREEN	20 Test	RTU
Band Specific X	KBI-30298R	RED	20 Test	RTU
Band Specific X	KBI-30299G	GREEN	20 Test	RTU
Band Specific X	KBI-30299R	RED	20 Test	RTU
Band Specific X	KBI-30300G	GREEN	20 Test	RTU
Band Specific X	KBI-30300R	RED	20 Test	RTU
Band Specific X	KBI-30301G	GREEN	20 Test	RTU
Band Specific X	KBI-30301R	RED	20 Test	RTU
Band Specific X	KBI-30302G	GREEN	20 Test	RTU
Band Specific X	KBI-30302R	RED	20 Test	RTU
Band Specific X	KBI-30303G	GREEN	20 Test	RTU
Band Specific X	KBI-30303R	RED	20 Test	RTU
Band Specific Y	KBI-30304G	GREEN	20 Test	RTU
Band Specific Y	KBI-30304R	RED	20 Test	RTU

XL Probes*

Product Name	Product Code	Color	Content	Concentration
ALK (2p23) Proximal - XL	02P008V495	GREEN	1 mL	10 x
ALK (2p23) Distal - XL	02P009V550	RED	1 mL	10 x
BCL6 (3q27) Proximal - XL	03Q009V495	GREEN	1 mL	10 x
BCL6 (3q27) Distal - XL	03Q010V550	RED	1 mL	10 x
ROS1 (6q22) Proximal - XL	06Q006V495	GREEN	1 mL	10 x
ROS1(6q22) Distal - XL	06Q007V550	RED	1 mL	10 x
SE 7 (D7Z1)-006 - XL	07C006V495	GREEN	1 mL	10 x
MET (7q31) - XL	07Q002V550	RED	1 mL	10 x
SE 8 (D8Z1)-003 - XL	08C003V495	GREEN	1 mL	10 x
FGFR1 (8p11) - XL	08P004V550	RED	1 mL	10 x
MYC (8q24) Proximal - XL	08Q007V495	GREEN	1 mL	10 x
MYC (8q24) Distal - XL	08Q008V550	RED	1 mL	10 x
RET (10q11) Proximal - XL	10Q008V550	RED	1 mL	10 x
RET (10q11) Distal - XL	10Q007V495	GREEN	1 mL	10 x
IGH (14q32) Proximal - XL	14Q004V550	RED	1 mL	10 x
IGH (14q32) Distal - XL	14Q005V495	GREEN	1 mL	10 x
SE 17 (D17Z1) - XL	17C004V495	GREEN	1 mL	10 x
TP53 (17p13) - XL	17P002V550	RED	1 mL	10 x
BCL2 (18q21) Proximal - XL	18Q003V495	GREEN	1 mL	10 x
BCL2 (18q21) Distal - XL	18Q004V550	RED	1 mL	10 x

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Manual Probes*

Product Name	Product Code	Color	Content	CONC
CKS1B (1q21)	01Q001B495	GREEN	50 µL	2 x
CKS1B (1q21)	01Q001B550	RED	50 µL	2 x
CKS1B (1q21)	01Q001I550	RED	250 µL	2 x
CKS1B (1q21)	01Q001N550	RED	50 µL	10 x
SRD (1p36)	01P001B495	GREEN	50 µL	2 x
SRD (1p36)	01P001I495	GREEN	250 µL	2 x
SRD (1p36)	01P001N495	GREEN	50 µL	10 x
ALK (2p23) Proximal	02P001B495	GREEN	50 µL	2 x
ALK (2p23) Distal	02P002B550	RED	50 µL	2 x
ALK (2p23) Proximal-HS	02P005B495	GREEN	50 µL	2 x
ALK (2p23) Distal-HS	02P006B550	RED	50 µL	2 x
SE 3 (D3Z1)	03C001C550	RED	33 µL	3 x
SE 3 (D3Z1)	03C001N415	BLUE	50 µL	10 x
3q11	03Q002B495	GREEN	50 µL	2 x
MECOM (3q26) Proximal	03Q003B495	GREEN	50 µL	2 x
MECOM (3q26) Distal-004	03Q004B550	RED	50 µL	2 x
MECOM (3q26) Distal-004	03Q004C550	RED	33 µL	3 x
MECOM (3q26) Proximal-005	03Q005C495	GREEN	33 µL	3 x
MECOM (3q26) Distal-006	03Q006C415	BLUE	33 µL	3 x
TERC (3q26)	03Q001B550	RED	50 µL	2 x
SE 4 (D4Z1)	04C001B495	GREEN	50 µL	2 x
FGFR3 (4p16)	04P001B495	GREEN	50 µL	2 x
FGFR3 (4p16)	04P001I495	GREEN	250 µL	2 x
FGFR3 (4p16) Proximal	04P002B550	RED	50 µL	2 x
FGFR3 (4p16) Distal	04P003B495	GREEN	50 µL	2 x
CHIC2 (4q12)	04Q003C550	RED	33 µL	3 x
FIP1L1 (4q12)	04Q002C495	GREEN	33 µL	3 x
PDGFRA (4q12)	04Q001B550	RED	50 µL	2 x
PDGFRA (4q12)-004	04Q004C415	BLUE	33 µL	3 x
5q11.2 (ISL1)	05Q006B495	GREEN	50 µL	2 x
PDGFRB (5q32) Distal	05Q001B495	GREEN	50 µL	2 x
PDGFRB (5q32) Proximal	05Q002B550	RED	50 µL	2 x
FGFR4 (5q35)	05Q005B550	RED	50 µL	2 x
SE 6 (D6Z1)	06C001D415	BLUE	25 µL	4 x
CCND3 (6p21)	06P003B495	GREEN	50 µL	2 x
RREB1 (6p24)	06P001D590	DARK RED	25 µL	4 x
6q21	06Q001A550	RED	100 µL	1 x
ROS1 (6q22) Distal	06Q002B495	GREEN	50 µL	2 x
ROS1 (6q22) Proximal	06Q003B495	GREEN	50 µL	2 x
ROS1 (6q22) Proximal	06Q003B550	RED	50 µL	2 x
ROS1 (6q22) Distal-SV	06Q005B550	RED	50 µL	2 x
SE 7 (D7Z1)	07C001B495	GREEN	50 µL	2 x
SE 7 (D7Z1)	07C001C495	GREEN	33 µL	3 x
SE 7 (D7Z1)-002	07C002B495	GREEN	50 µL	2 x
EGFR (7p11)	07P001B550	RED	50 µL	2 x
EGFR (7p11)	07P001C495	GREEN	33 µL	3 x
MET (7q31)	07Q001B550	RED	50 µL	2 x
SE 8 (D8Z1)	08C001B495	GREEN	50 µL	2 x
SE 8 (D8Z1)-002	08C002B495	GREEN	50 µL	2 x

Product Name	Product Code	Color	Content	CONC
FGFR1 (8p11) Proximal	08P001B495	GREEN	50 µL	2 x
FGFR1 (8p11) Distal	08P002B550	RED	50 µL	2 x
FGFR1 (8p11)	08P003B550	RED	50 µL	2 x
JAK2 (9p24) Proximal	09P003B495	GREEN	50 µL	2 x
JAK2 (9p24) Distal	09P004B550	RED	50 µL	2 x
ABL1 (9q34)	09Q001C415	BLUE	33 µL	3 x
SE 10 (D10Z1)	10C001B495	GREEN	50 µL	2 x
SE 10 (D10Z1)	10C001N495	GREEN	50 µL	10 x
RET (10q11) Distal	10Q001B495	GREEN	50 µL	2 x
RET (10q11) Proximal	10Q002B550	RED	50 µL	2 x
PTEN (10q23)	10Q006B550	RED	50 µL	2 x
FGFR2 (10q26)	10Q003B550	RED	50 µL	2 x
CCND1 (11q13)	11Q002B495	GREEN	50 µL	2 x
CCND1 (11q13)	11Q002I495	GREEN	250 µL	2 x
ATM (11q22)	11Q001B495	GREEN	50 µL	2 x
ATM (11q22)	11Q001I495	GREEN	250 µL	2 x
SE 12 (D12Z3)	12C001C495	GREEN	33 µL	3 x
SE 12 (D12Z3)	12C001J495	GREEN	167 µL	3 x
DLEU1 (13q14)	13Q001B550	RED	50 µL	2 x
DLEU1 (13q14)	13Q001C415	BLUE	33 µL	3 x
DLEU1 (13q14)	13Q001C550	RED	33 µL	3 x
DLEU1 (13q14)	13Q001I550	RED	250 µL	2 x
DLEU1 (13q14)-SV	13Q003C550	RED	33 µL	3 x
DLEU1 (13q14)-SV	13Q003J550	RED	167 µL	3 x
13q34	13Q002B495	GREEN	50 µL	2 x
13q34	13Q002C415	BLUE	33 µL	3 x
13q34	13Q002C495	GREEN	33 µL	3 x
13q34	13Q002I495	GREEN	250 µL	2 x
13q34	13Q002J415	BLUE	167 µL	3 x
IGH (14q32)	14Q001B550	RED	50 µL	2 x
IGH (14q32)	14Q001I550	RED	250 µL	2 x
IGH (14q32)-002	14Q002B550	RED	50 µL	2 x
MAF (16q23)	16Q001B495	GREEN	50 µL	2 x
MAF (16q23)	16Q001I495	GREEN	250 µL	2 x
TP53 (17p13)	17P001B550	RED	50 µL	2 x
TP53 (17p13)	17P001C550	RED	33 µL	3 x
TP53 (17p13)	17P001I550	RED	250 µL	2 x
TOP2A (17q21)	17Q003B550	RED	50 µL	2 x
MAFB (20q12)	20Q002B495	GREEN	50 µL	2 x
RCAN1 (21q22)	KI-40002	RED	100 µL	RTU
SE X (DXZ1)	23C001B495	GREEN	50 µL	2 x
SE X (DXZ1)	23C002J495	GREEN	167 µL	3 x
CRLF2 (Xp22/Yp11)	23P004C550	RED	33 µL	3 x
CRLF2 (Xp22/Yp11) Distal	23P003C495	GREEN	33 µL	3 x
CRLF2 (Xp22/Yp11) Proximal	23P002C550	RED	33 µL	3 x
SHOX (Xp22)	23P001B550	RED	50 µL	2 x
Acro-P-Arms NOR Blue	KI-20033B	BLUE	20 µL	5x
Acro-P-Arms NOR Green	KI-20033G	GREEN	20 µL	5x
Acro-P-Arms NOR Red	KI-20033R	RED	20 µL	5x

* Analyte Specific Reagents - Analytical and performance characteristics are not established.
Products in this catalog are subject to regulatory approval. Please consult your Leica Biosystems Sales Representative for availability in your region.

Manual Probes - Satellite Enumeration*

Product Name	Product Code	Color	Content	CONC
SE 1 (1qh) Blue	KI-20001B	BLUE	20 µL	5x
SE 1 (1qh) Green	KI-20001G	GREEN	20 µL	5x
SE 1 (1qh) Red	KI-20001R	RED	20 µL	5x
SE 2 (D2Z) Blue	KI-20002B	BLUE	20 µL	5x
SE 2 (D2Z) Green	KI-20002G	GREEN	20 µL	5x
SE 2 (D2Z) Red	KI-20002R	RED	20 µL	5x
SE 3 (D3Z1) Blue	KI-20003B	BLUE	20 µL	5x
SE 3 (D3Z1) Green	KI-20003G	GREEN	20 µL	5x
SE 3 (D3Z1) Red	KI-20003R	RED	20 µL	5x
SE 4 (D4Z1) Blue	KI-20004B	BLUE	20 µL	5x
SE 4 (D4Z1) Green	KI-20004G	GREEN	20 µL	5x
SE 4 (D4Z1) Red	KI-20004R	RED	20 µL	5x
SE 6 (D6Z1) Blue	KI-20006B	BLUE	20 µL	5x
SE 6 (D6Z1) Green	KI-20006G	GREEN	20 µL	5x
SE 6 (D6Z1) Red	KI-20006R	RED	20 µL	5x
SE 7 (D7Z1) Blue	KI-20007B	BLUE	20 µL	5x
SE 7 (D7Z1) Green	KI-20007G	GREEN	20 µL	5x
SE 7 (D7Z1) Red	KI-20007R	RED	20 µL	5x
SE 8 (D8Z1) Blue	KI-20008B	BLUE	20 µL	5x
SE 8 (D8Z1) Green	KI-20008G	GREEN	20 µL	5x
SE 8 (D8Z1) Red	KI-20008R	RED	20 µL	5x
SE 9 (classical) Blue	KI-20009B	BLUE	20 µL	5x
SE 9 (classical) Green	KI-20009G	GREEN	20 µL	5x
SE 9 (classical) Red	KI-20009R	RED	20 µL	5x
SE 10 (D10Z1) Blue	KI-20010B	BLUE	20 µL	5x
SE 10 (D10Z1) Green	KI-20010G	GREEN	20 µL	5x
SE 10 (D10Z1) Red	KI-20010R	RED	20 µL	5x
SE 11 (D11Z1) Blue	KI-20011B	BLUE	20 µL	5x
SE 11 (D11Z1) Green	KI-20011G	GREEN	20 µL	5x
SE 11 (D11Z1) Red	KI-20011R	RED	20 µL	5x
SE 12 (D12Z3) Blue	KI-20012B	BLUE	20 µL	5x
SE 12 (D12Z3) Green	KI-20012G	GREEN	20 µL	5x
SE 12 (D12Z3) Red	KI-20012R	RED	20 µL	5x

Product Name	Product Code	Color	Content	CONC
SE 15 (D15Z) Blue	KI-20015B	BLUE	20 µL	5x
SE 15 (D15Z) Green	KI-20015G	GREEN	20 µL	5x
SE 15 (D15Z) Red	KI-20015R	RED	20 µL	5x
SE 16 (D16Z2) Blue	KI-20016B	BLUE	20 µL	5x
SE 16 (D16Z2) Green	KI-20016G	GREEN	20 µL	5x
SE 16 (D16Z2) Red	KI-20016R	RED	20 µL	5x
SE 17 (D17Z1) Blue	KI-20017B	BLUE	20 µL	5x
SE 17 (D17Z1) Green	KI-20017G	GREEN	20 µL	5x
SE 17 (D17Z1) Red	KI-20017R	RED	20 µL	5x
SE 18 (D18Z1) Blue	KI-20018B	BLUE	20 µL	5x
SE 18 (D18Z1) Green	KI-20018G	GREEN	20 µL	5x
SE 18 (D18Z1) Red	KI-20018R	RED	20 µL	5x
SE 20 (D20Z1) Blue	KI-20020B	BLUE	20 µL	5x
SE 20 (D20Z1) Green	KI-20020G	GREEN	20 µL	5x
SE 20 (D20Z1) Red	KI-20020R	RED	20 µL	5x
SE X (DXZ1) Blue	KI-20023B	BLUE	20 µL	5x
SE X (DXZ1) Green	KI-20023G	GREEN	20 µL	5x
SE X (DXZ1) Red	KI-20023R	RED	20 µL	5x
SE Y (DYZ3) Blue	KI-20024B	BLUE	20 µL	5x
SE Y (DYZ3) Green	KI-20024G	GREEN	20 µL	5x
SE Y (DYZ3) Red	KI-20024R	RED	20 µL	5x
SE Y class. q arm Blue	KI-20025B	BLUE	20 µL	5x
SE Y class. q arm Green	KI-20025G	GREEN	20 µL	5x
SE Y class. q arm Red	KI-20025R	RED	20 µL	5x
SE 1/5/19 Blue	KI-20026B	BLUE	20 µL	5x
SE 1/5/19 Green	KI-20026G	GREEN	20 µL	5x
SE 1/5/19 Red	KI-20026R	RED	20 µL	5x
SE 13/21 Blue	KI-20027B	BLUE	20 µL	5x
SE 13/21 Green	KI-20027G	GREEN	20 µL	5x
SE 13/21 Red	KI-20027R	RED	20 µL	5x
SE 14/22 Blue	KI-20028B	BLUE	20 µL	5x
SE 14/22 Green	KI-20028G	GREEN	20 µL	5x
SE 14/22 Red	KI-20028R	RED	20 µL	5x

Manual Probes - Sub Telomeric*

Product Name	Product Code	Color	Content	CONC
Sub Telomere 1pter Blue	KI-40201B	BLUE	10 µL	5x
Sub Telomere 1pter Green	KI-40201G	GREEN	10 µL	5x
Sub Telomere 1pter Red	KI-40201R	RED	10 µL	5x
Sub Telomere 1qter Blue	KI-40202B	BLUE	10 µL	5x
Sub Telomere 1qter Green	KI-40202G	GREEN	10 µL	5x
Sub Telomere 1qter Red	KI-40202R	RED	10 µL	5x
Sub Telomere 2pter Blue	KI-40203B	BLUE	10 µL	5x
Sub Telomere 2pter Green	KI-40203G	GREEN	10 µL	5x
Sub Telomere 2pter Red	KI-40203R	RED	10 µL	5x
Sub Telomere 2qter Blue	KI-40204B	BLUE	10 µL	5x
Sub Telomere 2qter Green	KI-40204G	GREEN	10 µL	5x
Sub Telomere 2qter Red	KI-40204R	RED	10 µL	5x
Sub Telomere 3pter Blue	KI-40205B	BLUE	10 µL	5x

Product Name	Product Code	Color	Content	CONC
Sub Telomere 3pter Green	KI-40205G	GREEN	10 µL	5x
Sub Telomere 3pter Red	KI-40205R	RED	10 µL	5x
Sub Telomere 3qter Blue	KI-40206B	BLUE	10 µL	5x
Sub Telomere 3qter Green	KI-40206G	GREEN	10 µL	5x
Sub Telomere 3qter Red	KI-40206R	RED	10 µL	5x
Sub Telomere 4pter Blue	KI-40207B	BLUE	10 µL	5x
Sub Telomere 4pter Green	KI-40207G	GREEN	10 µL	5x
Sub Telomere 4pter Red	KI-40207R	RED	10 µL	5x
Sub Telomere 4qter Blue	KI-40208B	BLUE	10 µL	5x
Sub Telomere 4qter Green	KI-40208G	GREEN	10 µL	5x
Sub Telomere 4qter Red	KI-40208R	RED	10 µL	5x
Sub Telomere 5pter Blue	KI-40209B	BLUE	10 µL	5x
Sub Telomere 5pter Green	KI-40209G	GREEN	10 µL	5x

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

Manual Probes - Sub Telomeric* (continued)

Product Name	Product Code	Color	Content	CONC
Sub Telomere 5pter Red	KI-40209R	RED	10 µL	5x
Sub Telomere 5qter Blue	KI-40210B	BLUE	10 µL	5x
Sub Telomere 5qter Green	KI-40210G	GREEN	10 µL	5x
Sub Telomere 5qter Red	KI-40210R	RED	10 µL	5x
Sub Telomere 6pter Blue	KI-40211B	BLUE	10 µL	5x
Sub Telomere 6pter Green	KI-40211G	GREEN	10 µL	5x
Sub Telomere 6pter Red	KI-40211R	RED	10 µL	5x
Sub Telomere 6qter Blue	KI-40212B	BLUE	10 µL	5x
Sub Telomere 6qter Green	KI-40212G	GREEN	10 µL	5x
Sub Telomere 6qter Red	KI-40212R	RED	10 µL	5x
Sub Telomere 7pter Blue	KI-40213B	BLUE	10 µL	5x
Sub Telomere 7pter Green	KI-40213G	GREEN	10 µL	5x
Sub Telomere 7pter Red	KI-40213R	RED	10 µL	5x
Sub Telomere 7qter Blue	KI-40214B	BLUE	10 µL	5x
Sub Telomere 7qter Green	KI-40214G	GREEN	10 µL	5x
Sub Telomere 7qter Red	KI-40214R	RED	10 µL	5x
Sub Telomere 8pter Blue	KI-40215B	BLUE	10 µL	5x
Sub Telomere 8pter Green	KI-40215G	GREEN	10 µL	5x
Sub Telomere 8pter Red	KI-40215R	RED	10 µL	5x
Sub Telomere 8qter Blue	KI-40216B	BLUE	10 µL	5x
Sub Telomere 8qter Green	KI-40216G	GREEN	10 µL	5x
Sub Telomere 8qter Red	KI-40216R	RED	10 µL	5x
Sub Telomere 9pter Blue	KI-40217B	BLUE	10 µL	5x
Sub Telomere 9pter Green	KI-40217G	GREEN	10 µL	5x
Sub Telomere 9pter Red	KI-40217R	RED	10 µL	5x
Sub Telomere 9qter Blue	KI-40218B	BLUE	10 µL	5x
Sub Telomere 9qter Green	KI-40218G	GREEN	10 µL	5x
Sub Telomere 9qter Red	KI-40218R	RED	10 µL	5x
Sub Telomere 10pter Blue	KI-40219B	BLUE	10 µL	5x
Sub Telomere 10pter Green	KI-40219G	GREEN	10 µL	5x
Sub Telomere 10pter Red	KI-40219R	RED	10 µL	5x
Sub Telomere 10qter Blue	KI-40220B	BLUE	10 µL	5x
Sub Telomere 10qter Green	KI-40220G	GREEN	10 µL	5x
Sub Telomere 10qter Red	KI-40220R	RED	10 µL	5x
Sub Telomere 11pter Blue	KI-40221B	BLUE	10 µL	5x
Sub Telomere 11pter Green	KI-40221G	GREEN	10 µL	5x
Sub Telomere 11pter Red	KI-40221R	RED	10 µL	5x
Sub Telomere 11qter Blue	KI-40222B	BLUE	10 µL	5x
Sub Telomere 11qter Green	KI-40222G	GREEN	10 µL	5x
Sub Telomere 11qter Red	KI-40222R	RED	10 µL	5x
Sub Telomere 12pter Blue	KI-40223B	BLUE	10 µL	5x
Sub Telomere 12pter Green	KI-40223G	GREEN	10 µL	5x
Sub Telomere 12pter Red	KI-40223R	RED	10 µL	5x
Sub Telomere 12qter Blue	KI-40224B	BLUE	10 µL	5x
Sub Telomere 12qter Green	KI-40224G	GREEN	10 µL	5x
Sub Telomere 12qter Red	KI-40224R	RED	10 µL	5x
Sub Telomere 13qter Blue	KI-40225B	BLUE	10 µL	5x
Sub Telomere 13qter Green	KI-40225G	GREEN	10 µL	5x
Sub Telomere 13qter Red	KI-40225R	RED	10 µL	5x

Product Name	Product Code	Color	Content	CONC
Sub Telomere 14qter Blue	KI-40226B	BLUE	10 µL	5x
Sub Telomere 14qter Green	KI-40226G	GREEN	10 µL	5x
Sub Telomere 14qter Red	KI-40226R	RED	10 µL	5x
Sub Telomere 15qter Blue	KI-40227B	BLUE	10 µL	5x
Sub Telomere 15qter Green	KI-40227G	GREEN	10 µL	5x
Sub Telomere 15qter Red	KI-40227R	RED	10 µL	5x
Sub Telomere 16pter Blue	KI-40228B	BLUE	10 µL	5x
Sub Telomere 16pter Green	KI-40228G	GREEN	10 µL	5x
Sub Telomere 16pter Red	KI-40228R	RED	10 µL	5x
Sub Telomere 16qter Blue	KI-40229B	BLUE	10 µL	5x
Sub Telomere 16qter Green	KI-40229G	GREEN	10 µL	5x
Sub Telomere 16qter Red	KI-40229R	RED	10 µL	5x
Sub Telomere 17pter Blue	KI-40230B	BLUE	10 µL	5x
Sub Telomere 17pter Green	KI-40230G	GREEN	10 µL	5x
Sub Telomere 17pter Red	KI-40230R	RED	10 µL	5x
Sub Telomere 17qter Blue	KI-40231B	BLUE	10 µL	5x
Sub Telomere 17qter Green	KI-40231G	GREEN	10 µL	5x
Sub Telomere 17qter Red	KI-40231R	RED	10 µL	5x
Sub Telomere 18pter Blue	KI-40232B	BLUE	10 µL	5x
Sub Telomere 18pter Green	KI-40232G	GREEN	10 µL	5x
Sub Telomere 18pter Red	KI-40232R	RED	10 µL	5x
Sub Telomere 18qter Blue	KI-40233B	BLUE	10 µL	5x
Sub Telomere 18qter Green	KI-40233G	GREEN	10 µL	5x
Sub Telomere 18qter Red	KI-40233R	RED	10 µL	5x
Sub Telomere 19pter Blue	KI-40234B	BLUE	10 µL	5x
Sub Telomere 19pter Green	KI-40234G	GREEN	10 µL	5x
Sub Telomere 19pter Red	KI-40234R	RED	10 µL	5x
Sub Telomere 19qter Blue	KI-40235B	BLUE	10 µL	5x
Sub Telomere 19qter Green	KI-40235G	GREEN	10 µL	5x
Sub Telomere 19qter Red	KI-40235R	RED	10 µL	5x
Sub Telomere 20pter Blue	KI-40236B	BLUE	10 µL	5x
Sub Telomere 20pter Green	KI-40236G	GREEN	10 µL	5x
Sub Telomere 20pter Red	KI-40236R	RED	10 µL	5x
Sub Telomere 20qter Blue	KI-40237B	BLUE	10 µL	5x
Sub Telomere 20qter Green	KI-40237G	GREEN	10 µL	5x
Sub Telomere 20qter Red	KI-40237R	RED	10 µL	5x
Sub Telomere 21qter Blue	KI-40238B	BLUE	10 µL	5x
Sub Telomere 21qter Green	KI-40238G	GREEN	10 µL	5x
Sub Telomere 21qter Red	KI-40238R	RED	10 µL	5x
Sub Telomere 22qter Blue	KI-40239B	BLUE	10 µL	5x
Sub Telomere 22qter Green	KI-40239G	GREEN	10 µL	5x
Sub Telomere 22qter Red	KI-40239R	RED	10 µL	5x
Sub Telomere XYpter Blue	KI-40240B	BLUE	10 µL	5x
Sub Telomere XYpter Green	KI-40240G	GREEN	10 µL	5x
Sub Telomere XYpter Red	KI-40240R	RED	10 µL	5x
Sub Telomere XYqter Blue	KI-40241B	BLUE	10 µL	5x
Sub Telomere XYqter Green	KI-40241G	GREEN	10 µL	5x
Sub Telomere XYqter Red	KI-40241R	RED	10 µL	5x

* Analyte Specific Reagents - Analytical and performance characteristics are not established.
Products in this catalog are subject to regulatory approval. Please consult your Leica Biosystems Sales Representative for availability in your region.

Manual Probes - Whole Chromosome*

Product Name	Product Code	Color	Content	CONC
Whole Chromosome 1 Blue	KI-30001B	BLUE	10 µL	5x
Whole Chromosome 1 Green	KI-30001G	GREEN	10 µL	5x
Whole Chromosome 1 Red	KI-30001R	RED	10 µL	5x
Whole Chromosome 2 Blue	KI-30002B	BLUE	10 µL	5x
Whole Chromosome 2 Green	KI-30002G	GREEN	10 µL	5x
Whole Chromosome 2 Red	KI-30002R	RED	10 µL	5x
Whole Chromosome 3 Blue	KI-30003B	BLUE	10 µL	5x
Whole Chromosome 3 Green	KI-30003G	GREEN	10 µL	5x
Whole Chromosome 3 Red	KI-30003R	RED	10 µL	5x
Whole Chromosome 4 Blue	KI-30004B	BLUE	10 µL	5x
Whole Chromosome 4 Green	KI-30004G	GREEN	10 µL	5x
Whole Chromosome 4 Red	KI-30004R	RED	10 µL	5x
Whole Chromosome 5 Blue	KI-30005B	BLUE	10 µL	5x
Whole Chromosome 5 Green	KI-30005G	GREEN	10 µL	5x
Whole Chromosome 5 Red	KI-30005R	RED	10 µL	5x
Whole Chromosome 6 Blue	KI-30006B	BLUE	10 µL	5x
Whole Chromosome 6 Green	KI-30006G	GREEN	10 µL	5x
Whole Chromosome 6 Red	KI-30006R	RED	10 µL	5x
Whole Chromosome 7 Blue	KI-30007B	BLUE	10 µL	5x
Whole Chromosome 7 Green	KI-30007G	GREEN	10 µL	5x
Whole Chromosome 7 Red	KI-30007R	RED	10 µL	5x
Whole Chromosome 8 Blue	KI-30008B	BLUE	10 µL	5x
Whole Chromosome 8 Green	KI-30008G	GREEN	10 µL	5x
Whole Chromosome 8 Red	KI-30008R	RED	10 µL	5x
Whole Chromosome 9 Blue	KI-30009B	BLUE	10 µL	5x
Whole Chromosome 9 Green	KI-30009G	GREEN	10 µL	5x
Whole Chromosome 9 Red	KI-30009R	RED	10 µL	5x
Whole Chromosome 10 Blue	KI-30010B	BLUE	10 µL	5x
Whole Chromosome 10 Green	KI-30010G	GREEN	10 µL	5x
Whole Chromosome 10 Red	KI-30010R	RED	10 µL	5x
Whole Chromosome 11 Blue	KI-30011B	BLUE	10 µL	5x
Whole Chromosome 11 Green	KI-30011G	GREEN	10 µL	5x
Whole Chromosome 11 Red	KI-30011R	RED	10 µL	5x
Whole Chromosome 12 Blue	KI-30012B	BLUE	10 µL	5x
Whole Chromosome 12 Green	KI-30012G	GREEN	10 µL	5x
Whole Chromosome 12 Red	KI-30012R	RED	10 µL	5x

Product Name	Product Code	Color	Content	CONC
Whole Chromosome 13 Blue	KI-30013B	BLUE	10 µL	5x
Whole Chromosome 13 Green	KI-30013G	GREEN	10 µL	5x
Whole Chromosome 13 Red	KI-30013R	RED	10 µL	5x
Whole Chromosome 14 Blue	KI-30014B	BLUE	10 µL	5x
Whole Chromosome 14 Green	KI-30014G	GREEN	10 µL	5x
Whole Chromosome 14 Red	KI-30014R	RED	10 µL	5x
Whole Chromosome 15 Blue	KI-30015B	BLUE	10 µL	5x
Whole Chromosome 15 Green	KI-30015G	GREEN	10 µL	5x
Whole Chromosome 15 Red	KI-30015R	RED	10 µL	5x
Whole Chromosome 16 Blue	KI-30016B	BLUE	10 µL	5x
Whole Chromosome 16 Green	KI-30016G	GREEN	10 µL	5x
Whole Chromosome 16 Red	KI-30016R	RED	10 µL	5x
Whole Chromosome 17 Blue	KI-30017B	BLUE	10 µL	5x
Whole Chromosome 17 Green	KI-30017G	GREEN	10 µL	5x
Whole Chromosome 17 Red	KI-30017R	RED	10 µL	5x
Whole Chromosome 18 Blue	KI-30018B	BLUE	10 µL	5x
Whole Chromosome 18 Green	KI-30018G	GREEN	10 µL	5x
Whole Chromosome 18 Red	KI-30018R	RED	10 µL	5x
Whole Chromosome 19 Blue	KI-30019B	BLUE	10 µL	5x
Whole Chromosome 19 Green	KI-30019G	GREEN	10 µL	5x
Whole Chromosome 19 Red	KI-30019R	RED	10 µL	5x
Whole Chromosome 20 Blue	KI-30020B	BLUE	10 µL	5x
Whole Chromosome 20 Green	KI-30020G	GREEN	10 µL	5x
Whole Chromosome 20 Red	KI-30020R	RED	10 µL	5x
Whole Chromosome 21 Blue	KI-30021B	BLUE	10 µL	5x
Whole Chromosome 21 Green	KI-30021G	GREEN	10 µL	5x
Whole Chromosome 21 Red	KI-30021R	RED	10 µL	5x
Whole Chromosome 22 Blue	KI-30022B	BLUE	10 µL	5x
Whole Chromosome 22 Green	KI-30022G	GREEN	10 µL	5x
Whole Chromosome 22 Red	KI-30022R	RED	10 µL	5x
Whole Chromosome X Blue	KI-30023B	BLUE	10 µL	5x
Whole Chromosome X Green	KI-30023G	GREEN	10 µL	5x
Whole Chromosome X Red	KI-30023R	RED	10 µL	5x
Whole Chromosome Y Blue	KI-30024B	BLUE	10 µL	5x
Whole Chromosome Y Green	KI-30024G	GREEN	10 µL	5x
Whole Chromosome Y Red	KI-30024R	RED	10 µL	5x

IVD In Vitro Diagnostic Use **RUO** For Research Use Only. Not for use in diagnostic procedures **ASR** Analyte Specific Reagent **GPR** General Purpose Reagent
F Frozen **P** Paraffin **O** Other Applications **W** Western blotting

RNA Probes*

Product Name	Product Code	Content
EBER Probe	ISH5687-A	7 mL
CMV Probe	ISH5719-A	7 mL
Kappa Probe	ISH5748-A	7 mL
Lambda Probe	ISH5770-A	7 mL
RNA Positive Control Probe	ISH5894-A	7 mL
RNA Negative Control Probe	ISH5950-A	7 mL

ACD RNA Probes*

Product Name	Product Code	Content
CMV Probe	RS7750	14 mL
EBV Probe	RS7751	14 mL
Albumin Probe	RS7752	14 mL
TTF-1 Probe	RS7753	14 mL
Napsin A Probe	RS7754	14 mL
PPIB (Positive Control)	RS7755	14 mL
dapB (Negative Control)	RS7756	14 mL

DNA Probes*

Product Name	Product Code	Content	Concentration
Human Satellite DNA Probe	40V000V000	1 mL	10 x
Human Satellite DNA, Flu labeled	40V000V495	1 mL	10 x
PapV-06, Flu labeled	40V006V495	1 mL	10 x
PapV-11, Flu labeled	40V011V495	1 mL	10 x
PapV-16, Flu labeled	40V016V495	1 mL	10 x
PapV-18, Flu labeled	40V018V495	1 mL	10 x
PapV-31, Flu labeled	40V031V495	1 mL	10 x
PapV-33, Flu labeled	40V033V495	1 mL	10 x

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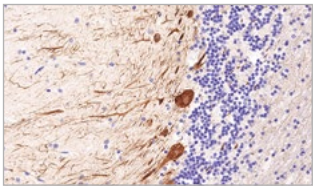

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The EP clones have been created by Epitomics Inc., using Epitomics' proprietary rabbit monoclonal antibody technology covered under Patent No.'s 5, 675, 063 and 7, 402, 409.

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