TaqMan® Gene Expression Assays

Providing the greatest sensitivity, specificity and reproducibility for quantitative gene expression.

Applied Biosystems TaqMan® Gene Expression Assays Solutions

Applied Biosystems offers the largest family of products to meet your quantitative gene expression needs: from off-the-shelf gene-specific probe and primer sets to Custom TaqMan® probes and primers manufactured to your desired sequences, and everything in between. All products use TaqMan® probe-based chemistry and are designed for use on the suite of Applied Biosystems Real-Time PCR Systems—together the gold standard in quantitative gene expression offering the greatest sensitivity, specificity, reproducibility, and the broadest dynamic range.

WHICH TAQMAN® GENE EXPRESSION PRODUCT IS RIGHT FOR YOU?

	TaqMan® Gene Expression Assays Inventoried	**TaqMan® Gene Expression Assays** Made-to-Order	**Custom TaqMan® Gene Expression Assays**	**TaqMan® Endogenous Controls**	**Custom TaqMan® Probes and Primers**
Convenience of fully-formulated assay (premixed probe and primers)	•	•	•	•	
No specific preference on assay location within a gene	•				
Specific location within a transcript is key		•	•		•
FAM™ dye label is fine	•	•	•	•	•
Need a specific reporter dye label				•	•
Prefer to use an Applied Biosystems design	•	•	•	•	
Prefer to use my own sequence target			•		•
Prefer to design my own probe and primers			•		•
Non-universal probe-primer concentration					•
For use with TaqMan® PreAmp Master Mix	•	•			

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TaqMan® Gene Expression Assays

- Gene-specific TaqMan® probe and primer sets for quantitative gene expression studies
- Human, mouse, rat, *Arabidopsis*, *Drosophila*, *C. elegans*, Rhesus macaque, and canine species available
- Convenient single-tube format
- Universal cycling conditions

TaqMan® Gene Expression Assays are a comprehensive collection of over 700,000 pre-designed probe and primer sets that enable researchers to quickly and easily perform quantitative gene expression studies on human, mouse, rat, *Arabidopsis*, *Drospophila*, *C. elegans*, Rhesus macaque, or canine genes. Each gene expression assay consists of a FAM™ dye-labeled TaqMan® MGB probe and two PCR primers formulated into a single tube. Every assay is optimized to run under universal thermal cycling conditions with a final reaction concentration of 250 nM for the probe and 900 nM for each primer. This streamlined approach and comprehensive assay selection enables a convenient, standardized process for quantitative gene expression.

Human Assays

Over 200,000 gene expression assays are available for all known human genes. These include genes in the public domain with associated RefSeq transcripts (NCBI Reference Sequence project database: http://www.ncbi.nlm.nih.gov/RefSeq), the mammalian gene collection (MGC), and GenBank® database. A minimum of one assay (probe and primer set) per RefSeq transcript is available as an inventoried, off-the-shelf product currently numbering >24,000 assays. The complete collection includes assays for nearly every exon junction in all known human genes, both in the public domain and the Celera database, covering every probe on the Applied Biosystems Expression Array System.

Mouse and Rat Assays

Over 300,000 mouse and rat assays have been designed for all known genes. As with our human assays, at least one assay per RefSeq transcript has been manufactured and is available from our inventory. High quality assay designs for all other genes are also available on a made-to-order basis, as Custom TaqMan® Gene Expression Assays.

Strain-Neutral Mouse and Rat Assays

The assay design process yields strain-neutral mouse and rat gene expression assays. Polymorphisms are the cause of most sequence variability between strains. By avoiding areas in the gene transcripts of known polymorphisms, we design only strain-neutral gene expression assays.

TaqMan® Gene Copy Number Assays

TaqMan Gene Copy Number Assays are now available to detect gene copy number. Copy number is an important polymorphism in the human genome associated with genetic diseases such as cancer, immune diseases, and neurological disorders. Drug metabolizing enzymes were selected as the first set of TaqMan Gene Copy Number Assays due to their significance in human physiology and disease. Gene Copy Assays were designed to detect CYP2D6, CYP2A6, CYP2E1, GSTT1, and GSTM1.

TaqMan Gene Expression Assays for Mitochondrial DNA Transcripts

TaqMan® Assays are also available for 19 mitochondrial (mt) DNA encoded transcripts, including 13 mt mRNAs, two mt rRNAs and one mt D-loop. Three additional assays targeting the mt inter-tRNA region are available as Custom TaqMan Gene Expression Assays. Our TaqMan Assays targeting mtDNA transcripts are ideal for sensitive, specific, and accurate quantification of mtDNA transcription.

Like all TaqMan Gene Expression Assays, measurements are made in real-time, use universal cycling conditions and TaqMan® Universal PCR Master Mix.

Comprehensive Coverage and Selection

Not only have we designed an assay for every gene, but also for multiple locations across each gene transcript. More than 700,000 high-quality assay designs are available for








human, mouse, rat, *Arabidopsis*, *Drosophila*, *C. elegans*, and canine genes on a made-to-order basis. This vast selection allows researchers to select the specific location on a given transcript they wish to detect. For instance, microarray researchers that may prefer a 3′ bias in their TaqMan® probe and primer sets will be able to select from robust, pre-designed TaqMan Gene Expression Assays. Additionally, researchers performing RNAi studies can choose multiple assays per gene to validate their knockdown results.

State-of-the-Art Assay Design Bioinformatics

All assays are designed using Applied Biosystems sophisticated bioinformatics pipeline, customized for either the human, mouse, or rat genome. This pipeline consists of three main steps:

Step One—Both public and Celera sequence data are used to identify the optimal probe and primer locations. This process consists of:

- Mapping transcripts to the genome to identify exon boundaries
- Masking sequence discrepancies between public and Celera data
- Masking sequence repeats
- Masking known SNPs from both public and Celera databases

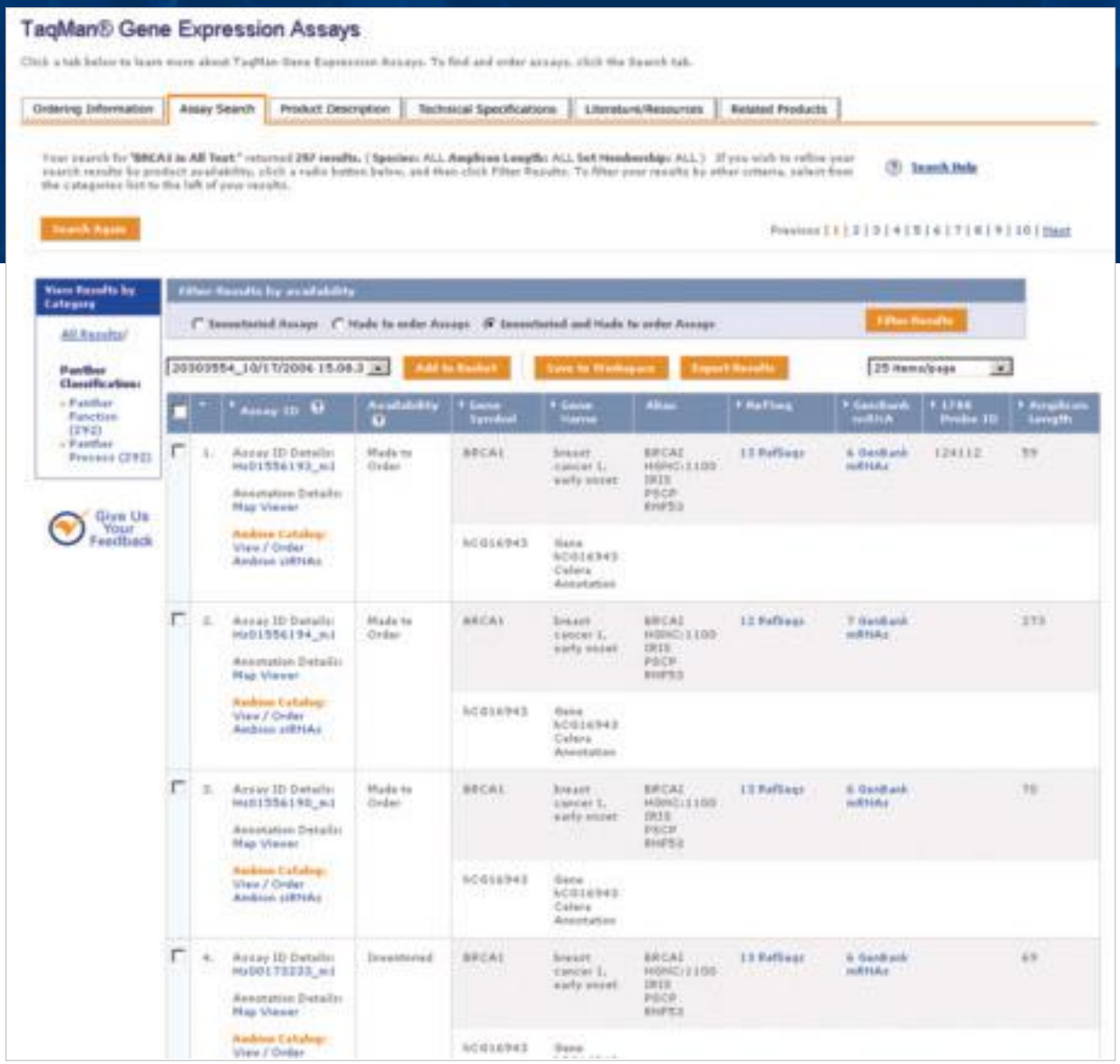
Step Two—Proprietary software algorithms generate probe and primer designs for the locations identified above. These algorithms include optimal design parameters, such as %GC content, T_m, amplicon length, and low secondary structure to ensure high amplification efficiency. Where possible, designs span an exon-exon junction, eliminating the possibility of detecting genomic DNA.

Step Three—*In silico* QC ensures each assay is specific to the gene for which it was designed (i.e., the assay will not detect sequences from other genes, or pseudo-genes). Each assay design is processed through a quality scoring system and one high scoring, gene-specific assay design is sent to our state-of-the-art manufacturing facility. All designs meeting our scoring criteria are also displayed in our online catalog and are available on a made-to-order basis. Our graphical map viewer shows each assay's location on the gene to help determine which assay is most appropriate.

Choice of Delivery Formats

Applied Biosystems delivers the assays in either a tube-format or TaqMan® Low Density Array-format (using inventoried assays only). The TaqMan® Low Density Array is a 384-well micro fluidic card that streamlines reaction set-up time, eliminates the need for liquid-handling robotics, and provides standardization across multiple users and/or multiple labs. This format is ideal for analyzing many samples across a fixed number of targets, such as for biomarker screening. TaqMan® Arrays arrive ready to use, with your selected TaqMan Gene Expression Assays pre-loaded into each of the 384 reaction wells. Simply add 100 mL sample mix (sample cDNA and TaqMan Universal PCR Master Mix) to each of the eight sample ports and run on an Applied Biosystems 7900HT Fast Real-Time PCR System. For more information, see the "TaqMan Low Density Array" section on page 9.

For more information on this product, visit **www.allgenes.com**



The Applied Biosystems online catalog makes it easy to find the optimal TaqMan® Gene Expression Assay for your research needs.

Convenient Assay Ordering Options

Our online catalog (**www.allgenes.com**) enables searching for your target of interest by:

- Gene name or gene symbol
- Accession number (NCBI RefSeq ID number, etc.)
- Species (kinase, transcription factor, ion channel, cytokine, etc.)
- Target class, location on transcript, and amplicon size

Custom TaqMan® Gene Expression Assays

- Any species or organism
- Target sequence of your choice
- Convenient single-tube format
- Available in small, medium, and large scales

Custom TaqMan® Gene Expression Assays are delivered ready-to-use, along with the probe and primer sequences you designed.

Custom TaqMan® Gene Expression Assays are available for any species, any splice variant, or any novel gene. Simply download our free File Builder Software to format and submit your target sequence. File Builder Software can be downloaded at **www.appliedbiosystems.com/filebuilder**. The software easily guides you through the ordering process of selecting the assay size, formatting your target sequence to identify the location of the probe, and submitting your order via e-mail.

File submissions are done in a secure format. Your target sequences and the associated assays that are designed are kept confidential. With Custom TaqMan Gene Expression Assays, you benefit from Applied Biosystems proprietary software algorithms for probe and primer design, which enable you to obtain optimal assays for each target sequence. Assays are delivered in a single-tube, ready-to-use format, along with the probe and primer sequences designed from your submitted sequence.

Automation-Compatible to Accelerate High-Throughput Applications

Both TaqMan® Gene Expression Assays and Custom TaqMan Gene Expression Assays come pre-formulated in a single, 2D-barcoded tube with an easy-to-read label. The single-tube format requires fewer set-up and pipetting steps to assemble reactions, assisting you to easily scale your throughput. Assay tubes are shipped in a 1D-barcoded 96-position rack designed to accommodate standard liquid-handling robotics and fit seamlessly into automated, high-throughput laboratory processes. Each order of assays also includes a compact disc with an assay information file that includes the assay ID numbers, detector names, reporter dye, and quencher information for easy uploading into a LIMS or sequence detection system software.

A Simple, Standardized Solution for Quantitative Gene Expression

TaqMan Gene Expression Assays and Custom TaqMan Gene Expression Assays are built on our 5′ nuclease chemistry and consist of a FAM™ dye-labeled TaqMan® MGB probe (250 nM, final concentration), and two unlabeled PCR primers (900 nM each, final concentration). All components are QC tested and formulated into a single 20X mix. Designed to run under universal conditions for two-step RT-PCR, TaqMan Gene Expression Assays are simple to use. Just add TaqMan® Universal PCR Master Mix (with or without AmpErase® UNG) and your cDNA sample to generate sensitive, reproducible, and truly quantitative gene expression data on any Applied Biosystems Real-Time PCR System.

Compared to do-it-yourself methods, TaqMan Gene Expression Assays and Custom TaqMan Gene Expression Assays eliminate weeks or even months of probe and primer design, formulation, and testing.

For more information on this product, visit **www.allgenes.com** or check with your local Applied Biosystems representative.

TaqMan® Endogenous Controls

- Optimized, pre-formulated, ready-to-use control assays
- Cost-effective gene expression quantitation in human, mouse, rat, and eukaryotes (18S rRNA)
- Choice of FAM™ or VIC® dye labels

Applied Biosystems TaqMan® Endogenous Controls are a collection of pre-designed probe and primer sets that can be used to normalize the amount of sample RNA or DNA added to a reaction. For the quantitation of gene expression, deciding upon a specific control can be difficult, even when detailed information about the biological system is available. This can result in trial and error to identify an appropriate control, leading to project delays and increased costs. Applied Biosystems offers endogenous controls for the most commonly used control genes in human, mouse, rat, and any eukaryotic (18S rRNA) species. The assays are designed to help researchers quickly and easily identify and run the best possible endogenous control for their gene expression study.

A Simple, Standardized Solution for Quantitative Gene Expression

Each endogenous control is built on our 5′ nuclease chemistry and is offered in a choice of two different reporter dyes and two quenchers:

- A FAM™ dye-labeled TaqMan® MGB probe (250 nM, final concentration) and two unlabeled PCR primers (900 nM each)
- A VIC® dye-labeled TaqMan MGB probe (250 nM, final concentration) and two unlabeled PCR primers (150 nM each—primer limited)
- A VIC dye-labeled TAMRA™ dye-labeled probe (250 nM, final concentration) and two unlabeled PCR primers (150 nM each—primer limited)

All components are QC tested, formulated into a single 20X mix, and functionally tested. Designed to run under universal conditions for two-step RT-PCR, our TaqMan Endogenous Controls are simple to use. Just add TaqMan® Universal PCR Master Mix (with or without AmpErase® UNG) and your cDNA sample to generate sensitive, reproducible, and truly quantitative gene expression data on ABI PRISM® 7000 and 7700 Sequence Detection Systems, Applied Biosystems 7300 and 7500 Real-Time PCR Systems, and Applied Biosystems 7500 and 7900HT Fast Real-Time PCR Systems. Compared to do-it-yourself methods, our TaqMan Endogenous Controls deliver a complete quantitation solution and eliminate weeks or even months of assay design, formulation, and testing.

Choosing the Right Endogenous Control

Endogenous controls can normalize the expression levels of target genes by correcting differences in the amount of cDNA that is loaded into PCR reaction wells. For best results, verify that the endogenous control is consistently expressed in the sample set to be tested. Endogenous control expression must be uniform across all samples in the study. For multiplexing, ensure that the gene expression level of the endogenous control is greater than that of the target.

Multiplex vs. Singleplex PCR

All TaqMan Endogenous Controls that contain probes labeled with the VIC reporter dye are primer limited. This allows multiplexing of TaqMan Endogenous Controls with target gene expression assays, provided that the control gene is more abundantly expressed than the target gene. All TaqMan Endogenous Controls that contain probes labeled with the FAM reporter dye are not primer limited and are not intended for multiplexing.

Complementary Products

TaqMan Endogenous Controls are intended to be used with:

- TaqMan® Gene Expression Assays
- Custom TaqMan® Gene Expression Assays
- TaqMan® Pre-Developed Assay Reagents (PDARs)
- Custom TaqMan® Probes and Primers

Online Ordering

Order from our line of TaqMan Endogenous Controls, and get more product information at **www.allgenes.com**, or check with your local sales representative.

TaqMan® Endogenous Controls

	Dye/Quencher	Primer Limited	Concentration	Number of Reactions, 20 µL	Part Number
Eukaryotic 18S rRNA	VIC®/MGB	Y	20X	2,500	4319413E
	VIC/TAMRA™	Y	20X	2,500	4310893E
	FAM™/MGB	N	20X	125	4333760T
	FAM/MGB	N	20X	500	4333760F
Human ACTB (beta actin)	VIC/MGB	Y	20X	2,500	4326315E
	VIC/TAMRA	Y	20X	2,500	4310881E
	FAM/MGB	N	20X	125	4333762T
	FAM/MGB	N	20X	500	4333762F
Human B2M (beta-2-microglobulin)	VIC/MGB	Y	20X	2,500	4326319E
	VIC/TAMRA	Y	20X	2,500	4310886E
	FAM/MGB	N	20X	125	4333766T
	FAM/MGB	N	20X	500	4333766F
Human GAPD (GAPDH)	VIC/MGB	Y	20X	2,500	4326317E
	VIC/TAMRA	Y	20X	2,500	4310884E
	FAM/MGB	N	20X	125	4333764T
	FAM/MGB	N	20X	500	4333764F
Human GUSB (beta glucuronidase)	VIC/MGB	Y	20X	2,500	4326320E
	VIC/TAMRA	Y	20X	2,500	4310888E
	FAM/MGB	N	20X	125	4333767T
	FAM/MGB	N	20X	500	4333767F
Human HPRT1	VIC/MGB	Y	20X	2,500	4326321E
	VIC/TAMRA	Y	20X	2,500	4310890E
	FAM/MGB	N	20X	125	4333768T
	FAM/MGB	N	20X	500	4333768F
Human PGK1 (phosphoglyceratekinase 1)	VIC/MGB	Y	20X	2,500	4326318E
	VIC/TAMRA	Y	20X	2,500	4310885E
	FAM/MGB	N	20X	125	4333765T
	FAM/MGB	N	20X	500	4333765F
Human PPIA (cyclophilin A)	VIC/MGB	Y	20X	2,500	4326316E
	VIC/TAMRA	Y	20X	2,500	4310883E
	FAM/MGB	N	20X	125	4333763T
	FAM/MGB	N	20X	500	4333763F
Human RPLO (large ribosomal protein)	VIC/MGB	Y	20X	2,500	4326314E
	VIC/TAMRA	Y	20X	2,500	4310879E
	FAM/MGB	N	20X	125	4333761T
	FAM/MGB	N	20X	500	4333761F
Human TBP (TATA-box binding protein)	VIC/MGB	Y	20X	2,500	4326322E
	VIC/TAMRA	Y	20X	2,500	4310891E
	FAM/MGB	N	20X	125	4333769T
	FAM/MGB	N	20X	500	4333769F
Human TFRC (CD71) (transferring receptor)	VIC/MGB	Y	20X	2,500	4326323E
	VIC/TAMRA	Y	20X	2,500	4310892E
	FAM/MGB	N	20X	125	4333770T
	FAM/MGB	N	20X	500	4333770F
Mouse GAPD (GAPDH)	VIC/MGB	Y	20X	2,500	4352339E
Mouse ACTB (beta actin)	VIC/MGB	Y	20X	2,500	4352341E
Rat GAPD (GAPDH)	VIC/MGB	Y	20X	2,500	4352338E
Rat ACTB (beta actin)	VIC/MGB	Y	20X	2,500	4352340E

TaqMan® Low Density Array

- Validate microarray hits quickly and economically
- Standardize screening of gene panels across many samples and laboratories
- Create the perfect card by designing a custom array that meets your specific need
- Load 384 wells in less than five minutes without robotics or multi-channel pipettors

The TaqMan® Low Density Array is a 384-well micro fluidic card that enables you to perform 384 simultaneous real-time PCR reactions without the need for liquid-handling robots or multi-channel pipettors to load samples. This low- to medium-throughput array enables 1 to 8 samples to be run in parallel against 12 to 384 TaqMan® Gene Expression Assay targets that are pre-loaded into each of the wells in the array. The TaqMan Low Density Array is completely customizable—choose from over 47,000 inventoried TaqMan Gene Expression Assays designed for human, mouse, and rat genes to have loaded into a TaqMan® Array. The TaqMan Array is designed for use on the flexible Applied Biosystems 7900HT Fast Real-Time PCR System with a 7900HT TaqMan® Array Upgrade.

The Ultimate Microarray Validation Tool

TaqMan Arrays are exactly the right tool for validating the tens or hundreds of hits that come from microarrays because they can be customized to include up to 384 of those hits in one easy-to-use card. Using individual assays, or even SYBR®-based assays, to look at 12, 48, or 96 targets can quickly become unmanageable and expensive. TaqMan Low Density Arrays enable researchers to accomplish the validation necessary to arrive at the right answer easily and affordably.

Ideal Screening Technology

TaqMan Low Density Arrays are ideal for screening biomarkers and toxicology panels, and for analyzing pathways, target classes, and complete disease sets. Because TaqMan Arrays don't require liquid-handling robotics for loading, you get standardized results with low variability across many users and laboratories. Plus, TaqMan Gene Expression Assays—the benchmark of specificity and sensitivity in real-time PCR—are pre-loaded into the TaqMan Array, ensuring reliable performance and results you can trust.

Create the Perfect Card

You select TaqMan Gene Expression Assays and the optimal TaqMan Array format for your experiment, and we deliver TaqMan Low Density Arrays pre-loaded with your selected assays in each reaction well. Choose 12 to 384 target assays from our collection of inventoried TaqMan Gene Expression Assays covering human, mouse, and rat genes. Ordering is easy with the new online TaqMan Low Density Array configuration tool to help you search and select genes and assays. Custom TaqMan Arrays are available in nine different formats, covering 12, 16, 24, 32, 48, 64, 96 (2 choices), and 384 assays per Low Density Array.

Designing a TaqMan Low Density Array

Customizing a TaqMan Low Density Array can be done through the Applied Biosystems Web site. Choose your ideal format and TaqMan Gene Expression Assays, select a quantity, and place your order—it's as easy as 1, 2, 3. Or, download our list of customizable gene panels to define a particular target class or pathway using public databases and published articles. The gene lists include a TaqMan Gene Expression Assay to represent each gene in the list that can be used to configure a custom TaqMan Array.

TAQMAN® LOW DENSITY ARRAY FORMAT SPECIFICATIONS

TaqMan® Low Density Array (384-well micro fluidic card)

Description	# of Assays	# of Samples per Card				Minumum Order Quantities	Part Number
		1 Replicate	2 Replicates	3 Replicates	4 Replicates		
Format 12	11 + 1 control				8	20	4342247
Format 16	15 + 1 control			8		20	4346798
Format 24	23 + 1 control		8		4	20	4342249
Format 32	31 + 1 control			4		20	4346799
Format 48	47 + 1 control		4		2	10	4342253
Format 64	63 + 1 control			2		20	4346800
Format 96a	95 + 1 control		2		1	10	4342259
Format 96b	95 + 1 control		2		1	20	4342261
Format 384	380 + 1 control	1				50	4342265
7900HT TaqMan® Low Density Array Upgrade* Includes: sample block, micro fluidic card sealer, custom buckets and adaptors, *Getting Started* guide, and chemical installation kit.							4329012

* A compatible centrifuge is required but not supplied. Ask your local sales representative for a list of compatible centrifuge and rotor options.

TaqMan® Low Density Array Gene Signature Panels

- Pre-formatted and inventoried for quick delivery
- Economical two- or four-card packages simplifies your workflow
- TaqMan Gene Expression Assay performance without expensive robotics
- Consistent, reliable data across samples, studies, and labs

TaqMan® Gene Signature Panels are pre-designed, focused gene panels for many important target classes and pathways. Gene sets in each panel have been culled from pathway analysis tools, published review papers, and collaborator and customer input. Select from a variety of TaqMan Gene Signature Panels based on your research needs covering such areas as GPCRs, immune response, or protein kinases. Endogenous Control Panels are also available to assess which housekeeping genes are best for your specific study. TaqMan Gene Signature Panels provide faster delivery times than our custom TaqMan Arrays because they are already inventoried. TaqMan Gene Signature Panels are packaged in two or four cards per pack, making them more cost effective.

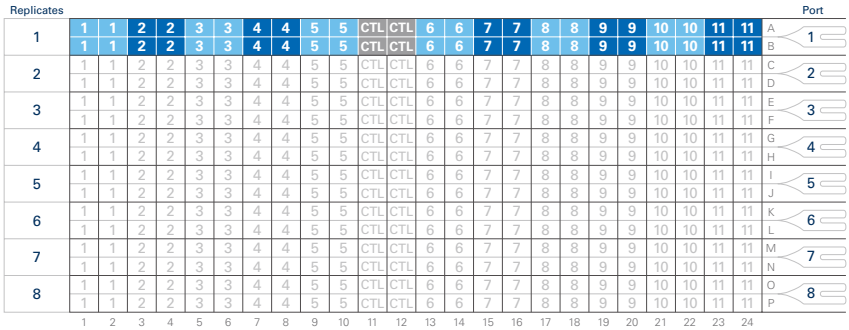
See page 20 for a list of TaqMan Low Density Array Gene Signature Panel part numbers. To view our ever-expanding menu of Gene Signature Panels, visit **tlda.appliedbiosystems.com**

TaqMan® Low Density Array

TaqMan® Arrays can be ordered in any of these nine format options.

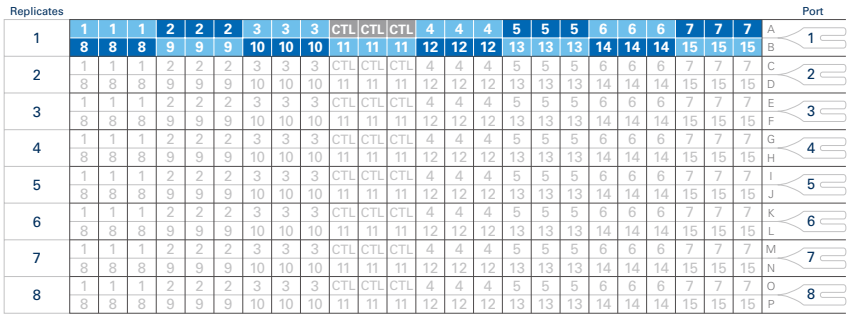
Format 12 (P/N 4342247)

11 unique assays + 1 mandatory control
8 unique samples



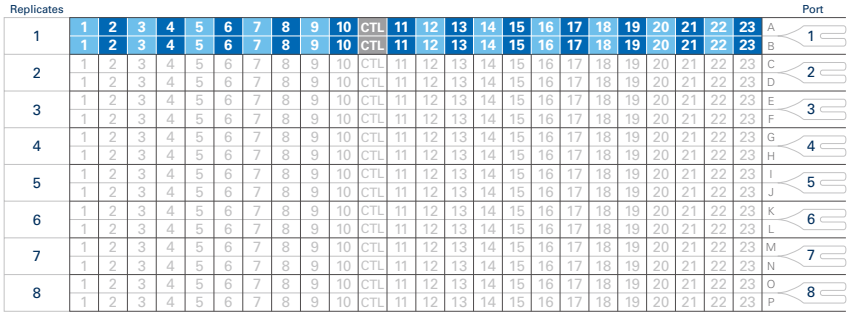
Format 16 (P/N 4346798)

15 unique assays + 1 mandatory control
8 unique samples



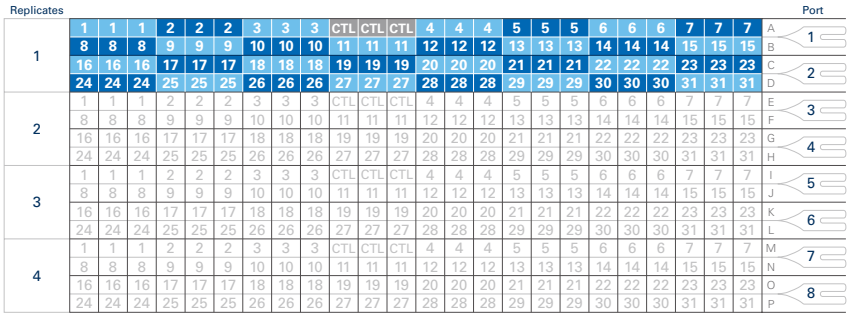
Format 24 (P/N 4342249)

23 unique assays + 1 mandatory control
8 unique samples



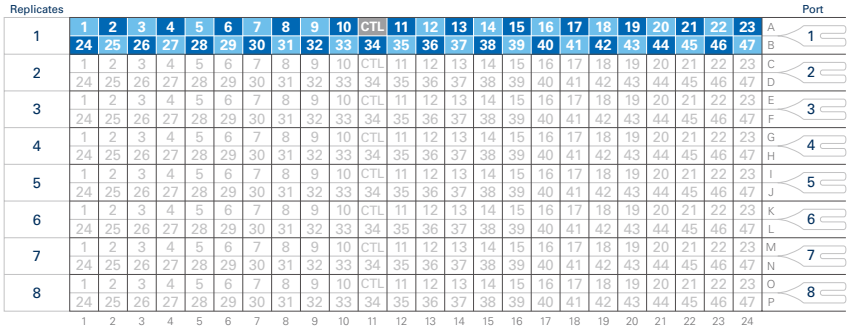
Format 32 (P/N 4346799)

31 unique assays + 1 mandatory control
4 unique samples



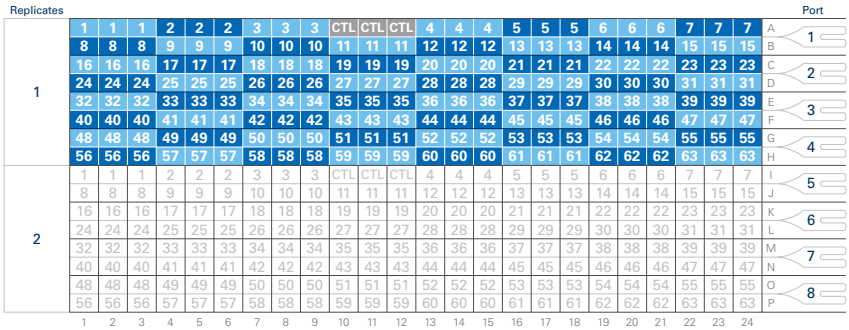
Format 48 (P/N 4342253)

47 unique assays + 1 mandatory control
8 unique samples



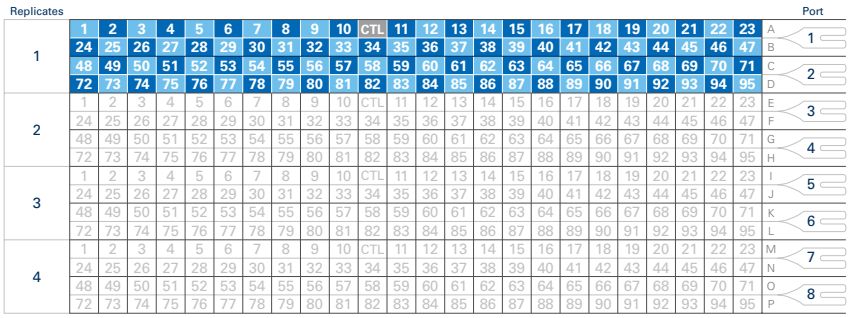
Format 64 (P/N 4346800)

63 unique assays + 1 mandatory control
2 unique samples



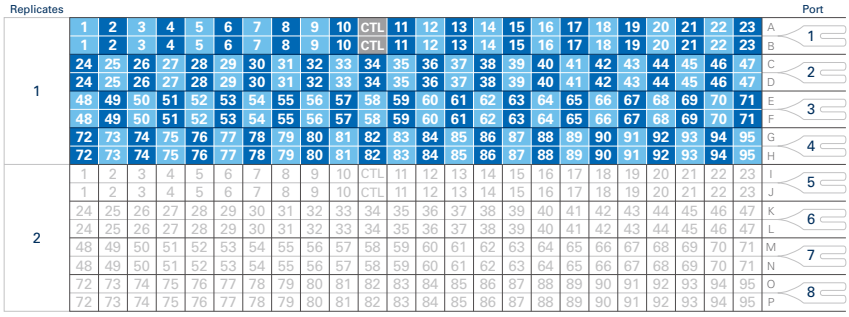
Format 96a (P/N 4342259)

95 unique assays + 1 mandatory control
4 unique samples



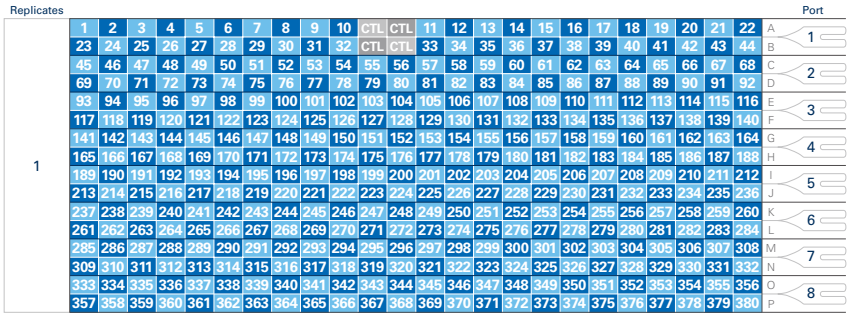
Format 96b (P/N 4342261)

95 unique assays + 1 mandatory control
2 unique samples



Format 384 (P/N 4342265)

380 unique assays + 4 mandatory controls
1 unique sample



Custom TaqMan® Probes and Primers

- Choice of dye labels, quenchers, and synthesis scales
- Available for any species or organism
- For use in quantitative gene expression, SNP genotyping, other allelic discrimination applications, and pathogen detection

When you know the exact sequences you need for your TaqMan® probes and primers, Applied Biosystems can synthesize them for you. As the market leader in real-time PCR, our high-quality custom products can be used in all of your real-time and end-point PCR applications. These products offer you the ideal in flexibility, whether you prefer to optimize your own reaction formulation, or if you simply require large quantities.

Our Custom TaqMan® Probes and Primers are manufactured at three sites around the world—the United States, the United Kingdom, and Japan—to provide excellent delivery time. Order by fax, e-mail, or online and send your sequences to our synthesizers electronically, reducing delivery time.

Choice of Quenchers

Applied Biosystems Custom TaqMan® Probes incorporate a 5′ reporter dye and a 3′ quencher. Our most popular quencher is a non-fluorescent quencher (NFQ) combined with an MGB (minor groove binder) moiety. The NFQ offers the advantage of lower background signal, which results in better precision in quantitation. The MGB moiety stabilizes the hybridized probe and effectively raises the melting temperature (T_m). This means that MGB probes can be shorter than traditional dual-labeled probes, which make them better suited for allelic discrimination applications. The shorter probe lengths mean that single base mismatches (e.g., SNPs) will have a greater destabilizing effect on an MGB probe, resulting in better discrimination. The shorter length also offers greater design flexibility for all real-time PCR applications.

Applied Biosystems offers the traditional dual-labeled Custom TaqMan Probes with a TAMRA™ dye fluorescent quencher as well. All TAMRA dye TaqMan probes are HPLC purified.

A Selection of Reporter Dyes

Applied Biosystems Custom TaqMan Probes can be ordered with a variety of different reporter dyes to facilitate your multiplexing applications.

Synthesis Scales

TaqMan Custom Probes and Primers are available in a choice of three standard sizes. Each includes a pre-defined quantity of probe or primer to ensure that you get the same amount each time you order and aren't subject to variations in synthesis yield. For larger synthesis scales on these products, please contact your local Applied Biosystems Sales Representative.

Primer Express® Design Software

Applied Biosystems Primer Express® software is available to simplify the probe and primer design process. Primer Express is available for individual users and in multi-user packs. Please check our Web site at **www.appliedbiosystems.com** for more details. If you prefer the convenience of a pre-designed probe and primer set, please check our vast selection of TaqMan® Gene Expression and SNP Genotyping Assays.

Other Fluorescent Dye-Labeled Oligos

Applied Biosystems also offers a host of other custom oligo products for use in many applications, including microsatellite-based linkage mapping, mutation detection, and more.

For more details, visit **www.appliedbiosystems.com**

CUSTOM TAQMAN® PROBES AND PRIMERS

Probe Type (3′ Quencher)	Reporter Dye (5′) Label	Quantity	Probe Length	Part Number
TaqMan® TAMRA™ Dye Probes	6-FAM™, VIC®, or TET™	6,000 pmol	Up to 35 bases	450025
	6-FAM, VIC, or TET	20,000 pmol	Up to 35 bases	450024
	6-FAM, VIC, or TET	50,000 pmol	Up to 35 bases	450003
TaqMan® MGB Probes	6-FAM, VIC, TET, or NED™*	6,000 pmol	13–25 bases	4316034
	6-FAM, VIC, TET, or NED*	20,000 pmol	13–25 bases	4316033
	6-FAM, VIC, TET, or NED*	50,000 pmol	13–25 bases	4316032
Real-Time PCR Primers (sequence detection primers)	N/A	10,000 pmol	N/A	4304970
	N/A	80,000 pmol	N/A	4304971
	N/A	130,000 pmol	N/A	4304972

* Please note that NED dye can give lower signal intensity than FAM, VIC, or TET dye on most Real-Time PCR Systems. The Applied Biosystems 7500 Real-Time PCR System has been optimized to yield higher signal intensity for NED dye.

TaqMan® MicroRNA Assays

- Highly specific—quantitate only the biologically active mature miRNAs
- Sensitive—conserves limited samples; requires only 1-10 *nano*grams of total RNA or equivalent
- Wide dynamic range—up to seven logs—detect high and low expressors in a single experiment
- Fast, simple, and scalable—two-step qRT-PCR assay provides high-quality results in less than three hours
- Broad coverage—choose from human, mouse, rat, *Arabidopsis*, *C. elegans*, and *Drosophila* genes

By making novel adaptation in assay design, Applied Biosystems is able to bring our gold standard specificity, sensitivity, and simplicity of TaqMan® Assays and real-time PCR to miRNA detection and quantitation.

The basis of TaqMan® MicroRNA Assays is a target-specific stem-loop structure, reverse-transcriptase primer. Its innovative design overcomes a fundamental problem in miRNA quantitation: the short length of mature miRNAs (~22 nt) prohibits conventional design of a random-primed RT step followed by a specific real-time assay. The stem-loop accomplishes two goals: 1) specificity for only the mature miRNA target, and 2) formation of a RT primer/mature miRNA-chimera, extending the 5′ end of the miRNA. The resulting longer RT amplicon presents a template amenable to standard real-time PCR, using TaqMan Assays.

To ensure accurate results, every individual TaqMan MicroRNA Assay design has been functionally validated under laboratory conditions.

Distinguish Between Highly Homologous Mature miRNAs

TaqMan MicroRNA Assays are not only specific for mature miRNAs, they can also successfully distinguish between highly homologous targets. As many miRNA family members (i.e. the let-7 miRNA family) differ in sequence by as little as one base, real-time PCR using TaqMan Assays gives the specificity needed for differentiation.

Requires Only Minimal Starting Materials

TaqMan MicroRNA Assays are extremely sensitive—researchers need only 1–10 *nano*grams of purified total RNA or equivalent to reliably quantify their miRNAs of interest, not the several *micro*grams typically required for hybridization-based methods.

Unparalleled Dynamic Range

TaqMan MicroRNA Assays deliver the wide linear dynamic range TaqMan Assays are known for—up to seven logs. This means that researchers can accurately quantitate miRNA targets varying from a few copies to millions of copies in the same experiment. This is an important factor given the wide range of miRNA concentrations within and across different cells, tissue types, and disease states.

Fast Time-to-Results

By taking advantage of gold-standard TaqMan® reagent-based technology with universal thermal cycling conditions, TaqMan MicroRNA Assays are familiar, fast, and easy to set up. Just start with your total RNA sample, and get results in less than three hours using any Applied Biosystems Real-Time PCR System.

Convenient and Scalable Solution

TaqMan MicroRNA Assays are pre-designed, functionally validated, and available off-the-shelf from Applied Biosystems, making them extremely convenient. Spend your valuable time generating results, not designing and troubleshooting assays.

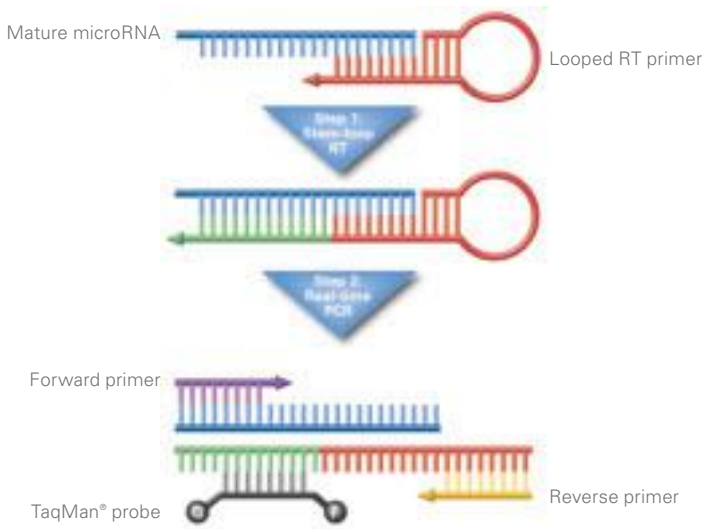
Broad Range of Species

TaqMan MicroRNA Assays are available for a range of species, including human, mouse, rat, *Drosophila*, *C. elegans*, and *Arabidopsis*. Endogenous controls for human and mouse assays are also available. Applied Biosystems will continue to increase the number of TaqMan MicroRNA Assays for these species, with the goal of keeping aligned with the Sanger miRBase Registry (**http://microRNA.sanger.ac.uk/sequences/index.shtml**).

TaqMan® MicroRNA Reverse Transcription (RT) Kit

The TaqMan® MicroRNA RT Kit provides the necessary components for optimal performance of TaqMan MicroRNA Assays. Components of this kit are used with the RT primer provided with the MicroRNA Assay to convert miRNA to cDNA. This kit is available in 200 or 1,000-reaction sizes.

Additional TaqMan MicroRNA Assay Products will become available in the near future. Register for product updates at **mirna.appliedbiosystems.com**.



TaqMan® MicroRNA Assays.
A simple, two-step mechanism brings the advantages of real-time PCR to miRNA quantitation.

TaqMan® PreAmp Master Mix Kit

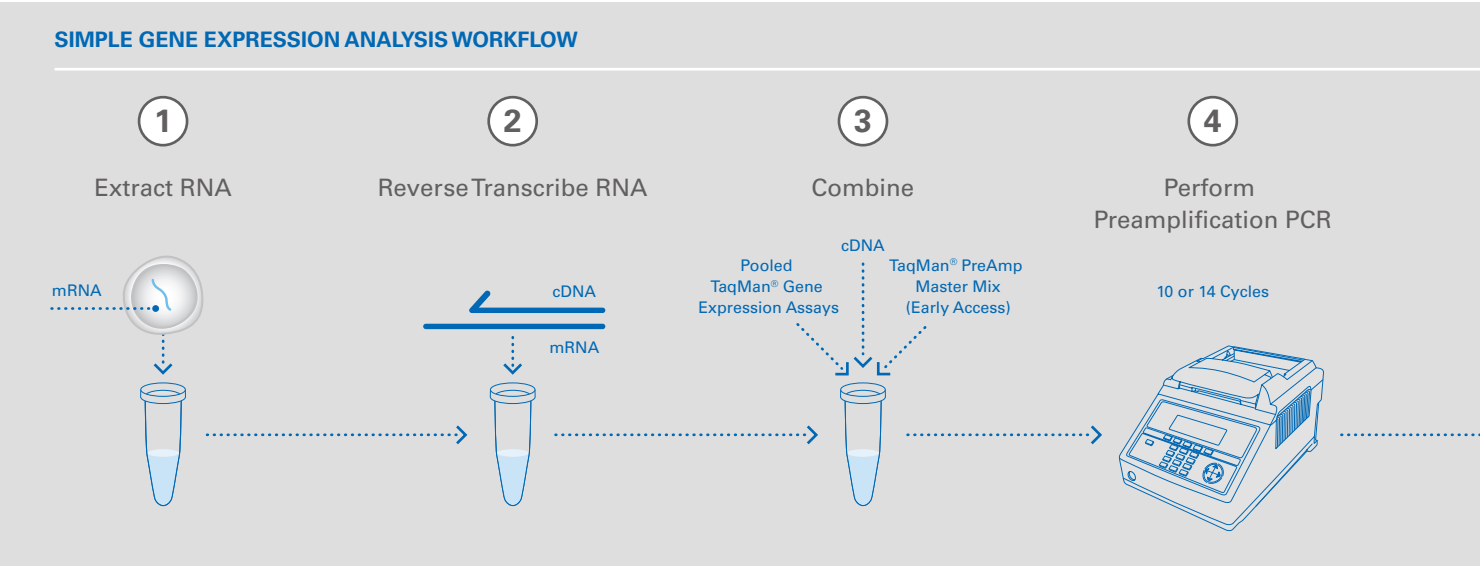
- Amplifies cDNA targets equally without introducing bias
- Multiplex up to 100 gene expression targets with minimal hands-on time
- Stretches 1 ng of cDNA into 200 real-time PCR reactions for gene expression analysis using TaqMan® Gene Expression Assays
- Ideal for laser capture microdissections, needle biopsies, and paraffin-embedded tissues

New TaqMan® PreAmp Master Mix (Early Access) from Applied Biosystems preamplifies small amounts of cDNA without introducing amplification bias to the sample. Gene expression analysis of scarce cDNA is no longer inaccurate and labor-intensive. The TaqMan PreAmp Master Mix Kit uniformly enriches 1 to 250 ng of starting cDNA material for up to 100 gene targets using a pool of TaqMan® Gene Expression Assays as a source of primers. The PreAmp kit provides a simple, easy workflow and quantitative, reproducible results.

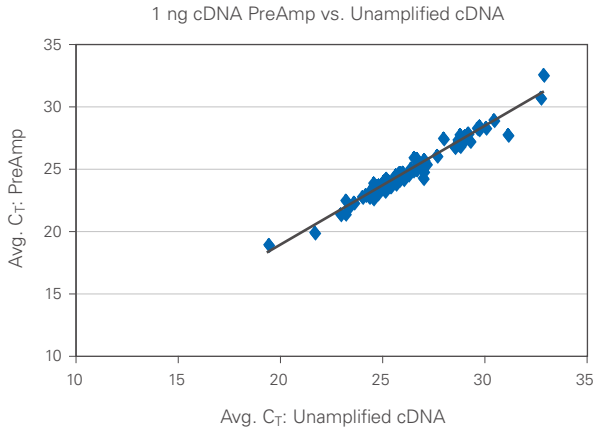
The standard real-time PCR reaction for gene expression analysis starts with the reverse transcription of total RNA to cDNA using random primers, followed by real-time PCR using a probe and gene-specific primers. With the TaqMan PreAmp Master Mix, an intermediate multiplex step between reverse transcription and real-time PCR is performed in which the cDNA is enriched for up to 100 gene targets using a pool of TaqMan Gene Expression Assays. The preamplification reaction is cycled for 10 or 14 cycles to generate approximately 1,000- to 16,000-fold amplification of each gene-specific target. The resulting preamplified reaction is diluted and serves as the starting material for the subsequent singleplex real-time PCR with each of the individual TaqMan Gene Expression Assays represented in the assay pool.

Uniform, Unbiased Amplification

TaqMan PreAmp Master Mix has been shown to provide virtually no difference in the $\Delta\Delta C_T$ between preamplified cDNA



The complete workflow for analyzing gene expression using TaqMan® PreAmp Master Mix. The preamplification step takes only 15 additional minutes of hands-on time and 1.5 hours of cycling time.



The average C_T values for preamplified reactions are plotted along the y-axis and the average C_T values for the control (unpreamplified) cDNA sample (3 ng/reaction) are plotted along the x-axis. This graph has an R^2= 0.977.

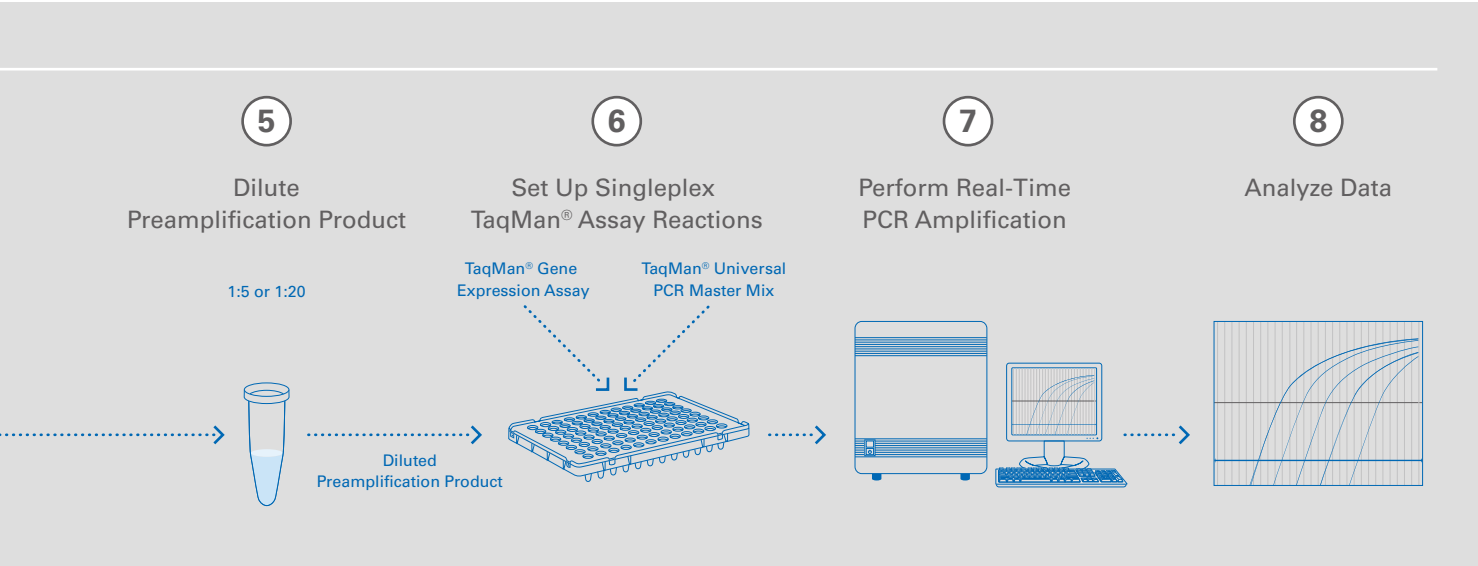
from 1 ng to 250 ng of starting material and control cDNA. For these preamplified targets, TaqMan PreAmp Master Mix provides extremely high correlation between the C_T values for cDNA and control cDNA for 1 ng and 25 ng of starting material (data above).

Reliable and uniform preamplification enables researchers to analyze gene expression for limited quantities of cDNA samples from needle biopsies, laser capture microdissections (LCMs), and formalin-fixed paraffin-embedded (FFPE) samples.

Complete Product Suite for Seamless Workflow

The TaqMan PreAmp Master Mix Kit comes with the new TaqMan® PreAmp Master Mix and our TaqMan® Universal PCR Master Mix. Both reagents work in tandem to provide optimal preamplification of cDNA. In addition to the TaqMan PreAmp Master Mix Kit, other Applied Biosystems products required for successful preamplification of cDNA include:

- TaqMan Gene Expression Assays
- High Capacity cDNA Reverse Transcription Kit
- GeneAmp® PCR System 9700
- Applied Biosystems 7300, 7500, 7500 Fast or 7900HT Fast Real-Time PCR System



Visit **www.appliedbiosystems.com** for complete information on each of these integral products.

Product Specification Comparison

	Fill Volumes	Number of Reactions	Available Reporter Dye Labels	Universal Formulation	Approximate Delivery Time	Part Number
TaqMan® Gene Expression Assays						
Inventoried	250 µL, 20X	250 (@20 µL)	FAM™	Yes	2–3 days	4331182
Made-to-Order	360 µL, 20X	360 (@20 µL)	FAM	Yes	5–10 days	4351372
Custom TaqMan® Gene Expression Assays						
Small-scale	360 µL, 20X	360 (@20 µL)	FAM	Yes	10–14 days	4331348
Medium-scale	750 µL, 20X	750 (@20 µL)	FAM	Yes	10–14 days	4332078
Large-scale	967 µL, 60X	2,900 (@20 µL)	FAM	Yes	10–14 days	4332079
TaqMan® Endogenous Controls						
Primer limited			VIC®	Yes		Various—see page 8
Not primer limited			FAM	Yes		Various—see page 8
Custom TaqMan® Probes and Primers			FAM	No	4–7 days	Various—see page 14
			VIC	No	4–7 days	Various—see page 14
			TET™	No	4–7 days	Various—see page 14
			NED™	No	4–7 days	Various—see page 14
TaqMan® PreAmp Master Mix	1 mL	40 (@50 µL)			2–3 days	4364130
TaqMan® MicroRNA Assays		150 (@20 µL)	FAM	Yes	2–3 days	Multiple*
Custom TaqMan® Low Density Arrays†		384 (@1 µL)			4–6 weeks	Various—see page 10
TaqMan® Low Density Array Gene Signature Panels‡		384 (@1 µL)			2–3 days	Various—see page 20

* Visit **mirna.appliedbiosystems.com** for the current list of available miRNA assays.

† Choose from any Inventoried TaqMan Gene Expression Assays.

‡ Pre-defined panels of TaqMan Gene Expression Assays.

TaqMan® Low Density Array Gene Signature Panels

Gene Signature Panel Name	Number of Targets/Controls	Format	Pack Size	Part Number
Human Immune Panel	90/6	Format 96a	4 cards/pack	4370573
Mouse Immune Panel	90/6	Format 96a	4cards/pack	4367786
Human Protein Kinase Panel	94/2	Format 96a	4 cards/pack	4367786
Human GPCR Panel	367/14	Format 384	4 cards/pack	4367785
Mouse GPCR Panel	365/16	Format 384	4 cards/pack	4378703
Human ABC Transporter Panel	50/14	Format 64	4 cards/pack	4378700
Human Apoptosis Panel	93/3	Format 96a	4 cards/pack	4378701
Human Endogenous Control Panel	16	Format 16	2 cards/pack	4367563
Mouse Endogenous Control Panel	16	Format 16	2 cards/pack	4378702
Rat Endogenous Control Panel	16	Format 16	2 cards/pack	4378704

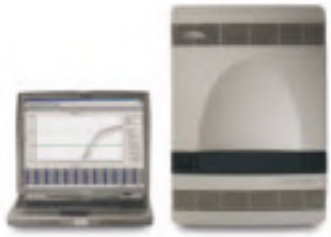
More panels will be available soon. Register to receive new Gene Signature Panel product announcements, or suggest a panel at **tlda.appliedbiosystems.com**

Applied Biosystems Real-Time PCR Systems

Applied Biosystems Real-Time PCR Systems make real-time PCR more accessible than ever before by providing powerful solutions to fit the needs of any laboratory. These systems are easy to use with next generation software, and of course, they're backed by Applied Biosystems unmatched track record of performance, quality and long-term reliability.

Applied Biosystems 7900HT Fast Real-Time PCR System—the ultimate in performance and flexibility

- User-interchangeable block options include 384-well, 96-well, TaqMan® Low Density Array and Fast 96- and 384-well
- Extended-life 488 nm argon-ion laser combined with continuous wavelength detection from 500–660 nm provides unmatched dye resolution capabilities
- Automation Accessory provides walk away automation for unmatched throughput
- Enterprise Edition Software enables hundreds to thousands of plates to be analyzed simultaneously and assists with 21 CFR part 11 compliance



Applied Biosystems 7500 and 7500 Fast Real-Time PCR Systems—versatile platforms for users requiring extended capabilities

- Advanced five-color optical configuration supports a broader range of fluorophores, with variable excitation capability allowing greater sensitivity for longer wavelength (red) dyes
- A high-speed 96-well thermal cycling block option enables real-time PCR results in under 40 minutes
- User-customizable SDS v1.4 21CFRp11 Module offers all the tools needed to assist you with compliance for FDA 21CFR Part 11 regulations

Applied Biosystems 7300 Real-Time PCR System—an economical solution setting the standard for the basic researcher

- Four-color detection provides the flexibility to perform all major applications
- Powerful and versatile software makes experimental set-up and data processing simple and straightforward
- Precision optics and a charge-coupled device (CCD) camera provide highly accurate, reproducible and reliable results
- Patented sample temperature control provides superior reproducibility and consistent, high-quality results

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www.appliedbiosystems.com/about/offices.cfm

applied biosystems

TaqMan Gene Expression Assay solutions

Proven performance for fast, reliable results

ThermoFisher SCIENTIFIC

The leader in gene expression analysis

We are the leader in gene expression analysis, providing world-class sample preparation with Applied Biosystems™ technologies, real-time PCR using Applied Biosystems™ TaqMan™ or Applied Biosystems™ SYBR™ Green chemistry, and industry-leading real-time PCR instruments and data analysis software.

Applied Biosystems™ TaqMan™ assay technology is the gold standard in performance, quality, and content for gene expression analysis. Developed using long-standing bioinformatic expertise in primer and probe design, and stringent testing across applications and integrated platforms, TaqMan Assays provide you with the most reliable and robust real-time PCR solutions.

With over one and a half million predesigned and preoptimized assays across a growing list of model species, a wide range of formats to scale to your needs, and a robust manufacturing quality system, we have a complete suite of solutions that will enable you to get fast, reliable, and accurate gene expression results.

Contents

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Flexible formats	12
Complementary reagents	16
Support at every step of your workflow	18

TaqMan Gene Expression Assays

Proven 5´ nuclease–based real-time PCR chemistry

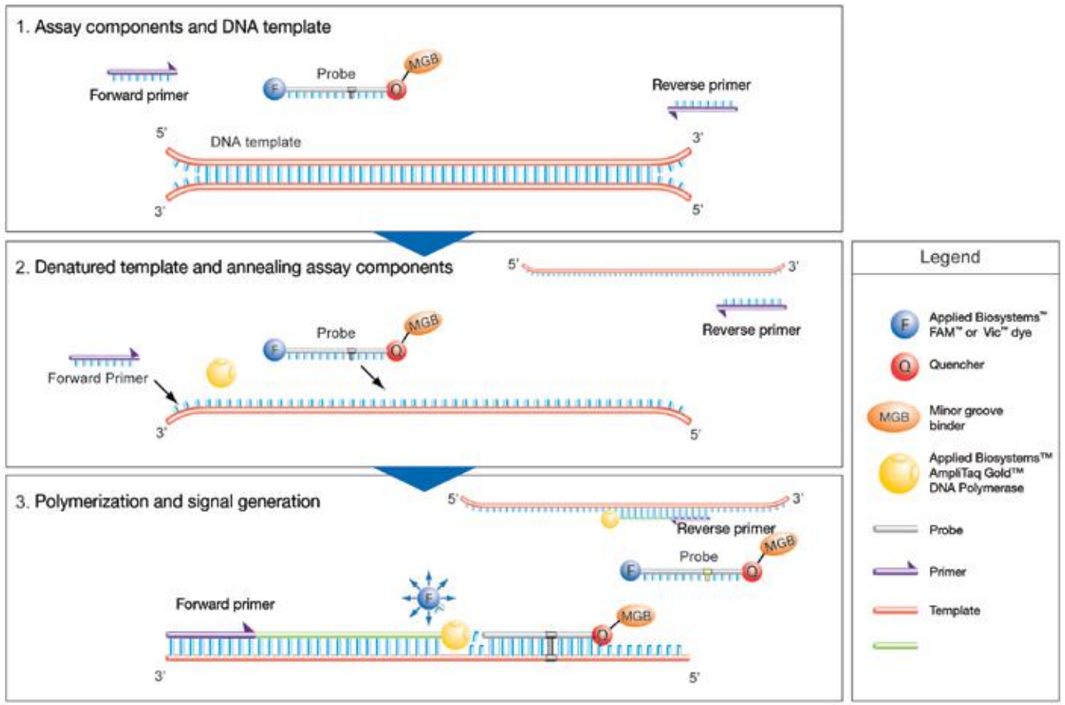
Get results you can trust

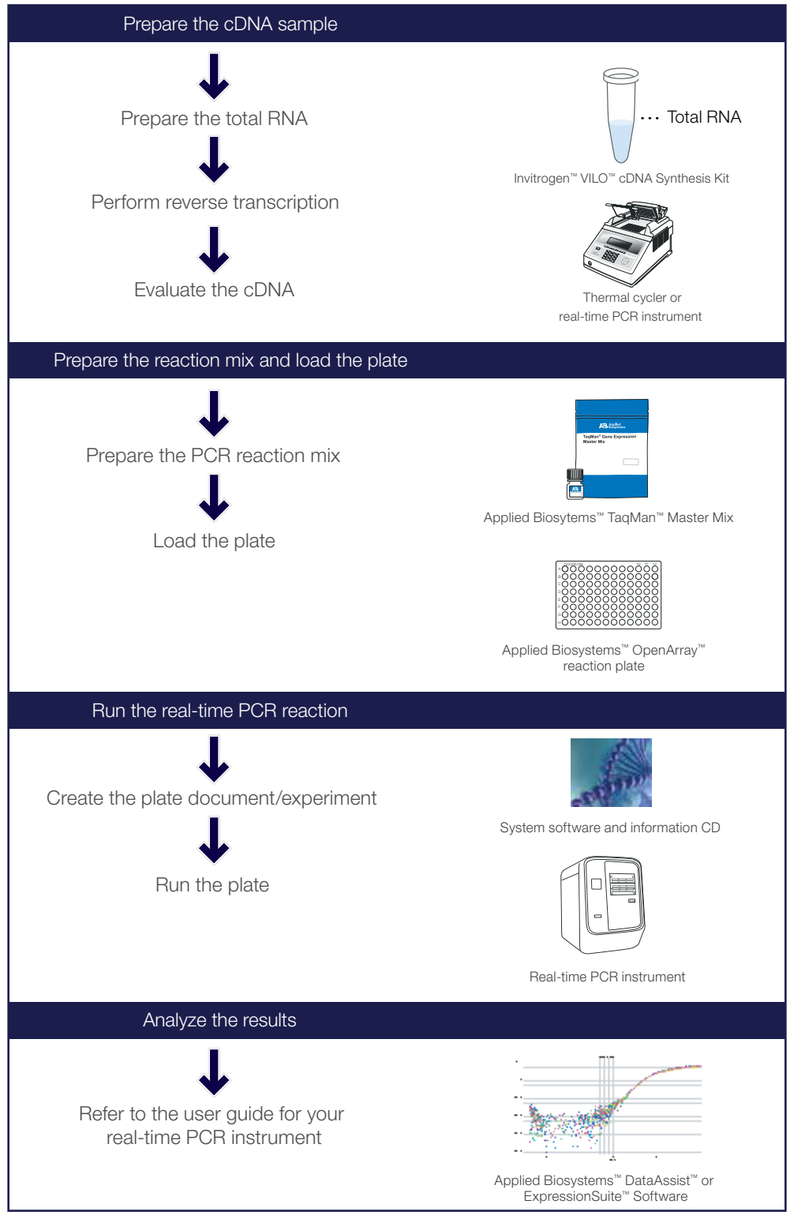
TaqMan Gene Expression Assays are referenced in tens of thousands of publications and are considered the gold standard for gene expression quantification by scientists around the world.

TaqMan Gene Expression Assays are based on 5´ nuclease chemistry, and each assay contains the primer and probe set for your target of interest. Here's how an assay works (Figures 1 - 3):

1. At the start of the real-time PCR reaction, the temperature is raised to denature the double-stranded cDNA. During this step, the signal from the fluorescent dye on the 5´ end of the Applied Biosystems™ TaqMan™ probe is quenched by the MGB–nonfluorescent quencher on the 3´ end of the probe.
2. In the next step, the reaction temperature is lowered to allow the primers and probe to anneal to their specific target sequences.
3. Taq polymerase synthesizes a complementary DNA strand using the unlabeled primers and template. When the polymerase reaches the TaqMan probe, its endogenous 5´ nuclease activity cleaves the probe, separating the dye from the quencher.

With each cycle of PCR, more dye molecules are released, resulting in an increase in fluorescence intensity proportional to the amount of amplicon synthesized.





The largest selection of predesigned assays

Spend time on results, not assay design and optimization

With TaqMan predesigned assays, spend your time generating results, not designing and optimizing assays.

- Detect virtually any gene product—more than 1.5 million predesigned assays, and custom design for everything else
- Assays for nearly every human, mouse, and rat gene in the RefSeq database
- Available for 25 species, and some pathogens
- Assays for multiple locations per transcript and across nearly every exon junction in human
- Strain-neutral assays for mouse and rat

To learn more and order, go to **thermofisher.com/taqmangex**

- Not finding what you're looking for in our predesigned assay collection? The Applied Biosystems™ Custom TaqMan™ Assay Design Tool lets you design and order a TaqMan Assay to detect any gene from any organism. Design and order your assays at **thermofisher.com/cadt** Custom TaqMan Assays are typically delivered in 5–12 business days.
- Also, try Applied Biosystems™ TaqMan™ Endogenous Controls—a collection of TaqMan Assays targeting commonly used control gene products for sample input normalization in real-time PCR.

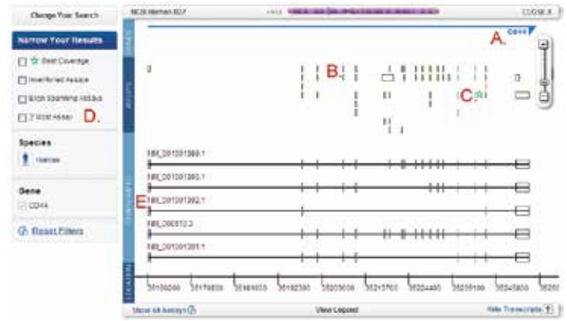
Predesigned TaqMan Gene Expression Assays
(as of November 2015)

Species	Number of assays	Gene coverage (%)*
Human *(H. sapiens)*	205,707	99.8%
Mouse *(M. musculus)*	176,510	99.5%
Chinese hamster *(C. griseus)*	154,743	88.2%
Rat *(R. norvegicus)*	146,589	89.2%
Cow *(B. taurus)*	103,562	99.6%
Rice *(O. sativa)*	99,822	95.6%
Arabidopsis *(A. thaliana)*	97,879	93.8%
Nematode *(C. elegans)*	92,687	95.1%
Rhesus monkey *(M. mulatta)*	69,310	55.8%
Zebrafish *(D. rerio)*	63,712	77.3%
Frog *(X. tropicalis)*	56,764	87.3%
Dog *(C. familiaris)*	55,558	64.3%
Chicken *(G. gallus)*	48,432	85.1%
Fruit fly *(D. melanogaster)*	41,607	94.0%
Sweet corn *(Z. Mays)*	38,493	59.5%
Cynomolgus monkey *(M. fascicularis)*	37,652	80.5%
Pig *(S. scrofa)*	16,247	90.3%
Fission yeast *(S. pombe)*	6,538	94.3%
Rabbit *(O. cuniculus)*	5,927	80.9%
Baker's yeast *(S. cerevisiae)*	5,524	93.4%
Horse *(E. caballus)*	3,891	72.8%
Soybean *(G. max)*	3,456	13.5%
Guinea pig *(C. porcellus)*	2,037	64.3%
Grape *(V. vinifera)*	965	25.3%
Wheat (T. aestivum)	760	43.6%
Summary	**1,534,372**	**81.1%, 25 species**

*Percent coverage refers to genes in the RefSeq database.

There are multiple assays for my gene product. How do I choose the right one?

Genomic alignment maps on our website make it easy to see exactly what gene products are detected and how they align to the genomic locus. The top of the map shows the target gene. Below it, all TaqMan Gene Expression Assays for target gene products are shown relative to the genomic locus map. The known transcripts from the locus are shown below, with their RefSeq accession numbers.



A. Gene symbol

B. Alignment of TaqMan amplicons to the gene. Hover over an assay to see its name and assay number as well as the transcripts it detects. Click on an assay to open an assay details pane for more information and to add the assay to your shopping cart.

C. Assays providing the best coverage are marked with a star symbol.

D. Narrow your results by specifying the type of assay you need.

E. All RefSeq transcripts that map to the gene locus, showing exon usage

The TaqMan Assays qPCR guarantee

We stand behind every predesigned TaqMan Assay. We are committed to helping you achieve your research goals and believe our predesigned TaqMan primer and probe sets establish the benchmark for high-quality and easy-to-use real-time PCR products.

We want you to be happy with your purchase and confident in the genomic tools we provide. Therefore, we guarantee every TaqMan Assay in terms of:

- **Quality**—high-quality manufacturing for reproducible results from lot to lot
- **Performance**—superior sensitivity, specificity, and accuracy
- **Content**—the largest collection of primer and probe sets using the world's best and most extensively validated assay design pipeline
- **Results**—enables you to obtain data you can trust

If you are not satisfied with the performance of a predesigned TaqMan Assay, we'll replace it at no cost or credit your account. For more information, and to see the full terms and conditions of the guarantee, go to **thermofisher.com/taqmanguarantee**

Proven performance

Reliable reagents for confidence in your results

TaqMan MGB probes bind more tightly—shorter, more specific probes

TaqMan probes include an MGB moiety at the 3′ end that increases the T_m of the probe and stabilizes probe–target hybrids. This means that TaqMan probes can be significantly shorter than traditional probes, providing better sequence discrimination and flexibility to accommodate more targets.

Nonfluorescent quencher (NFQ) maximizes sensitivity

TaqMan probes incorporate an NFQ to absorb (quench) signal from the fluorescent FAM or VIC dye label at the other end of the probe. The properties of the NFQ combined with the short length of MGB probes result in lower background signal than with non-MGB/NFQ probes. Lower background noise results in increased sensitivity and precision in your data.

TaqMan probe outperforms non-MGB probe in real-time PCR

	C_t		Standard deviation	
Input	TaqMan Assay	Non-MGB assay	TaqMan Assay	Non-MGB assay
10 ng	9.72	13.35	0.02	0.15
1 ng	13.36	16.82	0.04	0.18
0.1 ng	16.76	20.23	0.07	0.13
10^{-2} ng	20.19	23.72	0.04	0.13
10^{-3} ng	23.64	27.31	0.03	0.10
10^{-4} ng	27.01	30.66	0.04	0.12
10^{-5} ng	30.24	32.82	0.13	0.19

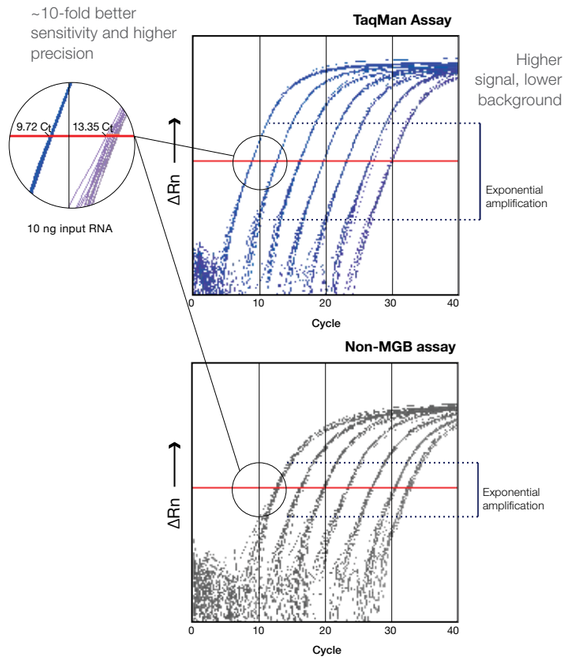


Figure 2. TaqMan probes provide better sensitivity and precision. Comparison of two 5′ nuclease PCR assays for 18S rRNA. Ten-fold dilutions of Universal Human Reference RNA (10–10^{-5} ng) were prepared and analyzed in 11 replicate real-time PCR reactions using either the TaqMan Gene Expression Assay (FAM dye–labeled, with NFQ) or the non-MGB assay (FAM dye–labeled, with BHQ). Real-time PCR was run according to the respective manufacturers' recommended conditions. Across a 6-log range of input template, the TaqMan Assay displayed earlier C_t values and better reproducibility across all data points. In addition, the TaqMan Assay had higher signal and lower background, resulting in better sensitivity and higher precision.

- **Specificity:** Advanced primer/probe sequence selection criteria plus MGB probe enhancement deliver the specificity and reproducibility you need for confidence in your results. Your results are generated from amplification of the intended target, not from nonspecific dye binding or amplification of closely related genes or pseudogenes.
- **Sensitivity:** The NFQ on TaqMan probes minimizes background, and intelligent PCR primer and probe design maximizes amplification efficiency. Get better sensitivity and accuracy—reliably detect targets present at 10 or fewer copies.
- **Reproducibility:** Accurately reproduce results from well to well, day to day, and lab to lab—even across manufacturing lots.
- **Wide dynamic range:** Detect from a handful to millions of target molecules with the same reaction setup. Capture the full spectrum of expression variability in virtually any experimental scenario.
- **High amplification efficiency:** All TaqMan Gene Expression Assays have a PCR efficiency of 100% (±10%). Use the comparative C_t ($\Delta\Delta C_t$) method of quantification confidently.
- **Ease of use:** All assays use a single, universal thermal cycling profile. Run any assay combination on a single plate. Avoid instrument-programming errors.
- **Comprehensive assay information:** Genomic mapping data are provided prior to purchase.

Detect as few as 10 target molecules with high sensitivity and large dynamic range

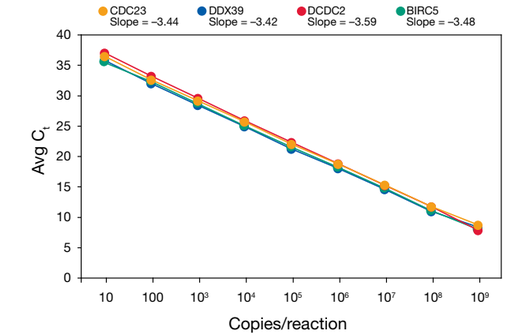


Figure 3. Sensitivity and wide dynamic range. Sequential 10-fold dilutions of synthetic sense RNA corresponding to 4 gene products—CDC23, DDX39, DCDC2, and BIRC5—were added to a background of yeast RNA to evaluate the sensitivity and dynamic range of TaqMan Gene Expression Assays. Samples containing 50 to 5 x 109 target molecules were reverse transcribed, and 20% of each RT reaction was used in quadruplicate PCR reactions using TaqMan Gene Expression Master Mix. Reactions containing as few as 10 copies were detected (C_t ~35).

Reproducible quantification with virtually 100% amplification efficiency

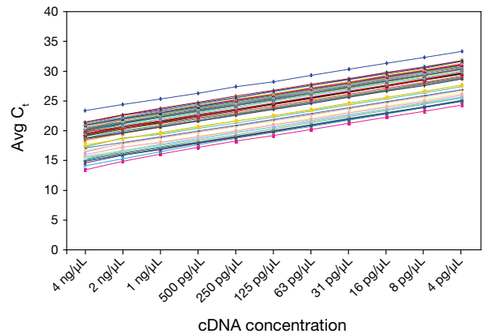


Figure 4. Reliable performance and wide dynamic range. TaqMan Gene Expression Assays were used to analyze expression of 60 targets across a 2-fold dilution series of universal reference cDNA, from 4 ng/µL to 4 pg/µL. The average slope of the lines is 1.02. TaqMan Assays exhibit virtually 100% amplification efficiency at each cycle of PCR: each target molecule is copied, doubling the fluorescence signal.

Specificity for your mRNA target

TaqMan Assay design helps ensure target mRNA specificity: readily distinguish even highly homologous sequences

Specificity is built into the TaqMan Assay design pipeline. As a result, assays detect only their intended targets. Even TaqMan Gene Expression Assays for members of highly homologous gene families typically amplify their targets with C_t values at least 10 cycles earlier than the closest homolog, or with at least 1,000-fold discrimination if equal numbers of the two targets are present.

TaqMan Gene Expression Assays are designed to detect only their intended targets, easily discriminating among highly homologous sequences.

HOX gene family members *HOXA10*, *HOXC10*, and *HOXD10* share ~80% sequence homology

Gene	RefSeq ID	TaqMan Assay ID	Homology
HOXA10	NM_018951.3	Hs00172012_m1	—
HOXC10	NM_017409.3	Hs00213579_m1	81%
HOXD10	NM_002148.3	Hs00157974_m1	79%

Clear gene expression results for HOX gene family members

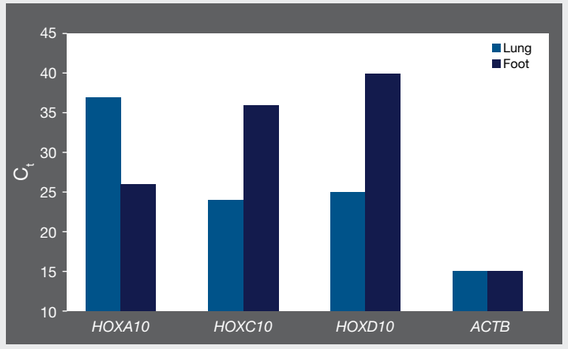


Figure 5. TaqMan Gene Expression Assays detect only their intended targets, even among the highly homologous HOX gene family members. In vertebrates, as in *Drosophila*, location-appropriate expression of members of the HOX gene family is essential for normal embryogenesis. Tissue-specific expression of 3 closely related HOX genes, comparable to published data, was easily detected using TaqMan Gene Expression Assays.

Advanced bioinformatics

TaqMan Gene Expression Assays are designed using our sophisticated design pipeline that has been stringently validated by functionally testing more than 18,000 assays (a statistically significant subset). Since then, our customers have consistently confirmed through their own validation experiments that TaqMan Gene Expression Assays enable reliable, reproducible results.

This process is used to design all TaqMan Gene Expression Assays, including inventoried assays, made-to-order assays, and Applied Biosystems™ Custom Plus assays. We offer ~73,000 inventoried assays and over 1.5 million made-to-order assays, which are manufactured when an order is placed. Applied Biosystems™ Custom Plus TaqMan™ RNA Assays are ideal for newly identified genes and specific splice variants, and offer the same performance as predesigned TaqMan Assays.

TaqMan Assay design and manufacture

Target selection
mRNA sequences (NCBI)

Preprocessing
–Map to genome
–Mask SNPs, repeats, and discrepancies
–Identify exon–exon junction

Assay design
Thermodynamic and chemistry parameters
–Balance T_m for universal thermal cycling
–Avoid secondary structure, optimize GC content
–Optimize amplicon size
–Eliminate primer-dimer formation

***In silico* QC**
–Score assays for target specificity
–Score assays for genome specificity

Assay selection
High-quality TaqMan Gene Expression Assays

Perform stringent assay formulation QC

Confirm oligo identity by mass spectrometry

Online ordering

Flexible formats

A variety of formats for different research needs

Configurations to fit your research goals

Are you analyzing hundreds (or thousands) of samples, and expression from a handful of genes? Or does your research involve a few samples that need to be analyzed for a long list of mRNA targets? No matter what experiment you are performing, there is a TaqMan Gene Expression Assay format and real-time PCR instrument for your research needs.

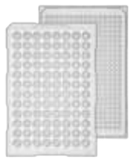
TaqMan Gene Expression Assay formats

Single tubes

- Low entry price
- Flexible
- Run on any real-time PCR instrument

384-well microfluidic cards

- Low cost per reaction
- Optimal for medium to large projects
- Run on Applied Biosystems™ QuantStudio™ 7 & 12K Flex, ViiA™ 7, and 7900HT Real-Time PCR Systems



96- or 384-well plates

- Optimal for small to medium projects
- Balances flexibility with streamlined reaction setup
- Run on any 96- or 384-well real-time PCR instrument

OpenArray plates

- Lowest cost for large projects
- Ultimate throughput
- Run on QuantStudio 12K Flex Real-Time PCR System

TaqMan Gene Expression Assays (single tubes)

Predesigned assays come in four different sizes so that you can order only the number of assays appropriate for your research. In addition, for made-to-order assays in small, medium, and large sizes, you can choose FAM or VIC dye labeling, and non–primer-limited or primer-limited formulation. (Extra small assays are only available with FAM dye labels.)

For more information, go to **thermofisher.com/allgenes**

Size	No. of reactions*	Concentration	Reporter dye	Cat. No.
Extra small (inventoried)†	75	20X	FAM	4453320
Extra small (made-to-order)‡	75	20X	FAM	4448892
Small (inventoried)†	250	20X	FAM	4331182
Small (made-to-order)‡	360	20X	FAM or VIC	4351372, 4448489 (VIC) 4448484 (VIC-PL**)
Medium (made-to-order)‡	750	20X	FAM or VIC	4351370, 4448490 (VIC) 4448485 (VIC-PL**)
Large (made-to-order)‡	2,900	60X	FAM or VIC	4351368, 4448491 (VIC) 4448486 (VIC-PL**)

*Reaction number is based on 20 µL reaction size.
**Primer-limited.
† Inventoried assays are typically delivered in 1–4 business days.
‡ Made-to-order assays are typically delivered in 5–12 business days.

Applied Biosystems™ TaqMan™ Arrays: 96-well plates or 384-well microfluidic cards

- Configure a Custom TaqMan Array containing inventoried predesigned assays, or select from our gene signature assay collections
- TaqMan Gene Expression Assays are loaded into one of two TaqMan Array formats: 96-well plates (Fast or standard) or 384-well microfluidic cards

(To include made-to-order or custom assays on your plate or card, order using our Applied Biosystems™ TaqMan™ Custom Plating Service, or contact your sales representative for other options.)

Custom TaqMan Array 96-well plates

- Choose any inventoried TaqMan Gene Expression Assay
- 6-plate minimum order
- Choose standard (20 µL rxn) or Fast (10 µL rxn) format

Typically delivered in 4–14 business days

To learn more and order, go to **thermofisher.com/arrayplates**

Assays + controls	Assay replicates	Samples per plate	Name	Cat. No. (standard)	Cat. No. (Fast)
95 + 1*	1	1	Format 96	4391524	4413255
92 + 4**	1	1	Format 96 +	4391525	4413256
47 + 1*	2	1–2	Format 48	4391526	4413257
44 + 4**	2	1–2	Format 48 +	4391527	4413258
31 + 1*	3	1–3	Format 32	4391528	4413259
28 + 4**	3	1–3	Format 32 +	4391529	4413260
15 + 1	6	1–6	Format 16	4413264	4413261
12 + 4	6	1–6	Format 16 +	4413265	4413262
7 + 1	12	1–12	Format 8	4413266	4413263

*Available with one manufacturing control assay for 18S ribosomal RNA. These formats are required for plates with assays for rhesus, canine, or a mixture of species.
**Includes the manufacturing control assay for 18S ribosomal RNA, plus assays for 3 additional candidate endogenous control genes: *GAPDH*, *HPRT1*, and *GUSB*, appropriate for human, mouse, or rat sample analysis.

Custom TaqMan Array 384-well microfluidic cards

- Choose any inventoried TaqMan Gene Expression Assays
- 10-card minimum order
- Run on the QuantStudio 7 & 12K Flex, ViiA 7, and 7900HT Fast Real-Time PCR Systems
- No robotics required: cards have 8 sample-loading ports, each connected to 48 wells containing dried-down TaqMan Assays
- 1 µL reactions (2 µL including channel filling and overage)
- Typically delivered in 3–4 weeks

To learn more and order, go to **thermofisher.com/arraycards**

Assays + controls*	Assay replicates	Samples per card	Name	Cat. No.
11 + 1	4	8	Format 12	4342247
15 + 1	3	8	Format 16	4346798
23 + 1	2 (or 4)	8 (or 4)	Format 24	4342249
31 + 1	3	4	Format 32	4346799
47 + 1	1 (or 2)	8 (or 4)	Format 48	4342253
63 + 1	3	2	Format 64	4346800
95 + 1	1 (or 2)	4 (or 2)	Format 96a	4342259
95 + 1	2 (or 4)	2 (or 1)	Format 96b	4342261
191 + 1	2	1	Format 192	4346802
380 + 4	1	1	Format 384	4342265

*These arrays are available with one manufacturing control assay for 18S ribosomal RNA.

Applied Biosystems™ TaqMan™ Array Gene Signature Plates and Cards

- Predesigned, preloaded TaqMan Assays for gene products specific to pathways, biomarkers, or disease target classes to facilitate drug discovery and disease research
- Endogenous control panels are also available to identify the best housekeeping gene products for your research
- Gene signature plates are typically delivered in 5–10 business days, and gene signature cards in 1–4 business days

Here is a sampling of what's available:

– Apoptosis

– Endogenous controls

– Cancer

– Immune system and inflammation

– Cell cycle proliferation and regulation

– Neurology

– Development and stem cells

– Signal transduction

– ECM matrix and adhesion

– Toxicology and drug metabolism

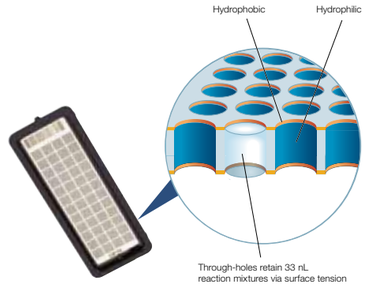
To see the complete collection of 96-well gene signature plates, go to **thermofisher.com/signatureplates**
To see the collection of 384-well gene signature microfluidic cards, go to **thermofisher.com/signaturecards**

OpenArray Real-Time PCR Plates

- TaqMan Assays loaded and dried down into the 3,072 through-holes on OpenArray Real-Time PCR Plates
- Process up to 576 samples to obtain over 43,000 data points, with a single operator in an 8-hour day, without the use of robotics
- For use with the QuantStudio 12K Flex Real-Time System with an Applied Biosystems™ OpenArray™ block configuration and supporting reagent kits only
- OpenArray plates with inventoried assays are typically delivered in 4–5 weeks, and within 5–6 weeks for custom assays

To learn more about OpenArray technology on the QuantStudio 12K Flex system,go to **thermofisher.com/openarray**

Assays + controls	Assay replicates	Samples per plate	Name	Cat. No.
18	3	Up to 48	Format 18	4471124
56	1	Up to 48	Format 56	4471125
112	1	Up to 24	Format 112	4471126
168	1	Up to 16	Format 168	4471127
224	1	Up to 12	Format 224	4471128



TaqMan Custom Plating Service: 96- or 384-well plates

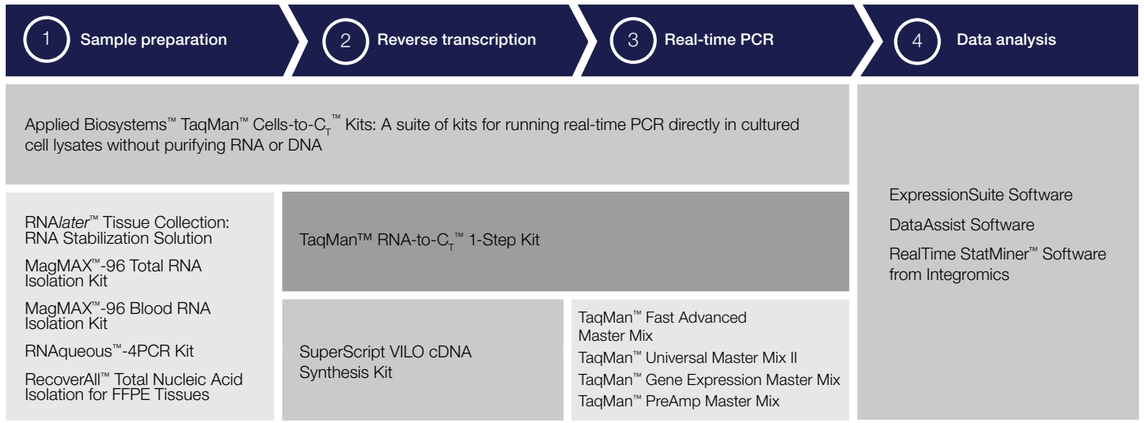
Configure 96- or 384-well plates with any TaqMan Gene Expression Assays, including custom assays designed to your target sequences and made-to-order assays.

- Set up custom configurations of any TaqMan Assays, including inventoried, made-to-order, custom, or Custom Plus gene expression assays or custom TaqMan probes and primers
- Choose 96- or 384-well plate, and Fast or standard format
- Receive in dried-down or liquid formulation
- Typically delivered in 2–5 weeks

Complementary reagents

Everything you need for reliable results

We provide everything you need for real-time PCR analysis, starting with isolating RNA from virtually any sample type, to reverse transcription into cDNA, optional preamplification to stretch small samples for analysis of many gene products, and of course, real-time PCR data analysis.



TaqMan chemistry vs. SYBR Green chemistry for real-time PCR

We offer two types of chemistries to detect PCR products using real-time PCR instruments:

- TaqMan Assay chemistry (also known as “fluorogenic 5´ nuclease chemistry”)
- SYBR Green I dye chemistry

	TaqMan Assay–based detection	SYBR Green–based detection
Overview	Uses a fluorogenic probe to enable the detection of a specific PCR product as it accumulates during PCR cycles	Uses SYBR Green I dye, or similar: dye binds to double-stranded DNA, to detect PCR product as it accumulates during PCR cycles
Specificity	High	Low
Sensitivity—low copies	High	Variable*
Reproducibility	High	Variable*
Multiplexing	Yes	No
Predesigned assays	Yes	No
User design and optimization	No	Yes
Cost	High	Low*
Gene expression quantitation	High	Low
DNA quantitation	Yes	Yes (pathogen detection)
ChIP	Yes	Yes
SNP genotyping	Yes	No
MicroRNA	Yes	No
Copy number	Yes	No
Somatic mutation detection	Yes	No
Pathway analysis	Yes	No

*Depends on template quality and primer design/optimization.

Support at every step of your workflow

Consistent reliability from manufacturing to follow-up

Quality manufacturing and stringent quality control

TaqMan Assays are manufactured in-house under rigorous quality processes at our ISO 13485–certified manufacturing facilities, and are never outsourced.

Comprehensive worldwide support

Whether you need help finding a TaqMan Assay for your target, deciding which format best suits your needs, placing your order through our online ordering system, or setting up your reactions, our global sales and technical support teams are here to help.

Technical support

If you have questions about how to use TaqMan Assays or how to analyze results, call or email our technical support specialists. These scientists are skilled in experimental planning and design, are expert troubleshooters, and are familiar with a wide variety of applications that use TaqMan Assays.

Rapid delivery

We continually strive to minimize delivery time on TaqMan Assay products. To that end, we have implemented streamlined order processing systems that interface with our new manufacturing facilities to help reduce delivery times.

Everything you need to meet the MIQE guidelines for peer-reviewed publications

The Minimum Information for Publication of Quantitative Real-Time PCR Experiments (MIQE) guidelines, published by Bustin et al. in *Clinical Chemistry* (April 2009), are meant to ensure that real-time PCR experiments are meaningful, accurate, and reproducible. We support this initiative and commend the MIQE scientists for their leadership.

We provide the following for easier adherence to these guidelines:

- **TaqMan Assay annotation**—Information requested under the real-time PCR target, oligonucleotide, and protocol sections of the guidelines is provided in your assay shipment and on our website. All biologically relevant information is available, including assay location, transcripts detected, and amplicon size. Protocols with recommended reagents and reaction conditions are also available on our website.
- **Publications**—There are >9,900 peer-reviewed publications that cite TaqMan Assays, so including the TaqMan Assay ID in lieu of sequences is sufficient and widely accepted.
- **Instrument software**—Applied Biosystems™ instrument software reports C_t values for quantification. The C_t can be used to generate standard curves, determine slope, and derive R2 values. To help adhere to the MIQE guidelines, the term quantification cycle (C_q) may be used directly in place of C_t.
- **Data analysis**—We offer data analysis software, including ExpressionSuite and DataAssist Software; simple-to-use tools for calculating relative gene expression using statistical analysis and visualization; and RealTime StatMiner Software (Integromics) for additional statistical analysis workflows.

applied
biosystems

Find out more at **thermofisher/allgenes**

ThermoFisher
SCIENTIFIC

Certificate of Analysis

TAQMAN® GENE EXPRESSION ASSAYS

Sales Order **54786235 (7189900)**
Storage Conditions **-15 °C to -25 °C**

PART NO.	PART DESCRIPTION	ASSAY ID	LOT NO.	GENE SYMBOL	MFG START DATE	USE BY DATE	MASS SPEC-TROMETRY [Target calculated mass +/- 0.3%]	NTC (C_T > 38)
4331182	TaqMan® GEx Assays (Inventoried)	Pa03453409_s1	1815900	HIV1-LTR	10-Sep-2019	10-Sep-2024	Pass	Pass
4331182	TaqMan® GEx Assays (Inventoried)	Pa03453398_s1	1511231	HTLV2-LTR	28-Apr-2016	28-Apr-2021	Pass	Pass

Applied Biosystems' oligo manufacturing process requires a mass spectrometry test for each component of the Taqman ® assay to verify that the identity of each oligo meets set specifications. A no template control (NTC) test is conducted on the assay level with a pass = Ct > 38 (16S and 18S rRNA assays are an exception). A "+" sign appears for Assay IDs and Gene Symbols greater than 20 characters. Full entry recorded in Assay Information File (AIF).

For Research Use Only. Not for use in diagnostic procedures.

Manufactured in compliance with our ISO 9001 and ISO 13485 certified quality management system.
Site: Pleasanton, CA, USA

Quality Assurance
Issued 10Mar2020

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ThermoFisher SCIENTIFIC
The world leader in serving science

CERTIFICATE OF ANALYSIS

K0761 GeneJET TM Whole Blood RNA Purification Mini Kit

Packaging Lot: 2884984
Expiry Date: 31.12.2025 (DD.MM.YYYY)
Storage: at 5±3°C
Note: IMPORTANT Check Individual Components for Storage Conditions

Filling lots for components in package:

Lot	Quantity	Description
2820857	40 mL	Lysis Buffer
2872243	23 mL	Wash Buffer II (concentrated)
2821528	40 mL	Wash Buffer I (concentrated)
2870303	30 mL	Water, nuclease-free
2876262	1 pack	Collection Tubes 2 ml
2847434	1 each	GeneJET RNA purification Columns & Collection Tubes
2768458	1 pack	Collection Tubes 1.5 ml

QUALITY CONTROL

Parameter	Method	Requirement	Result
pH (Relevant kit components)	Measured using a pH meter.	Within range of predetermined specifications	Conforms
Density (Relevant kit components)	Measured using a densitometer.	Within range of predetermined specifications	Conforms
Refractive Index (Relevant kit components)	Measured using a refractometer.	Within range of predetermined specifications	Conforms
Conductivity (Relevant kit components)	Measured using a conductometer.	Within range of predetermined specifications	Conforms

ISO CERTIFICATION
Manufactured by Thermo Fisher Scientific Baltics UAB, in compliance with ISO 9001 and ISO 13485 certified quality management system.

Quality authorized by QC: J. Žilinskienė 

Thermo SCIENTIFIC

PRODUCT INFORMATION

Thermo Scientific
GeneJET Whole Blood RNA Purification Mini Kit
#K0761

www.thermoscientific.com/onebio

#K0761
Lot __
Exp. __

CERTIFICATE OF ANALYSIS

Thermo Scientific GeneJET Whole Blood RNA Purification Mini Kit is qualified by isolating total RNA from 500 µL of human whole blood following the protocol outlined in the manual. The quality of isolated RNA is evaluated spectrophotometrically and by agarose gel electrophoresis. The purified RNA has an $A_{260/280}$ ratio between 1.9 and 2.1 and the RNA integrity number (RIN) of ≥8.

Quality authorized by: Jurgita Žilinskienė

Rev.3 .

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COMPONENTS OF THE KIT

GeneJET Whole Blood RNA Purification Mini Kit	#K0761 50 preps
Lysis Buffer	40 mL
Wash Buffer WB 1 (concentrated)	40 mL
Wash Buffer 2 (concentrated)	23 mL
Water, nuclease-free	30 mL
GeneJET RNA Purification Columns pre-assembled with Collection Tubes	50
Collection Tubes, 2 mL	50
Collection Tubes, 1.5 mL	50

STORAGE

All kit components should be stored at room temperature (15-25°C).
Note. Close the bag with GeneJET RNA Purification Columns tightly after each use!

DESCRIPTION

The GeneJET™ Whole Blood RNA Purification Mini Kit is designed for rapid and efficient purification of high quality total RNA from whole blood and related body fluids. The kit utilizes silica-based membrane technology in the form of a convenient spin column, eliminating the need for expensive resins, toxic phenol-chloroform extractions, or time-consuming alcohol precipitation. The standard procedure takes less than 15 minutes following cell lysis. The purified high quality RNA can be used in a wide range of downstream applications such as RT-PCR, RT-qPCR, Northern blotting and other RNA-based analysis.

PRINCIPLE

Blood is collected into vials and stabilized by anticoagulants. Cells are lysed in a buffer containing guanidine thiocyanate, a chaotropic salt capable of protecting RNA from endogenous RNases. The lysate is then mixed with ethanol and loaded on the purification column. The chaotropic salt and ethanol facilitate RNA binding to the silica membrane when the lysate is spun through the column. Subsequently, impurities are effectively removed by treating the column with the provided wash buffers. Pure RNA is then eluted under low ionic strength conditions with the provided nuclease-free water.

Table 1. Typical total RNA yields from various sources.

Source	Amount	Yield, µg
Human blood	500 µL	1.2-1.8
Mouse blood	500 µL	10-11
Rat blood	500 µL	7.4
Rabbit blood	500 µL	10
Bone marrow	350 µL	1.7
Buffy coat	500 µL	2-3

IMPORTANT NOTES

- Add the indicated volume of ethanol (96-100%) to **Wash Buffer WB 1** (concentrated) and **Wash Buffer 2** (concentrated) prior to first use:

	#K0761 50 preps	
	Wash Buffer WB 1	**Wash Buffer 2**
Concentrated wash solution	40 mL	23 mL
Ethanol (96-100%)	**4.5 mL**	**39 mL**
Total volume:	44.5 mL	62 mL

After the ethanol has been added, mark the check box on the bottle's cap to indicate the completed step.

- Before each RNA purification experiment prepare a fresh aliquot of Lysis Buffer supplemented with β-mercaptoethanol. Add 20 µL of 14.3 M β-mercaptoethanol to each 1 mL of **Lysis Buffer** used. Store at +4°C for up to 1 month.
- Check the **Lysis Buffer** for salt precipitation before each use. Re-dissolve any precipitate by warming the solution at 37°C, then cool back down to 25°C before use.
- Wear gloves when handling the **Lysis Buffer and Wash Buffer WB 1** as these solutions contain irritants (*see* p. 8 for SAFETY INFORMATION) and are harmful if they come into contact with skin, or are inhaled or swallowed.
- Unless otherwise indicated all purification steps are preformed at room temperature (15-25°C).
- Centrifugation speed in rpm's is given for 24-place microcentrifuges.
- Typically the purified RNA has an $A_{260/280}$ ratio between 1.9 and 2.1, however, when RNA concentration is lower than 20 ng/µL, deviations from the expected ratio are occasionally observed.

ADDITIONAL MATERIALS AND EQUIPMENT REQUIRED

- β-mercaptoethanol
- Pipettes and pipette tips
- Vortex
- Ethanol (96-100%)
- 1.5 mL microcentrifuge tubes
- Microcentrifuge
- Disposable gloves

AVOIDING RIBONUCLEASE CONTAMINATION

RNA purity and integrity is essential for downstream applications. RNA can be degraded by RNase A, which is a highly stable contaminant found in any laboratory environment. Care must be taken not to introduce RNases into the RNA preparation, especially during the column wash and RNA elution steps. General recommendations to avoid RNase contamination include:

- As skin is a common source of RNases, wear gloves when handling reagents and RNA samples. Change gloves frequently.
- Use sterile, disposable RNase-free pipette tips.
- Use reagents designed to remove RNase contamination from nondisposable items (pipettes, centrifuges) and work surfaces.
- Keep all kit components tightly sealed when not in use. After usage, cap bottles immediately.

STARTING MATERIAL HANDLING AND STORAGE

- **Blood sample collection and RNA purification from blood cells should be carried out in the same day**. Samples can be stored at 4°C for no longer than 5 hours. Do not freeze blood samples.
- If it is not possible to process samples the same day, RNA can be preserved in the supplied Lysis Buffer:
  - Centrifuge blood for 5 min 400 × g (~2,000 rpm) at 4°C
  - Discard the supernatant
  - Resuspend the pellet in 600 µL of Lysis Buffer, **mix well**.

Stabilized sample can be stored for 24 h at 4°C, or up to one week at -20°C.

PROTOCOLS

Protocols for RNA purification from buffy coat and bone marrow are described on p.6.

A. Mammalian Whole Blood RNA Purification Protocol

Step	Procedure
1	Centrifuge 50-500 µL of blood for 5 min, 400 × g (~2,000 rpm) at 4°C. Discard the supernatant.
2	Resuspend the pellet in 600 µL of Lysis Buffer, **mix well** by vortexing.
3	Add 450 µL of ethanol (96-100%) and mix by pipetting or vortexing.
4	Transfer half of the prepared lysate to a column inserted in a collection tube. Centrifuge the column for 1 min at 12,000 × g (~11,000 rpm). Discard the flow-through solution and reassemble the column and collection tube. Transfer remaining lysate into the column and centrifuge as before. Discard the collection tube containing the flow-through solution. Place the column into a new 2 mL collection tube (included). Note. Close the bag with GeneJET RNA Purification Columns tightly after each use!
5	Add 700 µL of Wash Buffer WB 1 (with ethanol added). Centrifuge for 1 min at 12,000 × g (~11,000 rpm). Discard the flow-through and place the purification column back into the collection tube.
6	Add 500 µL of Wash Buffer 2 (with ethanol added) to the purification column. Centrifuge for 1 min at 12,000 × g (~11,000 rpm).
7	Add 500 µL of Wash Buffer 2 (with ethanol added) to the purification column. Centrifuge for 2 min at 12,000 × g (~11,000 rpm). *Recommended*: Empty the collection tube. Place the purification column back into the tube and re-spin the column for 1 min. at maximum speed (≥20,000 × g, ≥14,000 rpm). Discard the collection tube containing the flow-through solution and transfer the purification column to an RNase-free 1.5 mL microcentrifuge tube.
8	Add 50 µL of nuclease-free water to the centre of the purification column membrane and centrifuge for 1 min at 12,000 × g (~11,000 rpm).
9	Discard the purification column. Use the purified RNA immediately in downstream applications or store at -20°C until use. Keep the RNA on ice after extraction and while working with it. **Note.** For prolonged storage (more than 1 month) storage at -70°C is recommended.

B. RNA Purification from Bone Marrow

Note. Bone marrow that has been previously frozen does not sediment during centrifugation. Use up to 350 µL of thawed bone marrow and proceed directly to step 2 of the standard mammalian Whole Blood RNA Purification Protocol.

Step	Procedure
1	Take 50-500 µL of **fresh** bone marrow.
2	Centrifuge 50-500 µL of bone marrow for 5 min 400 × g (~2,000 rpm) at 4°C. Discard the supernatant.
3	Proceed to step 2 of the mammalian Whole Blood RNA Purification Protocol on p. 5.

C. RNA Purification from Buffy Coat

Buffy coat is a leukocyte-enriched fraction of whole blood and containes approximately 5-10 times more nucleic acids than an equivalent volume of whole blood. Prepare the buffy coat by centrifuging whole blood at 2,000 × g for 10 minutes at room temperature. After centrifugation, 3 different fractions are distinguishable: the upper clear layer is plasma; the intermediate layer is buffy coat (also called the WBCs), containing concentrated leukocytes; and the bottom layer contains concentrated erythrocytes.

Step	Procedure
1	Centrifuge 10 mL of whole blood at 2,000 × g for 10 minutes at room temperature. Three layers should be visible.
2	Remove upper clear layer by aspiration.
3	Collect approximately **500** µL of the intermediate layer using an automatic pipette, being careful not to disturb the WBCs. Put the WBCs into a fresh tube.
4	Add 10 mL of red blood cell Lysis Solution (10 mM Tris-HCl, pH 7.0, 5 mM $MgCl_2$, 10 mM NaCl) and resuspend WBCs.
5	Centrifuge at 2,000 × g for 10 minutes at room temperature. Remove supernatant. **Do not discard the pellet**.
4	Proceed to step 2 of the mammalian Blood RNA Purification Protocol on p. 5.

TROUBLESHOOTING

Problem	Possible cause and solution
Low yield of purified RNA	**Excess sample used during lysate preparation.** Reduce the amount of starting material. Do not use more blood than indicated in lysis protocols. **Ethanol was not added to the lysate.** Ensure that the ethanol was added to the lysate before applying the sample to the Purification Column. **Ethanol was not mixed with the lysate.** After the addition of ethanol to the lysate mix the sample briefly by vortexing or pipetting. **Ethanol was not added to Wash Buffers.** Ensure that ethanol was added to Wash Buffer WB 1 and Wash Buffer 2 before use. Follow the instructions for Wash Buffer preparation on p.3.
Purified RNA is degraded	**RNase contamination.** To avoid RNase contamination wear gloves during the procedure and change gloves frequently. Use sterile, disposable RNase-free pipette tips. Use reagents designed to remove RNase contamination from nondisposable items (pipettes, centrifuges) and work surfaces. **Inappropriate sample storage conditions.** Blood cells stabilized in Lysis Buffer can be stored at 4°C for no longer than 24 hours or at -20°C for no longer than 7 days. **Purified RNA was not stored properly.** Purified RNA should be used immediately in downstream applications or stored at -20°C for later use. For prolonged storage (more than 1 month) storage at -70°C is recommended. **Lysis buffer does not contain β-mercaptoethanol .** Ensure that β-mercaptoethanol has been added to the lysis buffer.
Inhibition of downstream enzymatic reactions	**Purified RNA contains residual ethanol.** If residual solution is observed in the purification column after treating the column with Wash Buffer 2, empty the collection tube and re-spin the column for an additional 1 min. at maximum speed (≥20,000 × g, ≥14,000 rpm). **Purified RNA contains residual salt.** Use the correct order for the Wash Buffers steps. Always wash the purification column with Wash Buffer WB 1 first and then proceed with Wash Buffer 2.
Column clogging	**Excess starting material was used for lysate preparation.** Reduce the amount of starting material. Do not use more blood or cells than indicated in lysis protocols. **Starting material was not completely lysed.** Reduce the amount of starting material in subsequent preparations.

Lysis Solution

Xn Harmful

Hazard-determining component of labelling: **Guanidinium thiocyanate.**

Risk phrases

R22 Harmful if swallowed.
R36/38 Irritating to eyes and skin.

Safety phrases

S23 Do not breathe gas/fumes/vapour/spray.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37 Wear suitable protective clothing and gloves.
S60 This material and its container must be disposed of as hazardous waste.

Wash Buffer WB 1

Xn Harmful

Hazard-determining component of labelling: **Guanidinium hydrochloride.**

Risk phrases

R22 Harmful if swallowed.
R36/38 Irritating to eyes and skin.

Safety phrases

S23 Do not breathe gas/fumes/vapour/spray.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37 Wear suitable protective clothing and gloves.
S60 This material and its container must be disposed of as hazardous waste

PRODUCT USE LIMITATION

This product is developed, designed and sold exclusively for research purposes and *in vitro* use only. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals. Please refer to www.thermoscientific.com/onebio for Material Safety Data Sheet of the product.

Certificate of Analysis

TE Buffer

Product No.	12090015
Lot No.	2749577
Date of Manufacture	20-Dec-2023

Gel Analysis

Specification: RNA and DNA should be intact with no degradation present. There should be no downward smearing present.

Result: Meets specification.

For Research Use Only. Not for use in diagnostic procedures.

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Life Sciences Solutions
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Carlsbad, CA, USA 92008
https://www.thermofisher.com
For inquiries, contact us at cofarequests@thermofisher.com

Chevohn Joseph
Director, Quality
Issued on 08-Jan-2024

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CERTIFICATE OF ANALYSIS

K1622 RevertAid 1st cDNA Synth Kit

Packaging Lot: **2942781**
Expiry Date: 31.05.2025 (DD.MM.YYYY)
Storage: at -20±5°C

Filling lots for components in package:

Lot	Quantity	Description
2871211	0.12 mL	RiboLock RI
2854371	24 kU	RevertAid RT 200u/µl
2861733	0.02 mL	Control GAPDH RNA
2832918	0.02 mL	Forward Control Primer
2789391	0.12 mL	Oligo(dT)18 Primer
2909723	0.12 mL	Random Hexamer Primer
2872823	0.02 mL	Reverse Control Primer
2787777	0.5 mL	5X Reaction Buffer
2904962	2 × 1.25 mL	Water, Nuclease-free
2874641	0.25 mL	dNTP Mix 10 mM

QUALITY CONTROL

Parameter	Method	Requirement	Result
Functional testing	RT-PCR using 100 fg of control GAPDH RNA and control primers generated a prominent 496 bp product on agarose gel.	Conforms	Conforms

ISO CERTIFICATION
Manufactured by Thermo Fisher Scientific Baltics UAB, in compliance with ISO 9001 and ISO 13485 certified quality management system.

Quality authorized by QC: J. Žilinskienė

Thermo SCIENTIFIC

PRODUCT INFORMATION

Thermo Scientific RevertAid First Strand cDNA Synthesis Kit

#K1622 **100 rxns**

Lot __ **Expiry Date __**

Store at -20°C

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www.thermoscientific.com/onebio

COMPONENTS OF THE KIT

RevertAid First Strand cDNA Synthesis Kit	#K1621 20 rxns	#K1622 100 rxns
RevertAid RT (200 U/µL)	25 µL	120 µL
RiboLock RNase Inhibitor (20 U/µL)	25 µL	120 µL
5X Reaction Buffer 250 mM Tris-HCl (pH 8.3), 250 mM KCl, 20 mM $MgCl_2$, 50 mM DTT	150 µL	500 µL
10 mM dNTP Mix	50 µL	250 µL
Oligo$(dT)_{18}$ Primer, 100 µM	25 µL	120 µL
Random Hexamer Primer, 100 µM,	25 µL	120 µL
Forward GAPDH Primer, 10 µM	20 µL	20 µL
Reverse GAPDH Primer, 10 µM	20 µL	20 µL
Control GAPDH RNA, 0.05 µg/µL	20 µL	20 µL
Water, nuclease-free	2 × 1.25 mL	2 × 1.25 mL

CERTIFICATE OF ANALYSIS

RT-PCR using 100 fg of control GAPDH RNA and control primers generated a prominent 496 bp product on 1% agarose gel after ethidium bromide staining.

Quality authorized by: Jurgita Zilinskiene

Rev.11

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DESCRIPTION

The Thermo Scientific™ RevertAid™ First Strand cDNA Synthesis Kit is a complete system for efficient synthesis of first strand cDNA from mRNA or total RNA templates. The kit uses RevertAid Reverse Transcriptase (RT), which has lower RNase H activity compared to AMV reverse transcriptase. The enzyme maintains activity at 42-50°C and is suitable for synthesis of cDNA up to 13 kb.

The recombinant Thermo Scientific™ RiboLock™ RNase Inhibitor, supplied with the kit, effectively protects RNA from degradation at temperatures up to 55°C.

First strand cDNA synthesized with this system can be directly used as a template in PCR or real-time PCR. It is also ideal for second strand cDNA synthesis or linear RNA amplification. Radioactively and non-radioactively labeled nucleotides can be incorporated into first strand cDNA for use as a probe in hybridization experiments, including microarrays.

STORAGE

All components of the kit should be stored at -20°C. Keep control RNA at -70°C for longer storage.

IMPORTANT NOTES

Avoiding ribonuclease contamination

RNA purity and integrity are essential for synthesis of full-length cDNA. RNA can be degraded by RNase A, which is a highly stable contaminant found in any laboratory environment.

General recommendations to avoid RNase contamination:

- DEPC-treat all tubes and pipette tips to be used in cDNA synthesis or use certified nuclease-free labware.
- Wear gloves when handling RNA and all reagents, as skin is a common source of RNases. Change gloves frequently.
- Use RNase-free reagents, including high quality water (e.g., Water, nuclease-free, #R0581).
- Use RiboLock™ RNase Inhibitor (provided with the kit) to protect RNA from the activity of RNases.
- Keep all kit components tightly sealed when not in use. Keep all tubes tightly closed during the reverse transcription reaction.

Template RNA

Total cellular RNA isolated by standard methods is suitable for use with the kit. Purified RNA must be free of salts, metal ions, ethanol and phenol to avoid inhibiting the cDNA synthesis reaction. Trace contaminants can be removed by ethanol precipitation of the RNA followed by two washes of the pellet with cold 75% ethanol.

For RT-PCR applications, template RNA must be free of DNA contamination. Prior to cDNA synthesis, RNA can be treated with DNase I, RNase-free (#EN0521) to remove trace amounts of DNA. Always perform a control (RT-minus) reaction which includes all components for RT-PCR except for the reverse transcriptase enzyme.

Removal of genomic DNA from RNA preparations

1. Add to an RNase-free tube:

RNA	1 µg
10X Reaction Buffer with $MgCl_2$	1 µL
DNase I, RNase-free (#EN0521)*	1 µL (1 U)
Water, nuclease-free	to 10 µL

* Do not use more than 1 U of DNase I, RNase-free per 1 µg of RNA.

2. Incubate at 37°C for 30 min.
3. Add 1 µL 50 mM EDTA and incubate at 65°C for 10 min. RNA hydrolyzes during heating with divalent cations in the absence of a chelating agent (1). Alternatively, use phenol/chloroform extraction.
4. Use the prepared RNA as a template for reverse transcriptase.

RNA sample quality

Assess RNA integrity prior to cDNA synthesis. The most common method is denaturing agarose gel electrophoresis followed by ethidium bromide staining. If both 18S and 28S rRNA appear as sharp bands after electrophoresis of total eukaryotic RNA, the RNA is considered to be intact. The 28S rRNA band should be approximately twice as intense as the 18S rRNA. Any smearing of rRNA bands is an indication of degraded mRNA. If this occurs, a new sample of total RNA should be prepared.

RNA quantity

- Use 0.1 ng - 5 µg of total RNA or 1 ng - 500 ng of poly(A) mRNA to generate first strand cDNA as the initial step of a two-step RT-PCR protocol.
- Use 1 µg of isolated mRNA to generate first strand cDNA for second-strand synthesis and subsequent cloning reactions.

PROTOCOLS

I. First Strand cDNA Synthesis

After thawing, mix and briefly centrifuge the components of the kit. Store on ice.

1. Add the following reagents into a sterile, nuclease-free tube on ice in the indicated order:

Template RNA	total RNA *or* poly(A) mRNA *or* specific RNA	0.1 ng - 5 µg 10 pg - 0.5 µg 0.01 pg - 0.5 µg
Primer	Oligo $(dT)_{18}$ primer *or* Random Hexamer primer *or* gene-specific primer	1 µL 1 µL 15-20 pmol
Water, nuclease-free		to 12 µL
	Total volume	12 µL

2. *Optional.* If the RNA template is GC-rich or contains secondary structures, mix gently, centrifuge briefly and incubate at 65°C for 5 min. Chill on ice, spin down and place the vial back on ice.
3. Add the following components in the indicated order:

5X Reaction Buffer	4 µL
RiboLock RNase Inhibitor (20 U/µL)	1 µL
10 mM dNTP Mix	2 µL
RevertAid M-MuLV RT (200 U/µL)	1 µL
Total volume	20 µL

4. Mix gently and centrifuge briefly.
5. For oligo$(dT)_{18}$ or gene-specific primed cDNA synthesis, incubate for 60 min at 42°C.
   For random hexamer primed synthesis, incubate for 5 min at 25°C followed by 60 min at 42°C.
   Note. For GC-rich RNA templates the reaction temperature can be increased up to 45°C.
6. Terminate the reaction by heating at 70°C for 5 min.

The reverse transcription reaction product can be directly used in PCR applications or stored at -20°C for less than one week. For longer storage, -70°C is recommended

II. PCR Amplification of First Strand cDNA

The product of the first strand cDNA synthesis can be used directly in PCR or qPCR. The volume of first strand cDNA synthesis reaction mixture should not comprise more than 1/10 of the total PCR reaction volume. Normally, 2 µL of the first strand cDNA synthesis reaction mixture is used as template for subsequent PCR in 50 µL total volume.

(Continued on reverse page)

CONTROL REACTIONS

Positive and negative control reactions should be used to verify the results of the first strand cDNA synthesis steps.

- **Reverse transcriptase minus (RT-) negative control** is important in RT-PCR or RT-qPCR reactions to assess for genomic DNA contamination of the RNA sample. The control RT- reaction contains every reagent for the reverse transcription reaction except for the RT enzyme.
- **No template negative control (NTC)** is important to assess for reagent contamination. The NTC reaction contains every reagent for the reverse transcription reaction except for RNA template.
- **Positive control** RNA template and gene-specific primers are supplied with the kit. The human GAPDH control RNA (1.3 kb) was produced by *in vitro* transcription. The GAPDH-specific control PCR primers are designed to be complementary to human, mouse and rat GAPDH genes and generate 496 bp RT-PCR product. The protocol for the positive control RT-PCR is provided below.

I. Control first strand cDNA synthesis reaction

Mix and briefly centrifuge all components after thawing, keep on ice.

1. Add the following reagents into a sterile, nuclease-free tube on ice in the indicated order:

Control GAPDH RNA (50 ng/µL)	2 µL
Oligo $(dT)_{18}$ Primer *or* Random Hexamer Primer *or* Reverse GAPDH Primer	1 µL
5X Reaction Buffer	4 µL
RiboLock RNase Inhibitor (20 U/µL)	1 µL
10 mM dNTP Mix	2 µL
RevertAid RT (200 U/µL)	1 µL
Water, nuclease-free	9 µL
Total volume	20 µL

2. Mix gently and centrifuge.
3. For oligo$(dT)_{18}$ or gene-specific primed cDNA synthesis, incubate for 60 min at 42°C.
   For random hexamer primed synthesis, incubate for 5 min at 25°C followed by 60 min at 42°C.
4. Terminate the reaction by heating at 70°C for 5 min.
5. Briefly centrifuge and proceed with control PCR amplification.

II. Control PCR amplification

1. Dilute the cDNA generated with the control first strand cDNA reaction 1:1000 in Water, nuclease-free.
2. Gently vortex and briefly centrifuge all PCR reagents after thawing.
3. Place a thin-walled PCR tube on ice and add the following reagents:

cDNA from control RT reaction (1:1000 dilution)	2 µL
10X PCR buffer	5 µL
10 mM dNTP Mix	1 µL (0.2 mM each)
25 mM $MgCl_2$	3 µL
Forward GAPDH Primer	1.5 µL
Reverse GAPDH Primer	1.5 µL
Taq DNA polymerase (5 U/µL)	0.5 µL
Water, nuclease-free	35.5 µL
Total volume	50 µL

4. Perform PCR in a thermal cycler with a heated lid or overlay with 25 µL of mineral oil.

Step	Temperature, °C	Time	Number of cycles
Initial denaturation	94	3 min	1
Denaturation	94	30 s	35
Annealing	58	30 s	
Extension	72	45 s	

5. Load 5-10 µL of the RT-PCR product on 1% agarose gel. A distinct 496 bp PCR product should be visible after ethidium bromide staining.

Reference

1. Wiame, I., et al., Irreversible heat inactivation of DNaseI without RNA degradation, BioTechniques, 29, 252-256, 2000.

TROUBLESHOOTING

Low yield or no RT-PCR product

Degraded RNA template.
RNA purity and integrity is essential for synthesis of full-length cDNA. Always assess the integrity of RNA prior to cDNA synthesis. Sharp 18S and 28S RNA bands should be visible after denaturing agarose gel electrophoresis of total eukaryotic RNA. Follow general recommendations to avoid RNase contamination.

Low template purity.
Trace amounts of agents used in RNA purification protocols may remain in solution and inhibit first strand synthesis, e.g., SDS, EDTA, guanidine salts, phosphate, pyrophosphate, polyamines, spermidine. To remove trace contaminants, re-precipitate the RNA with ethanol and wash the pellet with 75% ethanol.

Insufficient template quantity.
Increase the amount of template to the recommended level. Following DNase I treatment, terminate the reaction by heat inactivation in the presence of EDTA (to bind magnesium ions), RNA hydrolyzes during heating in the absence of a chelating agent (1).

Incorrect primer choice.
Use the correct primer for the RNA template. Use the random hexamer primer instead of the oligo$(dT)_{18}$ primer with bacterial RNA or RNA without a poly(A) tail. Ensure sequence-specific primers are complementary to 3'-end of the template RNA.

GC rich template.
If the RNA template is GC rich or is known to contain secondary structures, increase the temperature of the reverse transcription reaction up to 45°C.

RT-PCR product longer than expected

RNA template is contaminated with DNA.
Amplification of genomic DNA containing introns. Perform DNase I digestion prior reverse transcription. To avoid amplification of genomic DNA, design PCR primers on exon-intron boundaries.

RT-PCR product in negative control

RNA template is contaminated with DNA.
PCR product in the negative control (RT-) indicates the reaction is contaminated with DNA. Perform DNase I digestion prior reverse transcription.

PRODUCT USE LIMITATION

This product is developed, designed and sold exclusively for research purposes and *in vitro* use only. The product was not tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals.
Please refer to www.thermoscientific.com/onebio for Material Safety Data Sheet of the product.

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CERTIFICATE OF ANALYSIS

A letter at the end of the lot number signifies an additional packaging of this same lot.

Product Description	Mouse anti-Human CD45 Pac Orange
Catalog Number	MHCD4530
Lot Number	221010021
Expiration Date	17 Oct 2024
Appearance (Color and Clarity)	Gold/yellow and Clear
Format	Conjugated
Storage Buffer	PBS +BSA
Volume	0.5 mL
Antibody Concentration/Test Size	0.20 mg/mL
Total Protein Concentration	4.20 mg/mL
Release Test Method	Flow Cytometry
Filtration	0.2 µm
Storage	2-8°C
Regulatory Status	Analyte Specific Reagent
Preservative	0.1% Sodium Azide
Country of Origin	USA

This product meets the requirements of the Life Technologies Quality System in effect at the time of release.

Danielle Graves — **QUALITY**

22JUN23 — **Date:**

www.lifetechnologies.com
Life Technologies Corporation • 7335 Executive Way • Frederick •MD 21704 • Tel: 800.955.6288
E-mail: techsupport@lifetech.com

Monoclonal Antibodies to the Human CD45 Antigen

Catalog Numbers MHCD4515, MHCD4530, MHCD4530TR, MHCD4520, MHCD4501, MHCD4501-4, MHCD4504, MHCD4504-4, MHCD4517, MHCD4522, MHCD4506, MHCD4506-5, MHCD4531, MHCD4518, MHCD4512, MHCD4505, MHCD4505-4, MHCD4527, MHCD4529

Pub. No. MAN0003917 **Rev.** B.0

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from **thermofisher.com/support**.

Product Description

Mouse monoclonal antibody to the human CD45 antigen

- Clone: HI30
- Isotype: Mouse IgG1
- Lot no./expiration: See label.
- Buffer: Phosphate buffered saline (PBS)
- Stabilizer: Highly purified BSA
- Preservative: 0.1% sodium azide

Contents and Storage

Catalog numbers that appear as links open the web pages for those products.

To see a complete list of antibody offerings and for more information on RUO formats of this clone, please visit **http://thermofisher.com**.

Table 1 Monoclonal Antibodies to the Human CD45 Antigen

Component	Catalog No.	Amount	Tests	Excitation	Peak Emission	Storage
Biotin	MHCD4515	0.5 mL	100 min	N/A	N/A	Store reagents at 2–8°C. Avoid light exposure. Use dim light during handling, incubating with cells, and before analyzing. Analyze cells within 18 hours of staining. If diluting the reagent, dilute only the quantity to be used within 1 week.
Pacific Orange™	MHCD4530	0.5 mL	100 min	405 nm	551 nm	
Pacific Orange™	MHCD4530TR	0.125 mL	25 min	405 nm	551 nm	
Alexa Fluor™ 488	MHCD4520	0.5 mL	100 min	488 nm	519 nm	
FITC	MHCD4501	0.5 mL	100 min	488 nm	525 nm	
FITC	MHCD4501-4	2.0 mL	400 min	488 nm	525 nm	
R-PE	MHCD4504	0.5 mL	100 min	488 nm	575 nm	
R-PE	MHCD4504-4	2.0 mL	400 min	488 nm	575 nm	
PE-TR (Texas Red™ conjugates)	MHCD4517	0.5 mL	100 min	488 nm	615 nm	
PE-Alexa Fluor™ 610	MHCD4522	0.5 mL	100 min	488 nm	628 nm	
TC (TRI-COLOR™, PE-Cy® 5)[1,2]	MHCD4506	0.5 mL	100 min	488 nm	670 nm	
TC	MHCD4506-5	2.5 mL	500 min	488 nm	670 nm	
PerCP	MHCD4531	0.5 mL	100 min	488 nm	678 nm	
PE-Cy® 5.5	MHCD4518	0.5 mL	100 min	488 nm	694 nm	
PE-Cy® 7	MHCD4512	0.5 mL	100 min	488 nm	767 nm	
APC	MHCD4505	0.5 mL	100 min	600-650 nm	660 nm	
APC	MHCD4505-4	2.0 mL	400 min	600-650 nm	660 nm	
APC-Alexa Fluor™ 750	MHCD4527	0.5 mL	100 min	600-650 nm	775 nm	
Alexa Fluor™ 700	MHCD4529	0.5 mL	100 min	630-702 nm	723 nm	

[1] The efficiency of energy transfer in tandem dyes can be significantly decreased by exposure to visible light. We recommend that longer wavelength fluorochorme conjugates, eg. PE-Cy® 7 and Alexa Fluor™ 700, be protected from light during staining and while awaiting analysis.

[2] Cy® is a trademark of GE Healthcare.

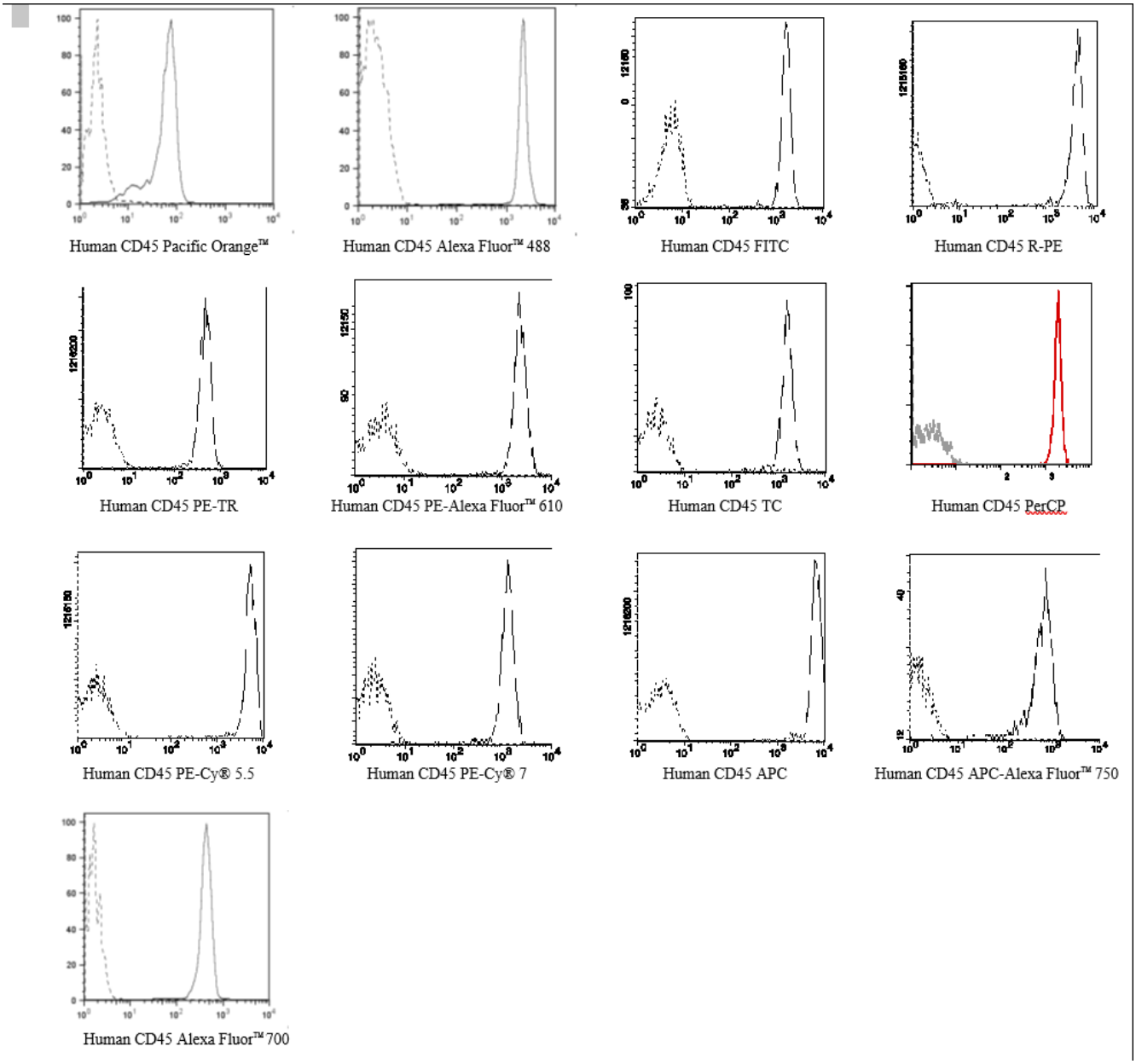
Product Characterization

Property	Property Information
Antigen Specificity	This antibody recognizes the CD45 antigen, also known as Leukocyte Common Antigen (LCA). CD45 is expressed on all cells of hematopoietic origin with the exception of platelets, red blood cells, and their immediate precursors. CD45 is considered a pan leukocyte marker.
Leukocyte Workshop Status	Leukocyte Typing IV
Product Use	Each lot is tested by flow cytometry using human peripheral blood leukocytes (PBL). Because conditions may vary, it is recommended that each investigator determine the optimal amount of antibody to be used for each application.

Log fluorescence intensity profiles of human peripheral blood lymphocytes

Analyzed on a FACSCalibur™, FACScan™, FACS Vantage™, or BD™ LSR II flow cytometer.

Negative control profiles represent unstained cells.



Note: Flow cytometric data shown may not necessarily have been generated using the enclosed lot of reagent. For this reason, and due to differences in flow cytometers and cytometer settings, results may vary from those illustrated above. It is suggested that investigators titrate reagents to determine optimal conditions for use in their systems.

Life Technologies Corporation | 7335 Executive Way | Frederick, Maryland 21704 USA

For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

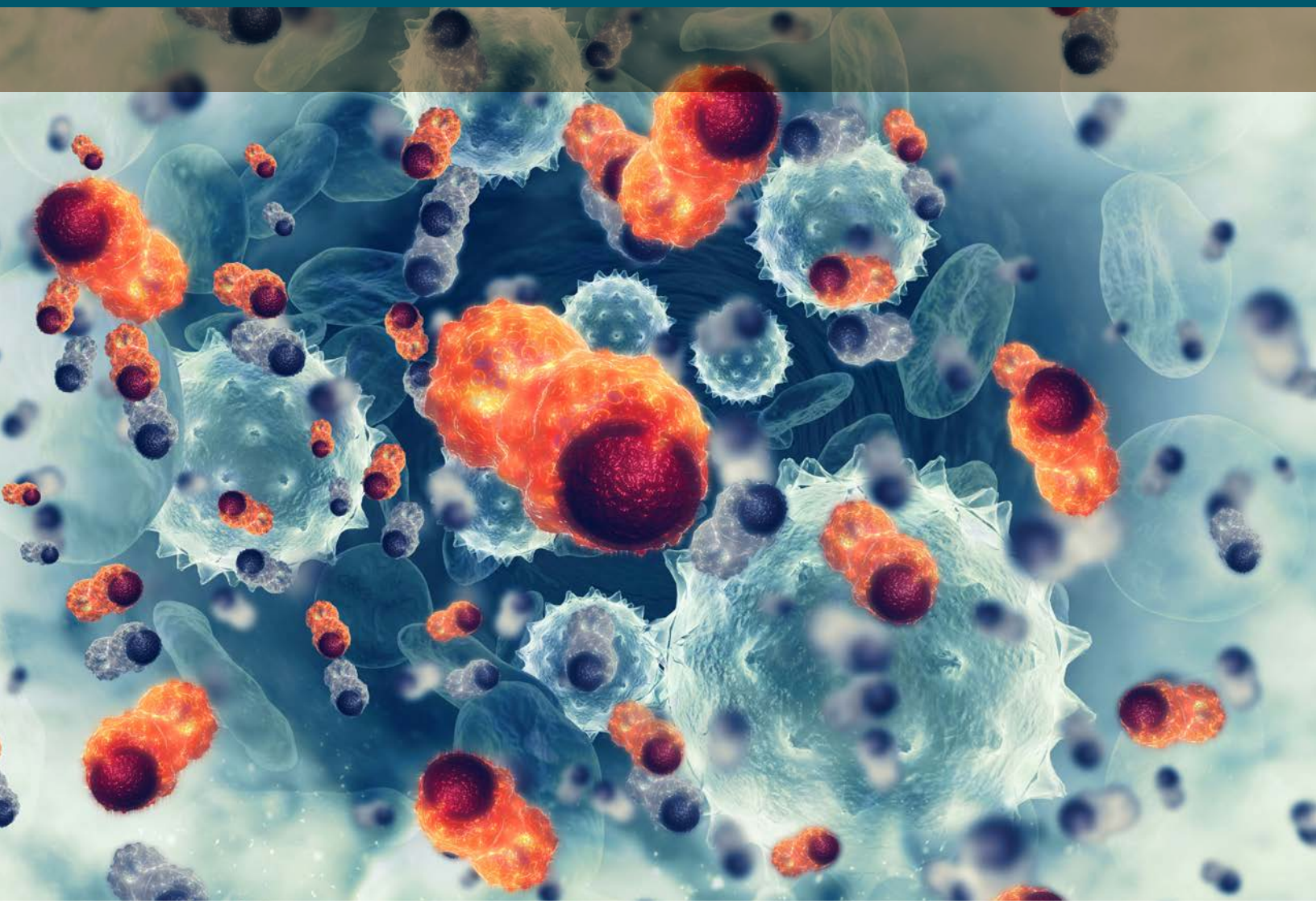
Revision history: Pub. No. MAN0003917 B.0

Revision	Date	Description
B.0	26 July 2023	Regulatory statement replaced and emission/excitation data updated.
A.0	3 April 2023	New document for product insert.

The information in this guide is subject to change without notice.

Agilent
Dako

Catalog | Flow Cytometry



Agilent

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Dear Valued Customer,

Since 1966, when Danish doctor Niels Harboe founded Dako and began manufacturing antibodies, Dako has developed into a global leader in reagent manufacturing and providing diagnostic solutions. We are driven by our role in the fight against cancer and passionate about creating new solutions, delivering the highest quality, and providing the best possible service to our customers and partners.

Dako was acquired by Agilent in 2012 and is a cornerstone of the Diagnostics & Genomics Group (DGG). As a leader in life sciences, diagnostics and applied chemical markets, Agilent provides powerful support to what we do, including additional R&D resources, investments, and synergies with other Agilent divisions.

With the acquisition of ACEA Biosciences in 2018, Agilent is now in an unprecedented position to offer broader flow cytometry solutions to our customers, including a wider portfolio of reagents and clinical flow cytometers.

With this pivotal view of our rich history and promising future, you can be assured that our commitment to our core values of scientific advancement, certainty, and building lasting partnerships with our customers will stay the same. We will continue to drive scientific advancement in developing and improving products. Our reagents, instruments, software and expertise help hospitals and laboratories worldwide make accurate diagnoses and determine the most effective treatment for patients. Finally, we will continue to develop and honor our partnership with you.

This catalog presents the Dako-branded portfolio of flow cytometry products including antibodies against many different biomarkers in a variety of conjugates. Also included are our widely recognized polyclonal kappa and lambda light chain products as well as flow cytometers and software.

For the extended Flow Cytometry Portfolio please see **www.agilent.com**.

We look forward to establishing new cooperation and thank our present customers for their continued partnership.

Sincerely,

Tom Just

Tom Just
Vice President and General Manager
Reagent Partnership Division
Diagnostics and Genomics Group
Agilent Technologies

Alphabetical Index

Code	Source	Product	See page
A			
		Aminopeptidase N, see: CD13	
B			
F711001-2	Mo a Hu	**B Cell/FITC**, Clone FMC7	18
TC68301-2	Mo a Hu	**B Cell/FITC**, Clone FMC7 + **CD19/APC**, Clone HD37 + **CD23/RPE**, Clone MHM6, MultiMix Triple-Color Reagent	28
F705301-8	Mo a Hu	**BCL2 Oncoprotein/FITC**, Clone 124	18
C			
R084101-8	Mo a Hu	**C3bi Receptor, CD11b/RPE**, Clone 2LPM19c	20
K011011-2		**Calibration Beads, FluoroSpheres**, for Daily Monitoring of the Flow Cytometer (40 Tests)	34
F714101-2	Mo a Hu	**CD1a/FITC**, Clone NA1/34	18
PR71050-2	Mo a Hu	**CD1a/PerCP-Cy5.5**, Clone NA1/34	18
R718901-2	Mo a Hu	**CD1a/RPE**, Clone NA1/34	18
F076701-2	Mo a Hu	**CD2/FITC**, Clone MT910	19
R080701-2	Mo a Hu	**CD2/RPE**, Clone MT910	19
FR89450-2	Mo a Hu	**CD2/FITC**, Clone MT910 + **CD19/RPE**, Clone HD37, MultiMix Dual-Color	27
TC66601-2	Mo a Hu	**CD2/FITC**, Clone MT910 + **CD5/APC**, Clone DK23 + **CD34 Class III/RPE**, Clone BIRMA-K3, MultiMix Triple-Color	27
TC67701-2	Mo a Hu	**CD2/FITC**, Clone MT910 + **CD3/APC**, Clone UCHT1 + **CD7/RPE**, Clone CBC.37, MultiMix Triple-Color Reagent	27
C722501-2	Mo a Hu	**CD3/APC**, Clone UCHT1	19
F081801-2	Mo a Hu	**CD3/FITC**, Clone UCHT1	19
PB98201-8	Mo a Hu	**CD3/PB**, Clone UCHT1	19
PR70201-2	Mo a Hu	**CD3/PerCP**, Clone UCHT1	19
R081001-2	Mo a Hu	**CD3/RPE**, Clone UCHT1	19
C706701-2	Mo a Hu	**CD3/RPE-Cy5**, Clone UCHT1	19
FR87550-2	Mo a Hu	**CD3/FITC**, Clone UCHT1 + **CD4/RPE**, Clone MT310, MultiMix Dual-Color	27
FR88150-2	Mo a Hu	**CD3/FITC**, Clone UCHT1 + **CD8/RPE**, Clone DK25, MultiMix Dual-Color	27
FR86650-2	Mo a Hu	**CD3/FITC**, Clone UCHT1 + **CD19/RPE**, Clone HD37, MultiMix Dual-Color	27
FR86750-2	Mo a Hu	**CD3/RPE**, Clone UCHT1 + **HLA-DP, DQ, DR Antigen/FITC**, Clone CR3/43, MultiMix Dual-Color	27
TC67701-2	Mo a Hu	**CD3/APC**, Clone UCHT1 + **CD2/FITC**, Clone MT910 + **CD7/RPE**, Clone CBC.37, MultiMix Triple-Color Reagent	28
TC66001-2	Mo a Hu	**CD3/APC**, Clone UCHT1 + **CD4/RPE**, Clone MT310 + **CD8/FITC**, Clone DK25, MultiMix Triple-Color	28
TC64150-2	Mo a Hu	**CD3/RPE-Cy5**, Clone UCHT1 + **CD4/RPE**, Clone MT310 + **CD8/FITC**, Clone DK25, MultiMix Triple-Color	31
TC66101-2	Mo a Hu	**CD3/APC**, Clone UCHT1 + **CD16/FITC**, Clone DJ130c + **CD56/RPE**, Clone C5.9, MultiMix Triple-Color	29
TC69001-2	Mo a Hu	**CD3/FITC**, Clone UCHT1 + **CD19/RPE**, Clone HD37 + **CD45/APC**, Clone 2D1, MultiMix Triple-Color Reagent	28
TC66801-2	Mo a Hu	**CD3/APC**, Clone UCHT1 + **CD22/RPE**, Clone 4KB128 + **TdT/FITC**, Clone HT-6, MultiMix Triple-Color	31
TC66701-2	Mo a Hu	**CD3/APC**, Clone UCHT1 + **CD79acy/RPE**, Clone HM57 + **MPO/FITC**, Clone MPO-7, MultiMix Triple-Color	31
C722601-2	Mo a Hu	**CD4/APC**, Clone MT310	19
F076601-2	Mo a Hu	**CD4/FITC**, Clone MT310	19
R080501-2	Mo a Hu	**CD4/RPE**, Clone MT310	19
FR87550-2	Mo a Hu	**CD4/RPE**, Clone MT310 + **CD3/FITC**, Clone UCHT1, MultiMix Dual-Color	27
FR86850-2	Mo a Hu	**CD4/FITC**, Clone MT310 + **CD8/RPE**, Clone DK25, MultiMix Dual-Color	27
TC66001-2	Mo a Hu	**CD4/RPE**, Clone MT310 + **CD3/APC**, Clone UCHT1 + **CD8/FITC**, Clone DK25, MultiMix Triple-Color	28
TC64150-2	Mo a Hu	**CD4/RPE**, Clone MT310 + **CD3/RPE-Cy5**, Clone UCHT1 + **CD8/FITC**, Clone DK25, MultiMix Triple-Color	31
C724201-2	Mo a Hu	**CD5/APC**, Clone DK23	19
F079501-2	Mo a Hu	**CD5/FITC**, Clone DK23	19

Abbreviations:

a	Anti-
Gt	Goat
Hu	Human
Mo	Mouse
Rb	Rabbit
Sw	Swine

Labels:

APC	Allophycocyanin
FITC	Fluorescein isothiocyanate
PB	Pacific blue
PerCP	Peridinin chlorophyll protein complex
PerCP-Cy5.5	Peridinin chlorophyll protein complex-Cy5.5
RPE	R-phycoerythrin
RPE-Cy5	R-phycoerythrin-Cy5

Code	Source	Product	See page
R084201-2	Mo a Hu	**CD5/RP**E, Clone DK23	19
FR88250-2	Mo a Hu	**CD5/FITC**, Clone DK23 + **CD19/RPE**, Clone HD37, MultiMix Dual-Color	27
FR72950-2	Mo a Hu	**CD5/FITC**, Clone DK23 + **CD20/RPE**, Clone B-Ly1, MultiMix Dual-Color	27
TC66601-2	Mo a Hu	**CD5/APC**, Clone DK23 + **CD2/FITC**, Clone MT910 + **CD34 Class III/RPE**, Clone BIRMA-K3, MultiMix Triple-Color	28
TC66401-2	Mo a Hu	**CD5/FITC**, Clone DK23 + **CD10/RPE**, Clone SS2/36 + **CD19/APC**, Clone HD37, MultiMix Triple-Color	28
TC66301-2	Mo a Hu	**CD5/RPE**, Clone DK23 + **CD19/APC**, Clone HD37 + **CD20/FITC**, Clone B-Ly1, MultiMix Triple-Color	29
F727601-2	Mo a Hu	**CD7/FITC**, Clone CBC.37	19
PR71150-2	Mo a Hu	**CD7/PerCP-Cy5.5**, Clone CBC.37	19
R727701-2	Mo a Hu	**CD7/RPE**, Clone CBC.37	19
TC67701-2	Mo a Hu	**CD7/RPE**, Clone CBC.37 + **CD2/FITC**, Clone MT910 + **CD3/APC**, Clone UCHT1, MultiMix Triple-Color Reagent	28
F078901-2	Mo a Hu	**CD7/FITC**, Clone DK24	19
C722701-2	Mo a Hu	**CD8/APC**, Clone DK25	19
F076501-2	Mo a Hu	**CD8/FITC**, Clone DK	19
PB98401-8	Mo a Hu	**CD8/PB**, Clone DK25	19
R080601-2	Mo a Hu	**CD8/RPE**, Clone DK25	19
FR88150-2	Mo a Hu	**CD8/RPE**, Clone DK25 + **CD3/FITC**, Clone UCHT1, MultiMix Dual-Color	27
FR86850-2	Mo a Hu	**CD8/RPE**, Clone DK25 + **CD4/FITC**, Clone MT310, MultiMix Dual-Color	27
TC66001-2	Mo a Hu	**CD8/FITC**, Clone DK25 + **CD3/APC**, Clone UCHT1 + **CD4/RPE**, Clone MT310, MultiMix Triple-Color	28
TC64150-2	Mo a Hu	**CD8/FITC**, Clone DK25 + **CD3/RPE-Cy5,** Clone UCHT1 + **CD4/RPE**, Clone MT310, MultiMix Triple-Color	31
F082601-2	Mo a Hu	**CD10/FITC**, Clone SS2/36	19
R084801-2	Mo a Hu	**CD10/RPE**, Clone SS2/36	19
FR88350-2	Mo a Hu	**CD10/FITC**, Clone SS2/36 + **CD19/RPE**, Clone HD37, MultiMix Dual-Color	27
TC66401-2	Mo a Hu	**CD10/RPE**, Clone SS2/36 + **CD5/FITC**, Clone DK23 + **CD19/APC**, Clone HD37, MultiMix Triple-Color	28
R084101-8	Mo a Hu	**CD11b, C3bi Receptor/RPE**, Clone 2LPM19c	20
		CD11b/CD18, see: CD11b, C3bi Receptor	
F071301-2	Mo a Hu	**CD11c, Protein 150,95/FITC**, Clone KB90	20
TC66501-2	Mo a Hu	**CD11c/RPE**, Clone KB90 + **CD19/APC**, Clone HD37 + **CD103/FITC**, Clone Ber-ACT8, MultiMix Triple-Color Reagent	30
		CD11c/CD18, see: CD11c, Protein 150,95	
F083101-2	Mo a Hu	**CD13/FITC**, Clone WM-47	20
R071501-2	Mo a Hu	**CD13/RPE**, Clone WM-47	20
TC68501-2	Mo a Hu	**CD13/FITC**, Clone WM-47 + **CD117/APC**, Clone 104D2 + **HLA-DR Antigen/RPE**, Clone AB3, MultiMix Triple-Color Reagent	29
F084401-2	Mo a Hu	**CD14/FITC**, Clone TÜK4	20
R086401-2	Mo a Hu	**CD14/RPE**, Clone TÜK4	20
FR70050-2	Mo a Hu	**CD14/RPE**, Clone TÜK4 + **CD45/FITC**, Clone T29/33, MultiMix Dual-Color	27
F083001-2	Mo a Hu	**CD15/FITC**, Clone C3D-1	20
F701101-2	Mo a Hu	**CD16, Fc Gamma Receptor III/FITC**, Clone DJ130c	20
R701201-2	Mo a Hu	**CD16, Fc Gamma Receptor III/RPE**, Clone DJ130c	20
TC66101-2	Mo a Hu	**CD16/FITC**, Clone DJ130c + **CD3/APC**, Clone UCHT1 + **CD56/RPE**, Clone C5.9, MultiMix Triple-Color	29
C722401-2	Mo a Hu	**CD19/APC**, Clone HD37	20
F076801-2	Mo a Hu	**CD19/FITC**, Clone HD37	20
PB98501-8	Mo a Hu	**CD19/PB**, Clone HD37	20
PR70350-2	Mo a Hu	**CD19/PerCP-Cy5.5**, Clone HD37	20
R080801-2	Mo a Hu	**CD19/RPE**, Clone HD37	20
C706601-2	Mo a Hu	**CD19/RPE-Cy5**, Clone HD37	20
FR89450-2	Mo a Hu	**CD19/RPE**, Clone HD37 + **CD2/FITC**, Clone MT910, MultiMix Dual-Color	27
FR86650-2	Mo a Hu	**CD19/RPE**, Clone HD37 + **CD3/FITC**, Clone UCHT1, MultiMix Dual-Color	27
FR88250-2	Mo a Hu	**CD19/RPE**, Clone HD37 + **CD5/FITC**, Clone DK23, MultiMix Dual-Color	27
FR88350-2	Mo a Hu	**CD19/RPE**, Clone HD37 + **CD10/FITC**, Clone SS2/36, MultiMix Dual-Color	27
FR04850-2	a Hu	**CD19/RPE**, Clone HD37 + **Kappa Light Chains/FITC**, Rabbit $F(ab')_2$, MultiMix Dual-Color	27
FR04450-2	a Hu	**CD19/RPE**, Clone HD37 + **Lambda Light Chains/FITC**, Rabbit $F(ab')_2$, MultiMix Dual-Color	27
TC68301-2	Mo a Hu	**CD19/APC**, Clone HD37 + **B Cell (FMC7)/FITC**, Clone FMC7 + **CD23/RPE**, Clone MHM6, MultiMix Triple-Color Reagent	28
TC69001-2	Mo a Hu	**CD19/RPE**, Clone HD37 + **CD3/FITC**, Clone UCHT1 + **CD45/APC**, Clone 2D1, MultiMix Triple-Color Reagent	28
TC66401-2	Mo a Hu	**CD19/APC**, Clone HD37 + **CD5/FITC**, Clone DK23 + **CD10/RPE**, Clone SS2/36, MultiMix Triple-Color	28
TC66301-2	Mo a Hu	**CD19/APC**, Clone HD37 + **CD5/RPE**, Clone DK23 + **CD20/FITC**, Clone B-Ly1, MultiMix Triple-Color	29
TC66501-2	Mo a Hu	**CD19/APC**, Clone HD37 + **CD11c/RPE**, Clone KB90 + **CD103/FITC**, Clone Ber-ACT8, MultiMix Triple-Color Reagent	30

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TC68901-2	Mo a Hu	**CD19/FITC**, Clone HD37 + **CD22/APC**, Clone 4KB128 + **CD34/RPE**, Clone BIRMA-K3, MultiMix Triple-Color Reagent	29
TC67401-2	Mo a Hu	**CD19/APC**, Clone HD37 + **CD38/FITC**, Clone AT13/5 + **CD56/RPE**, Clone C5.9, MultiMix Triple-Color Reagent	30
TC66901-2	a Hu	**CD19/FITC**, Clone HD37 + **Kappa Light Chains/APC**, Rabbit $F(ab')_2$ + **Lambda Light Chains/RPE**, Rabbit $F(ab')_2$, MultiMix Triple-Color	29
TC05150-2	a Hu	**CD19/RPE-Cy5**, Clone HD37 + **Kappa Light Chains/FITC**, Rabbit $F(ab')_2$ + **Lambda Light Chains/RPE**, Rabbit $F(ab')_2$, MultiMix Triple-Color	31
F079901-2	Mo a Hu	**CD20/FITC**, Clone B-Ly1	20
R701301-2	Mo a Hu	**CD20/RPE**, Clone B-Ly1	20
FR72950-2	Mo a Hu	**CD20/RPE**, Clone B-Ly1 + CD5/FITC, Clone DK23, MultiMix Dual-Color	29
TC66301-2	Mo a Hu	**CD20/FITC**, Clone B-Ly1 + CD5/RPE, Clone DK23 + CD19/APC, Clone HD37, MultiMix Triple-Color	28
C728101-2	Mo a Hu	**CD22/APC**, Clone 4KB128	21
F706001-2	Mo a Hu	**CD22/FITC**, Clone 4KB128	21
PR70750-2	Mo a Hu	**CD22/PerCP-Cy5.5**, Clone 4KB128	21
R706101-2	Mo a Hu	**CD22/RPE**, Clone 4KB128	21
TC66801-2	Mo a Hu	**CD22/RPE**, Clone 4KB128 + **CD3/APC**, Clone UCHT1 + **TdT/FITC**, Clone HT-6, MultiMix Triple-Color	31
TC68901-2	Mo a Hu	**CD22/APC**, Clone 4KB128 + **CD19/FITC**, Clone HD37 + **CD34/RPE**, Clone BIRMA-K3, MultiMix Triple-Color Reagent	29
F706201-2	Mo a Hu	**CD23/FITC**, Clone MHM6	21
R710801-2	Mo a Hu	**CD23/RPE**, Clone MHM6	21
TC68301-2	Mo a Hu	**CD23/RPE**, Clone MHM6 + **B Cell (FMC7)/FITC**, Clone FMC7 + **CD19/APC**, Clone HD37, MultiMix Triple-Color Reagent	28
F713401-2	Mo a Hu	**CD24/FITC**, Clone SN3	21
F080101-2	Mo a Hu	**CD25, Interleukin-2 Receptor/FITC**, Clone ACT-1	21
R081101-2	Mo a Hu	**CD25, Interleukin-2 Receptor/RPE**, Clone ACT-1	21
F717801-8	Mo a Hu	**CD27/FITC**, Clone M-T271	21
R716401-8	Mo a Hu	**CD28/RPE**, Clone CD28.1	21
F084901-2	Mo a Hu	**CD30/FITC**, Clone Ber-H2	21
F083201-2	Mo a Hu	**CD33/FITC**, Clone WM-54	21
R074501-2	Mo a Hu	**CD33/RPE**, Clone WM-54	21
TC68601-2	Mo a Hu	**CD33/FITC**, Clone WM-54 + **CD34 Class III/RPE**, Clone BIRMA-K3 + **CD117/APC**, Clone 104D2, MultiMix Triple-Color	29
C723850-2	Mo a Hu	**CD34 Class III/APC**, Clone BIRMA-K3	21
F708101-2	Mo a Hu	**CD34 Class III/FITC**, Clone BIRMA-K3	21
PR70650-2	Mo a Hu	**CD34 Class III/PerCP-Cy5.5**, Clone BIRKMA-K3	21
R712501-2	Mo a Hu	**CD34 Class III/RPE**, Clone BIRMA-K3	21
TC66601-2	Mo a Hu	**CD34 Class III/RPE**, Clone BIRMA-K3 + **CD2/FITC**, Clone MT910 + **CD5/APC**, Clone DK23, MultiMix Triple-Color	28
TC68901-2	Mo a Hu	**CD34 Class III/RPE**, Clone BIRMA-K3 + **CD19/FITC**, Clone HD37 + **CD22/APC**, Clone 4KB128, MultiMix Triple-Color Reagent	29
TC68601-2	Mo a Hu	**CD34 Class III/RPE**, Clone BIRMA-K3 + **CD33/FITC**, Clone WM-54 + **CD117/APC**, Clone 104D2, MultiMix Triple-Color	29
TC68701-2	Mo a Hu	**CD34 Class III/RPE**, Clone BIRMA-K3 + **CD41/FITC**, Clone 5B12 + **CD61/APC**, Clone Y2/51, MultiMix Triple-Color Reagent	30
F710101-2	Mo a Hu	**CD38/FITC**, Clone AT13/5	21
R714401-2	Mo a Hu	**CD38/RPE**, Clone AT13/5	21
TC67401-2	Mo a Hu	**CD38/FITC**, Clone AT13/5 + **CD19/APC**, Clone HD37 + CD56/RPE, Clone C5.9, MultiMix Triple-Color Reagent	30
TC67101-2	Mo a Hu	**CD38/FITC**, Clone AT13/5 + **CD45/APC**, Clone 2D1 + CD56/RPE, Clone C5.9, MultiMix Triple-Color Reagent	30
F708801-2	Mo a Hu	**CD41, Platelet Glycoprotein IIb/FITC**, Clone 5B12	22
R705801-2	Mo a Hu	**CD41, Platelet Glycoprotein IIb/RPE**, Clone 5B12	22
TC68701-2	Mo a Hu	**CD41/FITC**, Clone 5B12 + **CD34/RPE**, Clone BIRMA-K3 + **CD61/APC**, Clone Y2/51, MultiMix Triple-Color Reagent	30
R701401-2	Mo a Hu	**CD42b, Platelet Glycoprotein Ib/RPE**, Clone AN51	30
F710201-2	Mo a Hu	**CD43/FITC**, Clone DF-T1	22
PR70101-2	Mo a Hu	**CD45, Leucocyte Common Antigen/PerCP**, Clone 2D1	22
TC69001-2	Mo a Hu	**CD45/APC**, Clone 2D1 + **CD3/FITC**, Clone UCHT1 + **CD19/RPE**, Clone HD37, MultiMix Triple-Color Reagent	28
TC67101-2	Mo a Hu	**CD45/APC**, Clone 2D1 + **CD38/FITC**, Clone AT13/5 + **CD56/RPE**, Clone C5.9, MultiMix Triple-Color Reagent	30
TC67501-2	Mo a Hu	**CD45/APC**, Clone 2D1 + **CD71/FITC**, Clone Ber-T9 + **CD235a/RP**E, Clone JC159, MultiMix Triple-Color Reagent	30
C723001-2	Mo a Hu	**CD45, Leucocyte Common Antigen/APC**, Clone T29/33	22
F086101-2	Mo a Hu	**CD45, Leucocyte Common Antigen/FITC**, Clone T29/33	22
PB98601-8	Mo a Hu	**CD45, Leucocyte Common Antigen/PB**, Clone T29/33	22
R708701-2	Mo a Hu	**CD45, Leucocyte Common Antigen/RPE**, Clone T29/33	22
C709901-2	Mo a Hu	**CD45, Leucocyte Common Antigen/RPE-Cy5**, Clone T29/33	22
FR70050-2	Mo a Hu	**CD45/FITC**, Clone T29/33 + **CD14/RPE**, Clone TÜK4, MultiMix Dual-Color	27
F080001-2	Mo a Hu	**CD45R0/FITC**, Clone UCHL1	22
R084301-2	Mo a Hu	**CD45R0/RPE**, Clone UCHL1	22

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R708601-2	Mo a Hu	**CD45RA/RPE**, Clone 4KB5	22
F714301-8	Mo a Hu	**CD54, ICAM-1/FITC**, Clone 6.5B5	22
R725101-2	Mo a Hu	**CD56/RPE**, Clone C5.9	23
TC66101-2	Mo a Hu	**CD56/RPE**, Clone C5.9 + **CD3/APC**, Clone UCHT1 + **CD16/FITC**, Clone DJ130c, MultiMix Triple-Color	29
TC67401-2	Mo a Hu	**CD56/RPE**, Clone C5.9 + **CD19/APC**, Clone HD37 + **CD38/FITC**, Clone AT13/5, MultiMix Triple-Color Reagent	30
TC67101-2	Mo a Hu	**CD56/RPE**, Clone C5.9 + **CD38/FITC**, Clone AT13/5 + **CD45/APC**, Clone 2D1, MultiMix Triple-Color Reagent	30
R712701-2	Mo a Hu	**CD56/RPE**, Clone MOC-1	23
F727001-2	Mo a Hu	**CD57/FITC**, Clone TB01	23
C728001-2	Mo a Hu	**CD61, Platelet Glycoprotein IIIa/APC**, Clone Y2/51	23
F080301-2	Mo a Hu	**CD61, Platelet Glycoprotein IIIa/FITC**, Clone Y2/51	23
TC68701-2	Mo a Hu	**CD61/APC**, Clone Y2/51 + **CD34/RPE**, Clone BIRMA-K3 + **CD41/FITC**, Clone 5B12, MultiMix Triple-Color Reagent	30
C727801-2	Mo a Hu	**CD64, Fc Gamma Receptor I/APC**, Clone 10.1	23
R721901-2	Mo a Hu	**CD64, Fc Gamma Receptor I/RPE**, Clone 10.1	23
F711201-2	Mo a Hu	**CD66abce/FITC**, Clone Kat4c	23
F713501-2	Mo a Hu	**CD68/FITC**, Clone KP1	23
F082901-2	Mo a Hu	**CD71, Transferrin Receptor/FITC**, Clone Ber-T9	23
TC67501-2	Mo a Hu	**CD71/FITC**, Clone Ber-T9 + **CD45/APC**, Clone 2D1 + **CD235a/RPE**, Clone JC159, MultiMix Triple-Color Reagent	30
C725201-2	Mo a Hu	**CD79acy/APC**, Clone HM57	24
R715901-2	Mo a Hu	**CD79acy/RPE**, Clone HM57	24
TC66701-2	Mo a Hu	**CD79acy/RPE**, Clone HM57 + **CD3/APC**, Clone UCHT1 + **MPO/FITC**, Clone MPO-7, MultiMix Triple-Color	31
F713701-2	Mo a Hu	**CD79ß/FITC**, Clone SN8	24
R727201-2	Mo a Hu	**CD79ß/RPE**, Clone SN8	24
F713801-2	Mo a Hu	**CD103, Mucosa Lymphocyte Antigen/FITC**, Clone Ber-ACT8	24
R718801-2	Mo a Hu	**CD103, Mucosa Lymphocyte Antigen/RPE,** Clone Ber-ACT8	24
TC66501-2	Mo a Hu	**CD103/FITC**, Clone Ber-ACT8 + **CD11c/RPE**, Clone KB90 + **CD19/APC**, Clone HD37, MultiMix Triple-Color Reagent	30
C724401-2	Mo a Hu	**CD117, c-kit/APC**, Clone 104D2	24
R714501-2	Mo a Hu	**CD117, c-kit/RPE**, Clone 104D2	24
TC68501-2	Mo a Hu	**CD117/APC**, Clone 104D2 + **CD13/FITC**, Clone WM-47 + **HLA-DR Antigen/RPE**, Clone AB3, MultiMix Triple-Color Reagent	29
TC68601-2	Mo a Hu	**CD117/APC**, Clone 104D2 + **CD33/FITC**, Clone WM-54 + **CD34/RPE**, Clone BIRMA-K3, MultiMix Triple-Color Reagent	29
		CD117, see also: c-kit	
C725601-2	Mo a Hu	**CD138/APC**, Clone MI15	24
R722901-2	Mo a Hu	**CD138/RPE**, Clone MI15	24
F087001-2	Mo a Hu	**CD235a, Glycophorin A/FITC**, Clone JC159	24
R707801-2	Mo a Hu	**CD235a, Glycophorin A/RPE**, Clone JC159	24
TC67501-2	Mo a Hu	**CD235a/RPE**, Clone JC159 + **CD45/APC**, Clone 2D1 + **CD71/FITC**, Clone Ber-T9, MultiMix Triple-Color Reagent	30
		c-kit, see also: CD117, c-kit	
		Complement Receptor 3, see: CD11b, C3bi Receptor	
X093101-2		**Control Reagent, Mouse IgG1**, Unconjugated	33
X096801-2		**Control Reagent, Mouse IgG1/APC**	32
X092701-2		**Control Reagent, Mouse IgG1/FITC**	32
X092801-2		**Control Reagent, Mouse IgG1/RPE**	32
X095501-2		**Control Reagent, Mouse IgG1/RPE-Cy5**	32
X093250-2		**Control Reagent, Mouse IgG1/FITC + Mouse IgG1/RPE**, MultiMix Dual-Color	32
X094950-2		**Control Reagent, Mouse IgG1/FITC + Mouse IgG2a/RPE**, MultiMix Dual-Color	32
X097801-2		**Control Reagent, Mouse IgG1/APC + Mouse IgG1/FITC + Mouse IgG1/RPE**, MultiMix Triple-Color	32
X095650-2		**Control Reagent, Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/RPE-Cy5, MultiMix Triple-Color**	33
X097901-2		**Control Reagent, Mouse IgG1/FITC + Rabbit F(ab')$_2$/APC + Rabbit F(ab')$_2$/RPE**, MultiMix Triple-Color	32
X093301-2		**Control Reagent, Mouse IgG2a/FITC**	32
X095001-2		**Control Reagent, Mouse IgG2a/RPE**	32
X099801-2		**Control Reagent, Rabbit F(ab')$_2$/APC**	32
X092901-2		**Control Reagent, Rabbit F(ab')$_2$/FITC**	32
X093001-2		**Control Reagent, Rabbit F(ab')$_2$/RPE**	32
X093550-2		**Control Reagent, Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE**, MultiMix Dual-Color	32
X095750-2		**Control Reagent, Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE + Mouse IgG1/RPE-Cy5**, MultiMix Triple-Color	33

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E			
S236430-2		**EasyLyse, Erythrocyte-Lysing Reagent** (300 Tests)	34
F086001-2	Mo a Hu	**Epithelial Antigen/FITC**, Clone Ber-EP4	25
S236430-2		**Erythrocyte-Lysing Reagent**, EasyLyse (300 Tests)	34
F			
		Fc Gamma Receptor I, see: CD64, Fc Gamma Receptor I	
		Fc Gamma Receptor III, see: CD16, Fc Gamma Receptor III	
K231111-2		**Fixation and Permeabilization Kit** for Flow Cytometry, IntraStain (100 Tests)	34
K011011-2		**FluoroSpheres, 6-Peak Calibration Beads** for Daily Monitoring of the Flow Cytometer (40 Tests)	34
		FMC7, see: B Cell, Clone FMC7	
G			
		Glycophorin A, see: CD235a, Glycophorin A	
		Glycoprotein Ib, see: CD42b, Platelet Glycoprotein Ib	
		Glycoprotein IIb, see: CD41, Platelet Glycoprotein IIb	
		Glycoprotein IIIa, see: CD61, Platelet Glycoprotein IIIa	
H			
R700001-2	Mo a Hu	**HLA-ABC Antigen/RPE**, Clone W6/32	25
F081701-2	Mo a Hu	**HLA-DP, DQ, DR Antigen/FITC**, Clone CR3/43	25
FR86750-2	Mo a Hu	**HLA-DP, DQ, DR Antigen/FITC**, Clone CR3/43 + **CD3/RPE**, Clone UCHT1, MultiMix Dual-Color	27
F726601-2	Mo a Hu	**HLA-DR Antigen/FITC**, Clone AB3	25
R726701-2	Mo a Hu	**HLA-DR Antigen/RPE**, Clone AB3	25
TC68501-2	Mo a Hu	**HLA-DR Antigen/RPE**, Clone AB3 + **CD13/FITC**, Clone WM-47 + **CD117/APC**, Clone 104D2, MultiMix Triple-Color Reagent	29
I			
		ICAM-1, see: CD54, ICAM-1	
F018801-2	Rb a Hu	**IgA/FITC**, Rabbit $F(ab')_2$	25
F018901-2	Rb a Hu	**IgD/FITC**, Rabbit $F(ab')_2$	25
R511201-2	Rb a Hu	**IgD/RPE**, Rabbit $F(ab')_2$	25
F018501-2	Rb a Hu	**IgG/FITC**, Rabbit $F(ab')_2$	25
F005801-2	Rb a Hu	**IgM/FITC**, Rabbit $F(ab')_2$	25
R511101-2	Rb a Hu	**IgM/RPE**, Rabbit $F(ab')_2$	25
		IL-2R, see: CD25, Interleukin-2 Receptor	
F080101-2	Mo a Hu	**Interleukin-2 Receptor, CD25/FITC**, Clone ACT-1	21
R081101-2	Mo a Hu	**Interleukin-2 Receptor**, CD25/RPE, Clone ACT-1	21
K231111-2		**IntraStain**, Fixation and Permeabilization Kit for Flow Cytometry (100 Tests)	34
		Isotype Reagents, see: Control Reagents	
K			
C022201-2	Rb a Hu	**Kappa Light Chains/APC**, Rabbit $F(ab')_2$	26
F043401-2	Rb a Hu	**Kappa Light Chains/FITC**, Rabbit $F(ab')_2$	26
R043601-2	Rb a Hu	**Kappa Light Chains/RPE**, Rabbit $F(ab')_2$	26
FR04850-2	a Hu	**Kappa Light Chains/FITC**, Rabbit $F(ab')_2$ + **CD19/RPE**, Clone HD37, MultiMix Dual-Color	27
FR48150-2	Rb a Hu	**Kappa Light Chains/FITC**, Rabbit $F(ab')_2$ + **Lambda Light Chains/RPE**, Rabbit $F(ab')_2$, MultiMix Dual-Color	27
TC05150-2	a Hu	**Kappa Light Chains/FITC**, Rabbit $F(ab')_2$ + **Lambda Light Chains/RPE**, Rabbit $F(ab')_2$ + **CD19/RPE-Cy5**, Clone HD37, MultiMix Triple-Color	31
TC66901-2	a Hu	**Kappa Light Chains/APC**, Rabbit$F(ab')_2$ + **CD19/FITC**, Clone HD37 + **Lambda Light Chains/RPE**, Rabbit $F(ab')_2$, MultiMix Triple-Color	29
TC67001-2	a Hu	**Kappa Light Chains/APC**, Rabbit $F(ab')_2$ + **Lambda Light Chains/RPE**, Rabbit $F(ab')_2$ + **Plasma Cell/FITC**, Clone VS38c, MultiMix Triple-Color	31
		Ki-1 Antigen, see: CD30	
F726801-8	Mo a Hu	**Ki-67 Antigen/FITC**, Clone MIB-1	26
		KIT, see: CD117, c-kit	
L			
F043501-2	Rb a Hu	**Lambda Light Chains/FITC**, Rabbit $F(ab')_2$	26
PR71250-2	Rb a Hu	**Lambda Light Chains/PerCP-Cy5.5**	26
R043701-2	Rb a Hu	**Lambda Light Chains/RPE**, Rabbit $F(ab')_2$	26
FR04450-2	a Hu	**Lambda Light Chains/FITC**, Rabbit $F(ab')_2$ + **CD19/RPE**, Clone HD37, MultiMix Dual-Color	27
FR48150-2	Rb a Hu	**Lambda Light Chains/RPE**, Rabbit $F(ab')_2$ + **Kappa Light Chains/FITC**, Rabbit $F(ab')_2$, MultiMix Dual-Color	27

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Code	Source	Product	See page
TC66901-2	a Hu	**Lambda Light Chains/RPE**, Rabbit F(ab')$_2$ + **CD19/FITC**, Clone HD37 + **Kappa Light Chains/APC**, Rabbit F(ab')$_2$, MultiMix Triple-Color	29
TC05150-2	a Hu	**Lambda Light Chains/RPE**, Rabbit F(ab')$_2$ + **Kappa Light Chains/FITC**, Rabbit F(ab')$_2$ + **CD19/RPE-Cy5**, Clone HD37, MultiMix Triple-Color	31
TC67001-2	a Hu	**Lambda Light Chains/RPE**, Rabbit F(ab')$_2$ + **Kappa Light Chains/APC**, Rabbit F(ab')$_2$ + **Plasma Cell/FITC**, Clone VS38c, MultiMix Triple-Color	31
		LeuCAMb, see: CD11b, C3bi Receptor	
		LeuCAMc, see: CD11c, Protein 150,95	
		Leucocyte Common Antigen, see: CD45, Leucocyte Common Antigen	
		Leukosialin, see: CD43	
		Lewis X Antigen, see: CD15	
S236430-2		**Lysing Reagent for Erythrocytes**, EasyLyse (300 Tests)	34
F037201-2	Rb a Hu	**Lysozyme EC 3.2.1.17/FITC**	26
M			
		MHC-I, see: HLA-ABC Antigen	
		MHC-II, see: HLA-DP, DQ, DR Antigen	
		MIB-1, see: Ki-67 Antigen, Clone MIB-1	
		MLA, see: CD103, Mucosa Lymphocyte Antigen	
X093101-2		**Mouse IgG1**, Control Reagent	33
X096801-2		**Mouse IgG1/APC**, Control Reagent	32
X092701-2		**Mouse IgG1/FITC**, Control Reagent	32
X092801-2		**Mouse IgG1/RPE**, Control Reagent	32
X095501-2		**Mouse IgG1/RPE-Cy5**, Control Reagent	32
X093250-2		**Mouse IgG1/FITC + Mouse IgG1/RPE**, Control Reagent, MultiMix Dual-Color	32
X097801-2		**Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/APC**, Control Reagent, MultiMix Triple-Color for Flow Cytometry	32
X095650-2		**Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/RPE-Cy5**, Control Reagent, MultiMix Triple-Color	33
X094950-2		**Mouse IgG1/FITC + Mouse IgG2a/RPE**, Control Reagent, MultiMix Dual-Color	32
X097901-2		**Mouse IgG1/FITC + Rabbit F(ab')$_2$/RPE + Rabbit F(ab')$_2$/APC**, Control Reagent, MultiMix Triple-Color	32
X093301-2		**Mouse IgG2a/FITC**, Control Reagent	32
X095001-2		**Mouse IgG2a/RPE**, Control Reagent	32
F047902-2	Gt a	**Mouse Immunoglobulins/FITC**, Goat F(ab')$_2$	33
R048001-2	Gt a	**Mouse Immunoglobulins/RPE**, Goat F(ab')$_2$	33
F031302-2	Rb a	**Mouse Immunoglobulins/FITC**, Rabbit F(ab')$_2$	33
R043901-2	Rb a	**Mouse Immunoglobulins/RPE**, Rabbit F(ab')$_2$	33
		Mucosa Lymphocyte Antigen (MLA), see: CD103, Mucosa Lymphocyte Antigen (MLA)	
		MultiMix Reagents	
		Muramidase, see: Lysozyme EC 3.2.1.17	
C724601-2	Mo a Hu	**Myeloperoxidase/APC**, Clone MPO-7	26
F071401-2	Mo a Hu	**Myeloperoxidase/FITC**, Clone MPO-7	26
PR70450-2	Mo a Hu	**Myeloperoxidase/PerCP-Cy5.5**, Clone MPO-7	26
R720901-2	Mo a Hu	**Myeloperoxidase/RPE**, Clone MPO-7	26
TC66701-2	Mo a Hu	**Myeloperoxidase/FITC, Clone MPO-7 + CD3/APC**, Clone UCHT1 + CD79acy/RPE, Clone HM57, MultiMix Triple-Color	31
N			
		Neutral Endopeptidase 24.11, see: CD10	
P			
K231111-2		**Permeabilization and Fixation Kit for Flow Cytometry**, IntraStain (100 Tests)	34
S302430-2		**Phosphate-Buffered Saline (PBS)**, pH 7.0 (6 x 1L)	33
F714901-2	Mo a Hu	**Plasma Cell/FITC**, Clone VS38c	26
TC67001-2	a Hu	**Plasma Cell/FITC**, Clone VS38c + **Kappa Light Chains/APC**, Rabbit F(ab')$_2$ + **Lambda Light Chains/RPE**, Rabbit F(ab')$_2$, MultiMix Triple-Color	31
F710101-2	Mo a Hu	**Plasma Cell, CD38/FITC**, Clone AT13/5	22
R714401-2	Mo a Hu	**Plasma Cell, CD38/RPE**, Clone AT13/5	22
		Plasma Cell, see also: CD138, Clone MI15	
		Platelet Glycoprotein Ib, see: CD42b, Platelet Glycoprotein Ib	
		Platelet Glycoprotein IIb, see: CD41, Platelet Glycoprotein IIb	
		Platelet Glycoprotein IIIa, see: CD61, Platelet Glycoprotein IIIa	

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Code	Source	Product	See page
PR71350-2	Mo a Hu	**Plasma Cell/PerCP-Cy5.5**, Clone VS38c	26
K532711-8		**PNA Telomere Kit/FITC** (20 Duplicate Tests)	35
F071301-2	Mo a Hu	**Protein 150,95, CD11c/FITC**, Clone KB90	20
Q			
K007811-8		**QIFIKIT®** (10 Calibrations)	34
R			
X099801-2		**Rabbit F(ab')$_2$/APC**, Control Reagent	32
X092901-2		**Rabbit F(ab')$_2$/FITC**, Control Reagent	32
X093001-2		**Rabbit F(ab')$_2$/RPE**, Control Reagent	32
X093550-2		**Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE**, Control Reagent, MultiMix Dual-Color	32
X095750-2		**Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE + Mouse IgG1/RPE-Cy5**, Control Reagent, MultiMix Triple-Color	33
S			
		Sialophorin, see: CD43	
		Syndecan-1, see: CD138	
T			
		TdT, see: Terminal Deoxynucleotidyl Transferase	
K532711-8		**Telomere PNA Kit/FITC** (20 Duplicate Tests)	35
F713950-2	Mo a Hu	**Terminal Deoxynucleotidyl Transferase/FITC**, Clone HT-6	26
TC66801-2	Mo a Hu	**Terminal Deoxynucleotidyl Transferase/FITC**, Clone HT-6 + **CD3/APC**, Clone UCHT1 + **CD22/RPE**, Clone 4KB128, MultiMix Triple-Color	31
F082901-2	Mo a Hu	**Transferrin Receptor**, CD71/FITC, Clone Ber-T9	23

Flow Cytometry Reagents

Flow cytometric immunophenotyping is an essential tool for the diagnosis of acute and chronic leukemia. The method is also applicable in connection with bone marrow or peripheral blood stem cell transplantation. Agilent Dako proudly develops premium-quality reagents for flow cytometry to help diagnose cancer and other diseases worldwide.

Hospitals and research laboratories rely on the high quality of our reagents to deliver trustworthy results, particularly in regards to leukemia immunophenotyping.

Single-Color Conjugates

Our range of high-quality, single-color conjugated antibodies for use in flow cytometry includes both polyclonal and monoclonal antibodies conjugated with either APC, FITC, PB, PerCP, PerCP-Cy5.5, RPE or RPE-Cy5.

MultiMix Panel

Our MultiMix panel is a comprehensive and carefully selected antibody-fluorochrome combinations panel. The antibody and fluorochrome combinations have been designed to gain the best sensitivity of the analysis on most flow cytometers. The MultiMix Triple-Color panels are composed of the well-established flourochrome antibody conjugates FITC, RPE and APC. The panels also include polyclonal kappa light chain conjugates and lambda light chain conjugates, known for their high quality and specificity.

Kits and Accessories

We offer kits for the study of telomeres, calibration and quantitative analysis, as well as lysing, fixation and permeabilization of cells.

Reagents Supplied

Reagents are supplied in liquid form with sodium azide as preservative. All conjugated monoclonal antibodies have been prepared from purified antibodies, while the majority of the polyclonal antibodies are affinity-isolated $F(ab')_2$ fragments.

Ensuring reliability, consistency and high quality

Our unique ability to develop and manufacture highly specific antibodies is grounded on a high-yielding rabbit population, which has been bred over the past 50 years – and is the foundation of our brand and premium-quality products.

Overview Tables

Overview, Single-Color Reagents, CE-IVD

Antibody Description		Available Form/Code						
Anti-Human	**Clone**	**APC**	**FITC**	**PB**	**PerCP**	**PerCP-Cy5.5**	**RPE**	**RPE-Cy5**
B Cell	FMC7		F7110001-2					
BCL2 Oncoprotein	124						R718901-2	
CD1a	NA1/34		F714101-2			PR71050-2	R080701-2	
CD2	MT910		F076701-2					
CD3	UCHT1	C722501-2	F081801-2		PR70201-2		R081001-2	C706701-2
CD4	MT310	C722601-2	F076601-2				R080501-2	
CD5	DK23	C724201-2	F079501-2				R084201-2	
CD7	CBC.37		F727601-2			PR71150-2	R727701-2	
CD7	DK24		F078901-2					
CD8	DK25	C722701-2	F076501-2				R080601-2	
CD10	SS2/36		F082601-2				R084801-2	
CD11c	KB90		F071301-2					
CD13	WM-47		F083101-2				R071501-2	
CD14	TÜK4		F084401-2				R086401-2	
CD15	C3D-1		F083001-2					
CD16	DJ130c		F701101-2				R701201-2	
CD19	HD37	C722401-2	F076801-2			PR70350-2	R080801-2	C706601-2
CD20	B-Ly1		F079901-2				R701301-2	
CD22	4KB128	C728101-2	F706001-2			PR70750-2	R706101-2	
CD23	MHM6		F706201-2				R710801-2	
CD24	SN3		F713401-2					
CD25	ACT-1		F080101-2				R081101-2	
CD30	Ber-H2		F084901-2					
CD33	WM-54		F083201-2				R074501-2	
CD34 Class III	BIRMA-K3	C723850-2	F708101-2			PR70650-2	R712501-2	
CD38	AT13/5		F710101-2				R714401-2	
CD41	5B12		F708801-2				R705801-2	
CD42b	AN51						R701401-2	
CD43	DF-T1		F710201-2					
CD45	2D1				PR70101-2			
CD45	T29/33	C723001-2	F086101-2				R708701-2	C709901-2
CD45R0	UCHL1		F080001-2				R084301-2	
CD45RA	4KB5						R708601-2	
CD56	C5.9						R725101-2	
CD56	MOC-1						R712701-2	
CD57	TB01		F727001-2					
CD61	Y2/51	C728001-2	F080301-2					
CD64	10.1	C727801-2					R721901-2	
CD66abce	Kat4c		F711201-2					
CD68	KP1		F713501-2					
CD71	Ber-T9		F082901-2					
CD79αcy	HM57	C725201-2					R715901-2	
CD79β	SN8		F713701-2				R727201-2	
CD103	Ber-ACT8		F713801-2				R718801-2	
CD117	104D2	C724401-2					R714501-2	
CD138	MI15	C725601-2					R722901-2	
CD235a	JC159		F087001-2				R707801-2	
Epithelial Antigen	Ber-EP4		F086001-2					
HLA-ABC Antigen	W6/32						R700001-2	

Overview, Single-Color Reagents, CE-IVD

Antibody Description		Available Form/Code						
Anti-Human	**Clone**	**APC**	**FITC**	**PB**	**PerCP**	**PerCP-Cy5.5**	**RPE**	**RPE-Cy5**
HLA-DP, DQ, DR Antigen	CR3/43		F081701-2					
HLA-DR Antigen	AB3		F726601-2				R726701-2	
IgA*	Polyclonal Rabbit		F018801-2					
IgD*	Polyclonal Rabbit		F018901-2				R511201-2	
IgG*	Polyclonal Rabbit		F018501-2					
IgM*	Polyclonal Rabbit		F005801-2				R511101-2	
Kappa Light Chains*	Polyclonal Rabbit	C022201-2	F043401-2				R043601-2	
Lambda Light Chains*	Polyclonal Rabbit		F043501-2			PR71250-2	R043701-2	
Lysozyme	Polyclonal Rabbit		F037201-2					
Myeloperoxidase	MPO-7	C724601-2	F071401-2			PR70450-2	R720901-2	
Plasma Cell	VS38c		F714901-2			PR71350-2		
Terminal Deoxynucleotidyl Transferase	HT-6	F713950-2						

* $F(ab')_2$ fragment of affinity-isolated antibody

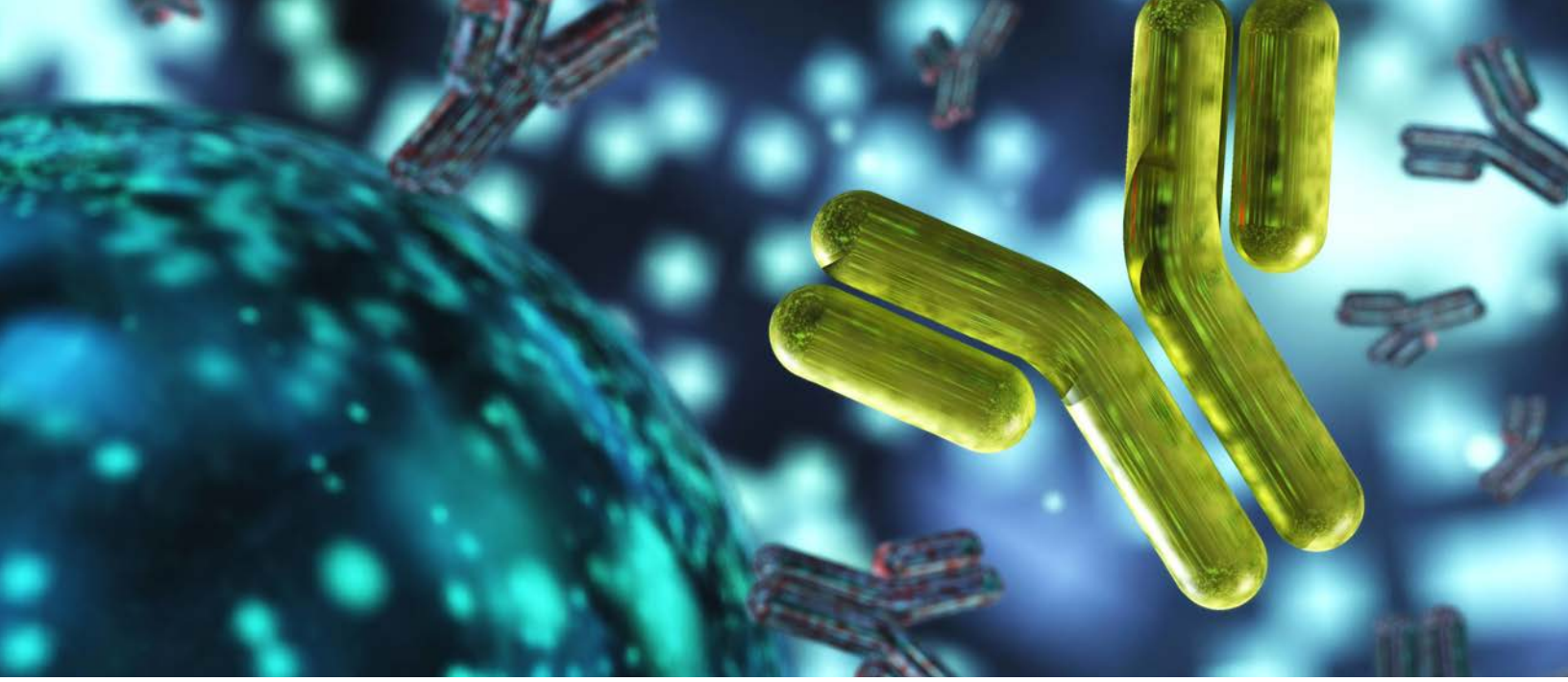
Overview, Single-Color Reagents, RUO*

Antibody Description		Available Form/Code						
Anti-Human	**Clone**	**APC**	**FITC**	**PB**	**PerCP**	**PerCP-Cy5.5**	**RPE**	**RPE-Cy5**
BCL2 Oncoprotein	124		F705301-8					
CD3	UCHT1			PB98201-8				
CD8	DK25			PB98401-8				
CD11b	2LPM19c						R084101-8	
CD19	HD37			PB98501-8				
CD27	M-T271		F717801-8					
CD28	CD28.1						R716401-8	
CD45	T29/33			PB98601-8				
CD54	6.5B5		F714301-8					
Ki-67 Antigen	MIB-1		F726801-8					

* For Reasearch Use Only. Not for use in diagnostic procedures.

Overview, Control Reagents for Single-Color Reagents, CE-IVD

	Available Form/Code			
Control Reagent	**APC**	**FITC**	**RPE**	**RPE-Cy5**
Mouse IgG1	X096801-2	X092701-2	X092801-2	X095501-2
Mouse IgG2a		X093301-2	X095001-2	
Rabbit $F(ab')_2$	X099801-2	X092901-2	X093001-2	



Overview, Dual-Color Reagents, CE-IVD

Anti-Human	Clones	Code
CD2/FITC **CD19/RPE**	MT910 HD37	FR89450-2
CD3/FITC **CD4/RPE**	UCHT1 MT310	FR87550-2
CD3/FITC **CD8/RPE**	UCHT1 DK25	FR88150-2
CD3/FITC **CD19/RPE**	UCHT1 HD37	FR86650-2
CD4/FITC **CD8/RPE**	MT310 DK25	FR86850-2
CD5/FITC **CD19/RPE**	DK23 HD37	FR88250-2
CD5/FITC **CD20/RPE**	DK23 B-Ly1	FR72950-2
CD10/FITC **CD19/RPE**	SS2/36 HD37	FR88350-2
CD45/FITC **CD14/RPE**	T29/33 TÜK4	FR70050-2
HLA-DP, DQ, DR Antigen/FITC **CD3/RPE**	CR3/43 UCHT1	FR86750-2
Kappa Light Chains/ FITC* **CD19/RPE**	Polyclonal Rabbit HD37	FR04850-2
Kappa Light Chains/ FITC* **Lambda Light Chains/RPE***	Polyclonal Rabbit Polyclonal Rabbit	FR48150-2
Lambda Light Chains/FITC* **CD19/RPE**	Polyclonal Rabbit HD37	FR04450-2

* $F(ab')_2$ fragment of affinity-isolated antibody

Overview, Control Reagents for Dual-Color Reagents, CE-IVD

Anti-Human	Code
Mouse IgG1/FITC + Mouse IgG1/RPE	X093250-2
Mouse IgG1/FITC + Mouse IgG2a/RPE	X094950-2
Rabbit $F(ab')_2$/FITC + Rabbit $F(ab')_2$/RPE	X093550-2

FITC/RPE/APC Reagent Line, CE-IVD

Anti-Human	Clones	Code
B Cell (FMC7)/FITC **CD23/RPE** **CD19/APC**	FMC7 MHM6 HD37	TC68301-2
CD2/FITC **CD7/RPE** **CD3/APC**	MT910 CBC.37 UCHT1	TC67701-2
CD2/FITC **CD34 Class III/RPE** **CD5/APC**	MT910 BIRMA-K3 DK23	TC66601-2
CD3/FITC **CD19/RPE** **CD45/APC**	UCHT1 HD37 2D1	TC69001-2
CD5/FITC **CD10/RPE** **CD19/APC**	DK23 SS2/36 HD37	TC66401-2
CD8/FITC **CD4/RPE** **CD3/APC**	DK25 MT310 UCHT1	TC66001-2
CD13/FITC **HLA-DR Antigen/RPE** **CD117/APC**	WM-47 AB3 104D2	TC68501-2
CD16/FITCc **CD56/RPE** **CD3/APC**	DJ130 C5.9 UCHT1	TC66101-2
CD19/FITC **CD34/RPE** **CD22/APC**	HD37 BIRMA-K3 4KB128	TC68901-2
CD19/FITC **Lambda Light Chains/RPE*** **Kappa Light Chains/APC***	HD37 Polyclonal Rabbit Polyclonal Rabbit	TC66901-2
CD20/FITC **CD5/RPE** **CD19/APC**	B-Ly1 DK23 HD37	TC66301-2
CD33/FITC **CD34/RPE** **CD117/APC**	WM-54 BIRMA-K3 104D2	TC68601-2
CD38/FITC **CD56/RPE** **CD19/APC**	AT13/5 C5.9 HD37	TC67401-2
CD38/FITC **CD56/RPE** **CD45/APC**	AT13/5 C5.9 2D1	TC67101-2
CD41/FITC **CD34/RPE** **CD61/APC**	C687 BIRMA-K3 Y2/51	TC68701-2
CD71/FITC **CD235a/RPE** **CD45/APC**	Ber-T9 JC159 2D1	TC67501-2
CD103/FITC **CD11c/RPE** **CD19/APC**	Ber-ACT8 KB90 HD37	TC66501-2
MPO/FITC **CD79αcy/RPE** **CD3/APC**	MPO-7 HM57 UCHT1	TC66701-2
Plasma Cell/FITC **Lambda Light Chains/RPE*** **Kappa Light Chains/APC***	VS38c Polyclonal Rabbit Polyclonal Rabbit	TC67001-2
TdT/FITC **CD22/RPE** **CD3/APC**	HT-6 4KB128 UCHT1	TC66801-2

* $F(ab')_2$ fragment of affinity-isolated antibody

FITC/RPE/RPE-Cy5 Reagent Line, CE-IVD

Anti-Human	Clones	Code
CD8/FITC **CD4/RPE** **CD3/RPE-Cy5**	DK25 MT310 UCHT1	TC64150-2
Kappa Light Chains/FITC* **Lambda Light Chains/RPE*** **CD19/RPE-Cy5**	Polyclonal Rabbit Polyclonal Rabbit HD37	TC05150-2

* $F(ab')_2$ fragment of affinity-isolated antibody

Overview, Control Reagents for Triple-Color Reagents

FITC/RPE/APC Reagent Line, CE-IVD

Control Reagent	Code
Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/APC	X097801-2
Mouse IgG1/FITC + Rabbit F(ab')$_2$/RPE + Rabbit F(ab')$_2$/APC	X097901-2

FITC/RPE/RPE-Cy5 Reagent Line, CE-IVD

Control Reagent	Code
Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/RPE-Cy5	X095650-2
Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE + Mouse IgG1/RPE-Cy5	X095750-2

Overview, Secondary Antibody Conjugates, CE-IVD

Antibody Description		Available Form/Code	
Anti-Mouse	Clone	FITC	RPE
Immunoglobulins	Polyclonal Goat	F047902-2	R048001-2
Immunoglobulins	Polyclonal Rabbit	F031302-2	R043901-2

Reagents & Kits

Single-Color Reagents

These primary antibodies are conjugated with a single fluorochrome for use in flow cytometry. After conjugation, unreacted fluorochromes are completely removed by gel filtration. Below is a list of the excitation and emission wavelength of the different flurochromes as well as the approximate molar fluorochrome/antibody ratio for each fluorochrome.

Allophycocyanin (APC) Conjugates

The molar APC/antibody ratio is approximately 1. APC conjugates can be excited at 633 nm or 635 nm (red lasers), and emit light at 660 nm.

Fluorescein (FITC) Conjugates

The molar FITC/antibody ratio is approximately 4. FITC conjugates can be excited at 488 nm (blue laser) and emit light at 530 nm.

Pacific Blue (PB) Conjugates

The molar PB/antibody ratio is approximately 6. PB conjugates can be excited at 406 nm (violet laser) and emit light at 456 nm.

Peridinin Chlorophyll Protein Complex (PerCP) Conjugates

The molar PerCP/antibody ratio is approximately 2. PerCP conjugates can be excited at 488 nm (blue laser) and emit light at 676 nm.

Peridinin Chlorophyll Protein Complex-Cy5.5 (PerCP-Cy5.5) Conjugates

The molar PerCP-Cy5.5/antibody ratio of the conjugate is approximately 1. The excitation energy, absorbed at 488 nm by PerCP is transferred to Cy5.5, which emits light at 695 nm.

R-Phycoerythrin (RPE) Conjugates

The molar RPE/antibody ratio is approximately 1. RPE conjugates can be excited at 488 nm (blue laser) and emit light at 570 nm.

Phycoerythrin-Cy5 (RPE-Cy5) Conjugates

The molar RPE-Cy5/antibody ratio of the conjugate is approximately 1.The excitation energy, absorbed at 488 nm by RPE, is transferred to Cy5, which emits light at 670 nm.

Monoclonal Mouse Anti-Human
B Cell
Clone: FMC7 • Isotype: IgM, kappa

CE	F711001-2	FITC. Purified	100 tests, 1 mL

The target for this antibody is probably a conformational epitope on CD20. The antibody labels a subpopulation of functionally mature B cells, and together with a panel of other antibodies it is considered essential for the initial evaluation of B-cell chronic lymphoproliferative disorders.

Monoclonal Mouse Anti-Human
BCL2 Oncoprotein
Clone: 124 • Isotype: IgG1, kappa

RUO	F705301-8	FITC. Purified	100 tests, 1 mL

Reacts with the BCL2 oncoprotein encoded by a gene involved in the t(14;18) chromosomal translocation. The BCL2 oncoprotein plays a central role in apoptosis (programmed cell death), acting as an inhibitor of the apoptotic process, and it has given name to a family of proteins engaged in the promotion/inhibition of apoptosis (1).
Reference:

1. Chao DT, Korsmeyer SJ. BCL-2 family: regulators of cell death. Annu Rev Immunol 1998;16:395-419.

C3bi Receptor

See: CD11b, C3bi Receptor

Monoclonal Mouse Anti-Human
CD1a
Clone: NA1/34 • Isotype: IgG2a, kappa

CE	F714101-2	FITC. Purified	100 tests, 1 mL
CE	PR71050-2	PerCP-Cy5.5. Purified	100 tests, 0.5 mL
CE	R718901-2	RPE. Purified	100 tests, 1 mL

The CD1a antigen is a transmembrane α-chain non-covalently associated with β-2-microglobulin. CD1a is expressed by cortical thymocytes and Langerhans' cells in normal, dysplastic and neoplastic tissue.

Monoclonal Mouse Anti-Human
CD2
Clone: MT910 • Isotype: IgG1, kappa

CE	F076701-2	FITC. Purified	100 tests, 1 mL
CE	R080701-2	RPE. Purified	100 tests, 1 mL

Reacts with virtually all thymocytes, T lymphocytes and NK cells. CD2 is a valuable pan-T marker for normal and neoplastic T cells.

Monoclonal Mouse Anti-Human
CD3
Clone: UCHT1 • Isotype: IgG1, kappa

CE	C722501-2	APC. Purified	100 tests, 1 mL
CE	F081801-2	FITC. Purified	100 tests, 1 mL
RUO	PB98201-8	Pacific Blue. Purified	100 tests, 1 mL
CE	PR70201-2	PerCP. Purified	100 tests, 1 mL
CE	R081001-2	RPE. Purified	100 tests, 1 mL
CE	C706701-2	RPE-Cy5. Purified	100 tests, 1 mL

Anti-CD3, UCHT1, reacts with the ε-chain of the CD3 part of the TCR/CD3 complex. The antibody is a pan-T reagent for the detection of normal and neoplastic T cells.

Monoclonal Mouse Anti-Human
CD4
Clone: MT310 • Isotype: IgG1, kappa

CE	C722601-2	APC. Purified	100 tests, 1 mL
CE	F076601-2	FITC. Purified	100 tests, 1 mL
CE	R080501-2	RPE. Purified	100 tests, 1 mL

CD4 is a 55 kDa transmembrane glycoprotein expressed by helper/inducer T cells, 55-65% of mature peripheral blood T cells and by thymocyte subsets. CD4 is also expressed by monocytes/macrophages, Langerhans' cells and other dendritic cells. CD4 is not expressed by B cells.

Monoclonal Mouse Anti-Human
CD5
Clone: DK23 • Isotype: IgG1, kappa

CE	C724201-2	APC. Purified	100 tests, 1 mL
CE	F079501-2	FITC. Purified	100 tests, 1 mL
CE	R084201-2	RPE. Purified	100 tests, 1 mL

CD5 is a 67 kDa transmembrane glycoprotein. CD5 appears early in thymocyte development and is expressed at low density on thymocytes and at high density on all mature T lymphocytes. CD5 is also expressed on a subpopulation of normal B cells. Antibodies to CD5 are well-suited for detecting normal and neoplastic T and B cells, e.g. in chronic lymphocytic leukemia and centrocytic lymphoma. A review on CD5+ B cells is given in reference 1.
Reference:
1. Hardy RR, Hayakawa K. CD5 B-cells, a fetal B-cell lineage. Adv Immunol 1994;55:297-339.

Monoclonal Mouse Anti-Human
CD7
Clone: CBC.37 • Isotype: IgG2b, kappa

CE	F727601-2	FITC. Purified	100 tests, 1 mL
CE	PR71150-2	PerCP-Cy5.5. Purified	100 tests, 0.5 mL
CE	R727701-2	RPE. Purified	100 tests, 1 mL

CD7 is a 40 kDa membrane-bound glycoprotein expressed on thymocytes, mature T cells, a large majority of natural killer cells, pluripotent hematopoietic stem cells, and progenitor cells of lymphoid and myeloid cells. CD7 is the earliest T-cell specific antigen to be expressed by lymphocytes and the only early marker to persist throughout differentiation. In flow cytometry, F727601-2 labels CD7+ cells with a higher fluorescence intensity than F078901-2 and provides a better separation between positive and negative cells.

Monoclonal Mouse Anti-Human
CD7
Clone: DK24 • Isotype: IgG2b, kappa

CE	F078901-2	FITC. Purified	100 tests, 1 mL

CD7 is a 40 kDa membrane-bound glycoprotein expressed on thymocytes, mature T cells, a large majority of natural killer cells, pluripotent hematopoietic stem cells, and progenitor cells of lymphoid and myeloid cells. CD7 is the earliest T-cell specific antigen to be expressed by lymphocytes and the only early marker to persist throughout differentiation.

Monoclonal Mouse Anti-Human
CD8
Clone: DK25 • Isotype: IgG1, kappa

CE	C722701-2	APC. Purfied	100 tests, 1 mL
CE	F076501-2	FITC. Purfied	100 tests, 1 mL
RUO	PB98401-8	Pacific Blue. Purified	100 tests, 1 mL
CE	R080601-2	RPE. Purfied	100 tests, 1 mL

CD8 is a 68 kDa transmembrane glycoprotein expressed by class I major histocompatibility complex restricted, mature suppressor/cytotoxic T cells, the great majority of cortical thymocytes and approximately 30% of medullary thymocytes. In addition a proportion of γδ T cells and NK cells express CD8.

Monoclonal Mouse Anti-Human
CD10
Clone: SS2/36 • Isotype: IgG1, kappa

CE	F082601-2	FITC. Purified	100 tests, 1 mL
CE	R084801-2	RPE. Purified	100 tests, 1 mL

CD10 is a 100 kDa transmembrane protein. CD10 is expressed on immature T and B-precursor cells but is lost as the cells reach maturation. In lymphoid malignancies, CD10 is expressed in acute lymphoblastic leukemia (ALL) arising from precursor B cells, but is also observed in a proportion of T-cell ALL. Additionally, it is expressed selectively in mature B-cell leukemia, including multiple myeloma, and in lymphomas.

Monoclonal Mouse Anti-Human
CD11b, C3bi Receptor
Clone: 2LPM19c • Isotype: IgG1, kappa

RUO	R084101-8	RPE. Purified	100 tests, 1 mL

Reacts specifically with a leucocyte surface receptor (CR3) for the C3bi complement fragment. CD11b is expressed by most granulocytes and monocytes as well as a subpopulation of 'null cell' peripheral lymphocytes containing most of the circulating natural killer cells and by neoplastic cells in myelomonocytic and monocytic leukemia and, less frequently, in acute myeloid leukemia. CD11b (Mac-1) is the specific α-chain in the CD11b/CD18 molecule, which is a member of the LFA-1 and β2 integrin subfamilies.

Monoclonal Mouse Anti-Human
CD11c, Protein 150,95
Clone: KB90 • Isotype: IgG1, kappa

CE	F071301-2	FITC. Purified	100 tests, 1 mL

The antibody is directed against the CD11c chain of the CD11c/CD18 protein, which is an adhesion molecule of integrin type (integrin αXβ2). An alternative name is complement receptor type 4 or CR4. CD11c is expressed by a variety of cells, including granulocytes, monocytes, macrophages, NK cells, dendritic cells, hairy leukemia cells and malignant cells from B-cell lymphocytic leukemia.

Monoclonal Mouse Anti-Human
CD13
Clone: WM-47 • Isotype: IgG1, kappa

CE	F083101-2	FITC. Purified	100 tests, 1 mL
CE	R071501-2	RPE. Purified	100 tests, 1 mL

CD13 is identical to aminopeptidase N. CD13 is expressed by committed granulocyte-monocyte progenitor (CFU-GM) cells, and normal granulocytic and monocytic cells at all stages of differentiation. Lymphocytes and platelets do not express CD13. Together with a panel of other antibodies, the CD13 antibody is considered essential for the initial evaluation of acute myeloid leukemias.

Monoclonal Mouse Anti-Human
CD14
Clone: TÜK4 • Isotype: IgG2a, kappa

CE	F084401-2	FITC. Purified	100 tests, 1 mL
CE	R086401-2	RPE. Purified	100 tests, 1 mL

CD14 is a 55 kDa protein, which functions as a receptor for the complex of lipopolysaccharide (LPS) and LPS-binding protein (LPB). CD14 is primarily expressed on monocytes and macrophages. The antibody is of value in the detection of normal and neoplastic cells of the monocytic cell lineage, and in the immunophenotyping of acute myeloid leukemia.
Reference:

1. Wright SD, Ramos RA, Tobias PS, Ulevitch RJ, Mathison JC. CD14, a receptor for complexes of lipopolysaccharide (LPS) and LPS binding protein. Science 1990;249:1431-3.

Monoclonal Mouse Anti-Human
CD15
Clone: C3D-1 • Isotype: IgM, kappa

CE	F083001-2	FITC. Purified	100 tests, 1 mL

Reacts with an oligosaccharide termed Lewis X (Le^x), or CD15, found on mature granulocytes and monocytes. Together with a panel of other antibodies, anti-CD15 is essential for the initial evaluation of acute myeloid leukemias.

Monoclonal Mouse Anti-Human
CD16, Fc Gamma Receptor III
Clone: DJ130c • Isotype: IgG1, kappa

CE	F701101-2	FITC. Purified	100 tests, 1 mL
CE	R701201-2	RPE. Purified	100 tests, 1 mL

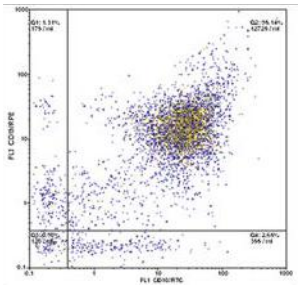
Reacts with an antigen (FcγRIII) present on NK cells, neutrophils and basophils in peripheral blood and bone marrow.

Monoclonal Mouse Anti-Human
CD19
Clone: HD37 • Isotype: IgG1, kappa

CE	C722401-2	APC. Purified	100 tests, 1 mL
CE	F076801-2	FITC. Purified	100 tests, 1 mL
RUO	PB98501-8	Pacific Blue. Purified	100 tests, 1 mL
CE	PR70350-2	PerCP-Cy5.5. Purified	100 tests, 0.5 mL
CE	R080801-2	RPE. Purified	100 tests, 1 mL
CE	C706601-2	RPE-Cy5. Purified	100 tests, 1 mL

CD19 is the broadest lineage-specific surface marker for B cells. CD19 is present on the surface of virtually all B lymphocytes, including early B progenitor cells (1), but it is lost upon terminal differentiation to plasma cells (2). CD19 is also expressed on follicular dendritic cells (1). B-lineage leukemias and lymphomas rarely lose the CD19 antigen (3).
References:

1. Pezzuto A, Dörken B, Feller A, Moldenhauer G, Schwartz R, Wernet P, et al. HD37 monoclonal antibody: a useful reagent for further characterization of 'non-T, non-B' lymphoid malignancies. In: Reinherz EL, Haynes BF, Nadler LM, Bernstein ID, editors. Leucocyte typing II. Proceedings of the 2nd International Workshop on Human Leukocyte Differentiation Antigens; 1984 Sept 17-20; Boston, USA, New York, Berlin, Heidelberg, Tokyo: Springer-Verlag; 1986. Volume 2, p. 391-402.
2. Sato S, Tedder TF. BC3. CD19 workshop panel report. In: Kishimoto T, Kikutani H, von dem Borne AEG, Goyert SM, Mason DY, Miyasaka M, et al., editors. Leucocyte typing VI. White cell differentiation antigens. Proceedings of the 6th International Workshop and Conference; 1996 Nov 10-14; Kobe, Japan. New York, London: Garland Publishing Inc.; 1997. p. 133-5.
3. Scheuermann RH, Racila E. CD19 antigen in leukaemia and lymphoma diagnosis and immunotherapy (review). Leuk Lymphoma 1995;18:385-97.



Cells from a case of acute lymphoblastic leukemia stained with Anti-CD10/FITC, Code F082601-2, and Anti-CD19/RPE, Code R080801-2.

Monoclonal Mouse Anti-Human
CD20
Clone: B-Ly1 • Isotype: IgG1, kappa

CE	F079901-2	FITC. Purified	100 tests, 1 mL
CE	R701301-2	RPE. Purified	100 tests, 1 mL

Reacts with an epitope located on the surface of B cells. CD20 appears early during B-cell maturation and is lost shortly before the terminal plasma cell stage.

Monoclonal Mouse Anti-Human
CD22
Clone: 4KB128 • Isotype: IgG1, kappa

CE	C728101-2	APC. Purified	100 tests, 1 mL
CE	F706001-2	FITC. Purified	100 tests, 1 mL
CE	PR70750-2	PerCP-Cy5.5. Purified	100 tests, 0.5 mL
CE	R706101-2	RPE. Purified	100 tests, 1 mL

CD22 appears in the cytoplasm of late pro and early pre-B cells and on the surface of mature B lymphocytes. Anti-CD22 is a pan-B reagent that enables detection of normal and neoplastic B cells in peripheral blood.

Monoclonal Mouse Anti-Human
CD23
Clone: MHM6 • Isotype: IgG1, kappa

CE	F706201-2	FITC. Purified	100 tests, 1 mL
CE	R710801-2	RPE. Purified	100 tests, 1 mL

CD23, the low affinity IgE (Fc-epsilon) receptor, is a glycoprotein present on a subpopulation of B lymphocytes in germinal centres, and on EBV-transformed B-lymphoblastoid cell lines. CD23 is also expressed on monocytes and dendritic cells.

Monoclonal Mouse Anti-Human
CD24
Clone: SN3 • Isotype: IgG1, kappa

CE	F713401-2	FITC. Purified	100 tests, 1 mL

Reacts with an antigen expressed at multiple stages of B-cell development, beginning with early progenitor cells and continuing through maturation. The antigen is lost as cells differentiate to plasma cells.

Monoclonal Mouse Anti-Human
CD25, Interleukin-2 Receptor
Clone: ACT-1 • Isotype: IgG1, kappa

CE	F080101-2	FITC. Purified	100 tests, 1 mL
CE	R081101-2	RPE. Purified	100 tests, 1 mL

CD25 is the low-affinity α-chain of the interleukin-2 receptor that has at least 3 subunits (α, β, γ). The CD25 antigen is expressed on activated T and B cells and activated macrophages. The antibody is of value in the study of activated lymphoid cells in normal and pathological specimens.

Monoclonal Mouse Anti-Human
CD27
Clone: M-T271 • Isotype: IgG1, kappa

RUO	F717801-8	FITC. Purified	100 tests, 1 mL

CD27 is a transmembrane antigen expressed on the majority of human peripheral blood T cells, on a subpopulation of B cells, and on a portion of natural killer (NK) cells. CD27 acts in a co-stimulatory fashion with the ligand, CD70. During activation, the expression of CD27 is increased on B cells and unprimed T cells. The antibody is valuable for the study of B and T-cell activation and differentiation.

Monoclonal Mouse Anti-Human
CD28
Clone: CD28.1 • Isotype: IgG1, kappa

RUO	R716401-8	RPE. Purified	100 tests, 1 mL

CD28 is a T-cell surface molecule expressed on approximately 95% of CD4+ and 50% of CD8+ peripheral T cells. CD28 mediates adhesion to activated B cells through the ligands CD80 and CD86, and is believed to play an important role in the interaction between T and B cells. Enumeration of CD8+ CD28+ T cells may be of relevance in the study of HIV-1 infection, since anti-HIV activity predominantly resides in this subset.

Monoclonal Mouse Anti-Human
CD30
Clone: Ber-H2 • Isotype: IgG1, kappa

CE	F084901-2	FITC. Purified	100 tests, 1 mL

CD30 is consistently expressed by Reed-Sternberg cells in Hodgkin's disease. It is also present in certain non-Hodgkin's lymphomas, e.g. anaplastic large cell lymphoma (ALCL), adult T-cell lymphoma/leukemia (ATLL), and, occasionally, in other types.

Monoclonal Mouse Anti-Human
CD33
Clone: WM-54 • Isotype: IgG1, kappa

CE	F083201-2	FITC. Purified	100 tests, 1 mL
CE	R074501-2	RPE. Purified	100 tests, 1 mL

CD33 is a member of the Siglec family (sialic acid binding Ig-like lectins) and is also referred to as Siglec-3. The main cellular expression of CD33 is in myeloid progenitors, monocytes/macrophages and in granulocyte progenitors, while the expression is low in mature granulocytes. Together with a panel of other antibodies, the CD33 antibody is considered essential for the initial evaluation of acute myeloid leukemia (AML). The fluorescence intensity of RPE conjugates is, generally, somewhat higher than that of corresponding FITC conjugates. As CD33 is one of the more weakly expressed antigens, the use of R074501-2 may be preferred to F083201-2 in some situations.

Monoclonal Mouse Anti-Human
CD34 Class III
Clone: BIRMA-K3 • Isotype: G1, kappa

CE	C723850-2	APC. Purified	50 tests, 0.5 mL
CE	F708101-2	FITC. Purified	100 tests, 1 mL
CE	PR70650-2	PerCP-Cy5.5 Purified	100 tests, 0.5 mL
CE	R712501-2	RPE. Purified	100 tests, 1 mL

Reacts with an antigen present on immature hematopoietic cells. The antibody is of value in the identification of hematopoietic progenitor cells, and in the immunophenotyping of leukemias. R712501-2 is recommended in particular for the labeling of hematopoietic progenitor cells.

Monoclonal Mouse Anti-Human
CD38
Clone: AT13/5 • Isotype: IgG1, kappa

CE	F710101-2	FITC. Purified	100 tests, 1 mL
CE	R714401-2	RPE. Purified	100 tests, 1 mL

CD38 is expressed on plasma cells, on early cells of B and T cell lineages, and on activated B and T cells. Approximately 60% of peripheral blood mononuclear CD34+ cells express CD38. The least mature CD34+ cells are characterized by a lack of CD38. The antibody is of value for immunophenotyping of acute leukemias, and in research studies on the role of activated T cells in immunodeficiency diseases and in autoimmune diseases.

Monoclonal Mouse Anti-Human
CD41, Platelet Glycoprotein IIb
Clone: 5B12 • Isotype: IgG1, kappa

CE	F708801-2	FITC. Purifed	100 tests, 1 mL
CE	R705801-2	RPE. Purified	100 tests, 1 mL

CD41 is a 135 kDa protein which is a selective marker of platelets and platelet precursors. CD41 is expressed to a variable degree in megakaryoblastic/cytic leukemias. It is absent from, or defective on the platelets of patients suffering from Glanzmann's thrombasthenia.

Monoclonal Mouse Anti-Human
CD42b, Platelet Glycoprotein Ib
Clone: AN51 • Isotype: IgG2a, kappa

CE	R701401-2	RPE. Purified	100 tests, 1 mL

CD42b is a 145 kDa protein restricted to platelets and megakaryocytes. CD42a, CD42b, CD42c and CD42d form a complex in the platelet plasma membrane which serves as a receptor for von Willebrand factor and thrombin, and mediates adhesion of platelets to subendothelial matrices exposed upon damage to the endothelium. The binding sites for von Willebrand factor and thrombin lies on CD42b.

Monoclonal Mouse Anti-Human
CD43
Clone: DF-T1 • Isotype: IgG1, kappa

CE	F710201-2	FITC. Purified	100 tests, 1 mL

Reacts with a heavily glycosylated transmembrane protein, also called leucosialin. CD43 is expressed on virtually all leucocytes.

Monoclonal Mouse Anti-Human
CD45, Leucocyte Common Antigen
Clone: 2D1 • Isotype: IgG1, kappa

CE	PR70101-2	PerCP. Purified	100 tests, 1 mL

The antibody is intended for use in the identification of cells expressing CD45. CD45 is one of the most abundant leucocyte cell surface glycoproteins and is expressed exclusively on cells of the hematopoietic system and their progenitors (1). In flow cytometry, anti-CD45, together with a panel of other antibodies, is considered essential for the initial evaluation of chronic lymphoproliferative disorders and acute leukemias (2).
References:

1. Leong AS-Y, Cooper K, Leong FJW-M. Manual of diagnostic antibodies for immunohistology. London: Oxford University Press;1999. p. 95-8.
2. Braylan RC, Orfao A, Borowitz MJ, Davis BH. Optimal number of reagents required to evaluate hematolymphoid neoplasias: results of an international consensus meeting. Cytometry 2001;46:23-7.

Monoclonal Mouse Anti-Human
CD45, Leucocyte Common Antigen
Clone: T29/33 • Isotype: IgG1, kappa

CE	C723001-2	APC. Purified	100 tests, 1 mL
CE	F086101-2	FITC. Purified	100 tests, 1 mL
RUO	PB98601-8	Pacific Blue. Purified	100 tests, 1 mL
CE	R708701-2	RPE. Purified	100 tests, 1 mL
CE	C709901-2	RPE-Cy5. Purified	100 tests, 1 mL

Labels the cell membrane of almost all leucocytes. The expression of CD45 on the surface of mature granulocytes is less than that of lymphocytes.

Monoclonal Mouse Anti-Human
CD45R0
Clone: UCHL1 • Isotype: IgG2a, kappa

CE	F080001-2	FITC. Purified	100 tests, 1 mL
CE	R084301-2	RPE. Purified	100 tests, 1 mL

Reacts with an epitope unique for CD45R0. The antibody labels most thymocytes, a subpopulation of resting T cells within both CD4 and CD8 subsets and mature, activated T cells.

Monoclonal Mouse Anti-Human
CD45RA
Clone: 4KB5 • Isotype: IgG1, kappa

CE	R708601-2	RPE. Purified	100 tests, 1 mL

Reacts with the CD45 isoforms, ABC and AB. The antibody labels most B cells in peripheral blood and tissue sections.

Monoclonal Mouse Anti-Human
CD54, ICAM-1
Clone: 6.5B5 • Isotype: IgG1, kappa

RUO	F714301-8	FITC. Purified	100 tests, 1 mL

Reacts with the cell surface glycoprotein ICAM-1. ICAM-1 (intercellular adhesion molecule-1) is expressed mainly on monocytes and endothelial cells, but expression can be induced or upregulated on many cell types including B and T lymphocytes.

Monoclonal Mouse Anti-Human
CD56
Clone: C5.9 • Isotype: IgG2b, kappa

CE	R725101-2	RPE. Purified	100 tests, 1 mL

Anti-CD56, clone C5.9, has a superior performance compared with Anti-CD56, clone MOC-1. The antibody labels natural killer cells and a subset of CD4+ and CD8+ cells in peripheral blood. CD56 is expressed in a number of malignancies, including some myeloid leukemias, myelomas, neuroblastomas and small cell lung cancers. In flow cytometry R725101-2 labels CD56+ cells with a higher fluorescence intensity than R712701-2 and provides a better separation between positive and negative cells.

Monoclonal Mouse Anti-Human
CD56
Clone: MOC-1 • Isotype: IgG1, kappa

CE	R712701-2	RPE. Purified	100 tests, 1 mL

Reacts with natural killer cells and a subset of CD4+ and CD8+ T cells in peripheral blood. CD56 is present in a number of tumors, including some myeloid leukemias, myelomas, neuroblastomas and small cell lung cancer (SCLC).

Monoclonal Mouse Anti-Human
CD57
Clone: TB01 • Isotype: IgM, kappa

CE	F727001-2	FITC. Purified	100 tests, 1 mL

CD57 is expressed by subsets of NK cells and CD8-positive lymphocytes, and by a small percentage of CD4-positive/CD45R0-positive T lymphocytes in lymph node germinal centres. The number of CD57-positive cells increases in some pathologies characterized by an imbalance of CD4/CD8 lymphocytes. Neuroectodermal cells and striated muscle also express CD57 (1, 2).
References:

1. Leong AS-Y, Cooper K, Leong FJW-M. CD 57. Manual of diagnostic antibodies for immunohistology. London: Oxford University Press; 1999. p. 103-6.
2. Funaro A, Malavasi F. NK5. CD57 Workshop panel report. In: Kishimoto T, Kikutani H, von dem Borne AEG, Goyert SM, Mason DY, Miyasaka M, et al., editors. Leucocyte typing VI. White cell differentiation antigens. Proceedings of the 6th International Workshop and Conference; 1996 Nov 10-14; Kobe, Japan. New York, London: Garland Publishing Inc.; 1997. p. 274-6.

Monoclonal Mouse Anti-Human
CD61, Platelet Glycoprotein IIIa
Clone: Y2/51 • Isotype: IgG1, kappa

CE	C728001-2	APC. Purified	100 tests, 1 mL
CE	F080301-2	FITC. Purified	100 tests, 1 mL

Detects platelets in peripheral blood and bone marrow and reacts also with megakaryocytes and megakaryoblasts. The antibody is of value in the diagnosis of megakaryoblastic leukemia.

Monoclonal Mouse Anti-Human
CD64, Fc Gamma Receptor I
Clone: 10.1 • Isotype: IgG1, kappa

CE	C727801-2	APC. Purified	100 tests, 1 mL
CE	R721901-2	RPE. Purified	100 tests, 1 mL

Reacts with an antigen (FcγRI) constitutively expressed on monocytes, macrophages and blood dendritic cells. The antigen expression can be induced on neutrophils and eosinophils by interferon γ and granulocyte colony-stimulating factor (G-CSF).

Monoclonal Mouse Anti-Human
CD66abce
Clone: Kat4c • Isotype: IgG1, kappa

CE	F711201-2	FITC. Purified	100 tests, 1 mL

CD66 refers to a family of heavily glycosylated glycoproteins whose members are designated CD66a to CD66f. CD66 antibodies often react with two or more members of this family, and antibody Kat4c recognizes three myeloid-associated molecules (CD66a, b, c) and also CD66e (CEA). In consequence, the antibody reacts with myeloid cells at differing stages of maturity (from promyelocytes to granulocytes), and also with a variety of epithelial cells. The antibody is of value in the immunophenotyping of leukemias of myeloid origin.

Monoclonal Mouse Anti-Human
CD68
Clone: KP1 • Isotype: IgG1, kappa

CE	F713501-2	FITC. Purified	100 tests, 1 mL

Reacts with an intracellular lysosomal membrane protein expressed by human monocytes, macrophages and myeloid cells. The antibody is of value for the immunophenotyping of neoplasms of myeloid origin.

Monoclonal Mouse Anti-Human
CD71, Transferrin Receptor
Clone: Ber-T9 • Isotype: IgG1, kappa

CE	F082901-2	FITC. Purified	100 tests, 1 mL

Reacts with many proliferating cells in both normal and neoplastic tissue.

Monoclonal Mouse Anti-Human
CD79αcy
Clone: HM57 • Isotype: IgG1, kappa

CE	C725201-2	APC. Purified	100 tests, 1 mL
CE	R715901-2	RPE. Purified	100 tests, 1 mL

Synthetic human CD79α peptide has been used as immunogen. Anti-CD79αcy, HM57, labels normal and neoplastic B cells. It reacts with an intracytoplasmic epitope. The antibody is useful for the demonstration of B cells in many mammalian species (1).
Reference:
1. Jones M, Cordell JL, Beyers AD, Tse AG, Mason DY. Detection of T and B cells in many animal species using cross-reactive antipeptide antibodies. J Immunol 1993;150:5429-35.

Monoclonal Mouse Anti-Human
CD79ß
Clone: SN8 • Isotype: IgG1, kappa

CE	F713701-2	FITC. Purified	100 tests, 1 mL
CE	R727201-2	RPE. Purified	100 tests, 1 mL

Reacts with an epitope on the extracellular portion of the b-chain of the CD79 antigen. The antibody is specific for B cells, and is of value for the study of leukemias and lymphomas.

Monoclonal Mouse Anti-Human
CD103, Mucosa Lymphocyte Antigen (MLA)
Clone: Ber-ACT8 • Isotype: IgG1, kappa

CE	F713801-2	FITC. Purified	100 tests, 1 mL
CE	R718801-2	RPE. Purified	100 tests, 1 mL

CD103 is the αE integrin subunit of the heterodimeric αEβ7 integrin belonging to a small ß7 integrin subfamily. CD103 is expressed on more than 95% of intraepithelial CD8+ cells and on 40% of mucosa-associated T cells, whereas less than 2% of resting blood lymphocytes are CD103-positive. In several malignant conditions, such as T-cell lymphomas and hairy cell leukemia, the cells express CD103. The antibody is well-suited for the immunophenotyping of leukemias and lymphomas.
Reference:
1. Kruschwitz M, Fritzsche G, Schwarting R, Micklem K, Mason DY, Falini B, et al. Ber-ACT8: monoclonal antibody to the mucosa lymphocyte antigen. J Clin Pathol 1991;44:636-45.

Monoclonal Mouse Anti-Human
CD117, c-kit
Clone: 104D2 • Isotype: IgG1, kappa

CE	C724401-2	APC. Purified	100 tests, 1 mL
CE	R714501-2	RPE. Purified	100 tests, 1 mL

CD117, a membrane tyrosine kinase receptor, is encoded by the KIT proto-oncogene, also called c-kit. CD117 is expressed on 1-4% of normal bone marrow cells. The majority of positive cells (50-70%) co-expresses CD34 and comprises progenitor cells and their precursors of all hematopoietic cell lineages. The antibody is of value in the study of acute myeloid leukemia.

Monoclonal Mouse Anti-Human
CD138
Clone: MI15 • Isotype: IgG1, kappa

CE	C725601-2	APC. Purified	100 tests, 1 mL
CE	R722901-2	RPE. Purified	100 tests, 1 mL

CD138, syndecan-1, is a transmembrane proteoglycan with a main cellular expression in stratified and simple epithelia. Within the hemopoietic system, CD138 is mainly confined to late stages of B-cell differentiation (1). CD138 expression is reduced during malignant transformation of various epithelia, and CD138 is rapidly shed by myeloma cells entering into apoptosis, making CD138 a marker of viable myeloma cells (2).
References:
1. Jourdan M, Ferlin M, Legouffe E, Horvathova M, Liautard J, Rossi JF, et al. The myeloma cell antigen syndecan-1 is lost by apoptotic myeloma cells. Br J Haematol 1988;100:637-46.
2. Costes V, Magen V, Legouffe E, Durand L, Baldet P, Rossi J-F, et al. The MI15 monoclonal antidody (anti-syndecan-1) is a reliable marker for quantifying plasma cells in paraffin-embedded bone marrow biopsies. Hum Pathol 1999;30:1405-11.

Monoclonal Mouse Anti-Human
CD235a, Glycophorin A
Clone: JC159 • Isotype: IgG1, kappa

CE	F087001-2	FITC. Purified	100 tests, 1 mL
CE	R707801-2	RPE. Purified	100 tests, 1 mL

Reacts with normal erythroid cells at essentially all stages of differentiation from erythroblasts to mature erythrocytes. The antibody reacts with the majority of cases of erythroleukemia.

c-kit

See: CD117, c-kit

Monoclonal Mouse Anti-Human
Epithelial Antigen
Clone: Ber-EP4 • Isotype: IgG1, kappa

CE	F086001-2	FITC. Purified	100 tests, 1 mL

This antibody shows a very broad reactivity with the majority of human epithelial tissues. It does rarely label mesothelial cells. The antibody labels an epitope present on the cell surface and in the cytoplasm. In flow cytometry the antibody is useful for the detection and classification of normal and neoplastic cells of epithelial origin in serous effusions, or in single cell suspensions prepared from tissues.

Fc Gamma Receptor I and III

See: CD64 and CD16, respectively

FMC7

See: B Cell

Glycophorin A

See: CD235a, Glycophorin A

Monoclonal Mouse Anti-Human
HLA-ABC Antigen
Clone: W6/32 • Isotype: IgG2a, kappa

CE	R700001-2	RPE. Purified	100 tests, 1 mL

Is directed against a monomorphic epitope on the 45 kDa polypeptide products of the HLA-A, B and C loci. These antigens belong to class I of the mammalian major histocompatibility complex (MHC), in humans known as human leucocyte-associated antigens (HLA). The antibody labels all nucleated cells in peripheral blood or tonsil cell preparations, including polymorphs, monocytes, lymphocytes and eosinophils. Erythrocytes are not labeled. The antibody is relevant for the study of HLA class I expression in cells from solid tumors. The reagent is not intended for use in tissue typing.

Monoclonal Mouse Anti-Human
HLA-DP, DQ, DR Antigen
Clone: CR3/43 • Isotype: IgG1, kappa

CE	F081701-2	FITC. Purified	100 tests, 1 mL

Labels principally B cells, most monocytes and activated T cells, but is unreactive with normal T cells and polymorphs. The antibody is useful for the characterization of leukemias and lymphomas, and for the study of activated T cells. The reagent is not intended for use in tissue typing.

Monoclonal Mouse Anti-Human
HLA-DR Antigen
Clone: AB3 • Isotype: IgG2a, kappa

CE	F726601-2	FITC. Purified	100 tests, 1 mL
CE	R726701-2	RPE. Purified	100 tests, 1 mL

HLA-DR antigen is constitutively expressed on antigen-presenting cells, such as B lymphocytes, monocytes and dendritic cells, but it can also be detected on activated T lymphocytes and activated granulocytes. Antibodies to HLA-DR antigen are together with a panel of other antibodies considered essential for the initial evaluation of acute leukemia, chronic T and B-cell leukemia, and myeloid leukemia. The reagent is not intended for use in tissue typing.

ICAM-1

See: CD54, ICAM-1

Polyclonal Rabbit Anti-Human
IgA, Specific for Alpha-Chains

CE	F018801-2	FITC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL

The antigen used for immunization is serum IgA. F018801-2 is intended for use in flow cytometry for the detection of surface IgA on normal and neoplastic B cells.

Polyclonal Rabbit Anti-Human
IgD, Specific for Delta-Chains

CE	F018901-2	FITC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL
CE	R511201-2	RPE. Affinity-isolated $F(ab')_2$	100 tests, 1 mL

The antigen used for immunization is serum IgD. F018901-2 and R511201-2 are intended for use in flow cytometry for the detection of surface IgD on normal and neoplastic B cells.

Polyclonal Rabbit Anti-Human
IgG, Specific for Gamma-Chains

CE	F018501-2	FITC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL

The antigen used for immunization is serum IgG. F018501-2 is intended for use in flow cytometry for the detection of surface IgG on normal and neoplastic B cells.

Polyclonal Rabbit Anti-Human
IgM, Specific for Mu-Chains

CE	F005801-2	FITC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL
CE	R511101-2	RPE. Affinity-isolated $F(ab')_2$	100 tests, 1 mL

The antigen used for immunization is serum IgM. F005801-2 and R511101-2 are intended for use in flow cytometry for the detection of surface IgM on normal and neoplastic B cells.

Interleukin-2 Receptor

See: CD25, Interleukin-2 Receptor

Polyclonal Rabbit Anti-Human
Kappa Light Chains

CE	C022201-2	APC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL
CE	F043401-2	FITC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL
CE	R043601-2	RPE. Affinity-isolated $F(ab')_2$	100 tests, 1 mL

These reagents have been produced in a manner that ensures a particularly wide specificity for kappa-chains. Most B cells, with the exception of pre-B progenitors, pre-B cells and mature plasma cells, express immunoglobulin on their surface. Each cell expresses only one light chain type. In normal peripheral blood and lymph nodes there is a mixture of kappa+ and lambda+ cells with two-thirds of the cells expressing kappa and one-third expressing lambda (1). The reagents are of value for the demonstration of the monoclonal nature (light chain restriction) of lymphoid neoplasms.
Reference:
1. Johnson A, Olofsson T. Flow cytometric clonal excess analysis of peripheral blood, routine handling, and pitfalls in interpretation. Cytometry 1993;14:188-95.

Ki-1 Antigen

See: CD30

Monoclonal Mouse Anti-Human
Ki-67 Antigen
Clone: MIB-1 • Isotype: IgG1, kappa

RUO	F726801-8	FITC. Purified	100 tests, 1 mL

The MIB-1 antibody has now been established as the reference monoclonal mouse antibody for the demonstration of the Ki-67 antigen, a nuclear antigen expressed by all human proliferating cells. The antibody recognizes proliferating cells at all stages of the cell cycle (late G_1, S, M and G_2 phases), but not cells in G_0 phase.
References:
1. Scholzen T, Gerdes J. The Ki-67 protein: from the known and the unknown. J Cell Physiol 2000;182:311-22.
2. Endl E, Hollmann C, Gerdes J. Antibodies against the Ki-67 protein: assessment of the growth fraction and tools for cell cycle analysis. In: Darzynkiewicz Z, Crissmann HA, Robinson JP, editors. Methods in cell biology: Cytometry. 3rd ed. San Diego: Academic Press; 2001. Part A. Volume 63. p. 399-418.

Polyclonal Rabbit Anti-Human
Lambda Light Chains

CE	F043501-2	FITC. Affinity-isolated $F(ab')_2$	100 tests, 1 mL
CE	PR71250-2	PerCP-Cy5.5 Purified	100 tests, 0.5 mL
CE	R043701-2	RPE. Affinity-isolated $F(ab')_2$	100 tests, 1 mL

The antigen used for immunization is a pool of human lambda Bence Jones proteins. These products are intended for use in flow cytometry for the detection of lambda light chains of surface immunoglobulin on normal and neoplastic B cells. The antibody is of value for the demonstration of the monoclonal nature (light chain restriction) of lymphoid neoplasms.

Leucocyte Common Antigen

See: CD45

Polyclonal Rabbit Anti-Human
Lysozyme EC 3.2.1.17

CE	F037201-2	FITC. Ig fraction	100 tests, 1 mL

Reacts with the primary and secondary granules of myeloid cells. In flow cytometric immunophenotyping of leukemias, lysozyme is a useful marker for the subclassification of acute myeloid leukemia.

Mucosa-Lymphocyte Antigen (MLA)

See: CD103, Mucosa-Lymphocyte Antigen (MLA)

Monoclonal Mouse Anti-Human
Myeloperoxidase
Clone: MPO-7 • Isotype: IgG1, kappa

CE	C724601-2	APC. Purified	100 tests, 1 mL
CE	F071401-2	FITC. Purified	100 tests, 1 mL
CE	PR70450-2	PerCP-Cy5.5. Purified	100 tests, 0.5 mL
CE	R720901-2	RPE. Purified	100 tests, 1 mL

Anti-Myeloperoxidase, MPO-7, reacts with granula in the cytoplasm of neutrophil granulocytes and with monocytes. It is valuable for phenotyping acute leukemias since it detects myeloperoxidase in the great majority of cases of acute myeloid leukemia.

Monoclonal Mouse Anti-Human
Plasma Cell
Clone: VS38c • Isotype: IgG1, kappa

CE	F714901-2	FITC. Purified	100 tests, 1 mL
CE	PR71350-2	PerCP-Cy5.5 Purified	100 tests, 0.5 mL

Recognizes an intracellular protein of 63 kDa identical with the rough endoplasmic reticulum-associated protein p63. The antibody labels plasma cells strongly, but frequently also labels melanocytic cells, particularly melanoma cells, and a number of epithelial cells, e.g. in mucous glands and tonsils, and secretory epithelia in breast, thyroid and pancreas, both benign and malignant.

Platelet Glycoprotein Ib, IIb and IIIb

See: CD42b, CD41 and CD61, respectively

Protein 150,95

See: CD11c, Protein 150,95

Monoclonal Mouse Anti-Human
Terminal Deoxynucleotidyl Transferase
Clone: HT-6 • Isotype: IgG1, kappa

CE	F713950-2	FITC. Purified	50 tests, 0.5 mL

Reacts with the nuclei of normal T and B-lymphocyte precursors and their neoplastic equivalents (e.g. T cell and pre-B cell acute lymphoblastic leukemias and lymphomas).

Dual-Color Reagents

Our MultiMix Dual-Color Reagents are based on the combination of two or more antibodies labeled with fluorescein isothiocyanate (FITC) and R-phycoerythrin (RPE), respectively.

This combination is particularly effective as both fluorochromes can be excited at 488 nm. The fluorescence emission for FITC is in the green region around 530 nm while the RPE emission is in the orange region above 570 nm.

Monoclonal Mouse Anti-Human
CD2/FITC + CD19/RPE
Clone: MT910 and HD37 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR89450-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR89450-2 allows simultaneous detection and enumeration of CD2+ cells and B cells.

Monoclonal Mouse Anti-Human
CD3/FITC + CD4/RPE
Clone: UCHT1 and MT310 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR87550-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR87550-2 allows simultaneous detection and enumeration of T cells and the helper/inducer T-cell subset.

Monoclonal Mouse Anti-Human
CD3/FITC + CD8/RPE
Clone: UCHT1 and DK25 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR88150-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR88150-2 allows simultaneous detection and enumeration of T cells and the suppressor/cytotoxic T-cell subset.

Monoclonal Mouse Anti-Human
CD3/FITC + CD19/RPE
Clone: UCHT1 and HD37 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR86650-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR86650-2 allows simultaneous detection and enumeration of T cells and B cells.

Monoclonal Mouse Anti-Human
CD4/FITC + CD8/RPE
Clone: MT310 and DK25 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR86850-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR86850-2 allows simultaneous detection and enumeration of helper/inducer T cell and suppressor/cytotoxic T-cell subsets.

Monoclonal Mouse Anti-Human
CD5/FITC + CD19/RPE
Clone: DK23 and HD37 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR88250-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR88250-2 allows simultaneous detection and enumeration of CD5+ cells and B ls.

Monoclonal Mouse Anti-Human
CD5/FITC + CD20/RPE
Clone: DK23 and B-Ly1 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR72950-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR72950-2 allows simultaneous detection and enumeration of CD5+ T cells and CD20+ B cells.

Monoclonal Mouse Anti-Human
CD10/FITC + CD19/RPE
Clone: SS2/36 and HD37 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR88350-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR88350-2 allows simultaneous detection and enumeration of CD10+ cells and B cells.

Monoclonal Mouse Anti-Human
CD45/FITC + CD14/RPE
Clone: T29/33 and TÜK4 • Isotype: IgG1, kappa and IgG2a, kappa

CE	FR70050-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR70050-2 allows simultaneous subdivision of leucocytes into lymphocytes, monocytes and granulocytes.

Monoclonal Mouse Anti-Human
HLA-DP, DQ, DR Antigen/FITC + CD3/RPE
Clone: CR3/43 and UCHT1 • Isotype: IgG1, kappa and IgG1, kappa

CE	FR86750-2	FITC and RPE. Purified	50 tests, 0.5 mL

FR86750-2 allows simultaneous detection and enumeration of MHC class II antigenpositive cells and T cells. The reagent is not intended for use in tissue typing.

Polyclonal Rabbit Anti-Human
Kappa Light Chains/FITC +
Monoclonal Mouse Anti-Human
CD19/RPE
Clone: HD37 • Isotype: IgG1, kappa

CE	FR04850-2	FITC. Affinity-isolated $F(ab')_2$; RPE. Purified	50 tests, 0.5 mL

FR04850-2 allows the detection and enumeration of kappa light chains on B cells.

Polyclonal Rabbit Anti-Human
Kappa Light Chains/FITC + Lambda Light Chains/RPE

CE	FR48150-2	FITC and RPE. Affinity-isolated $F(ab')_2$	50 tests, 0.5 mL

FR48150-2 allows simultaneous detection and enumeration of kappa and lambda light chain bearing cells.

Polyclonal Rabbit Anti-Human
Lambda Light Chains/FITC +
Monoclonal Mouse Anti-Human
CD19/RPE
Clone: HD37 • Isotype: IgG1, kappa

CE	FR04450-2	FITC. Affinity-isolated $F(ab')_2$; RPE. Purified	50 tests, 0.5 mL

FR04450-2 allows the detection and enumeration of lambda light chains on B cells.

Triple-Color Reagents

Our MultiMix Triple-Color Reagents are based on the combination of three antibodies labeled with fluorescein isothiocyanate (FITC), R-phycoerythrin (RPE) and allophycocyanin (APC) or FITC, RPE and RPE-Cy5. The Triple-Color Reagents are designed for flow cytometers equipped with a 488 nm (blue laser) light source for excitation of FITC, RPE and RPE-Cy5, and a 633/635 nm (red) light source for excitation of APC. CD45/PerCP, Code PR70101-2 is available as drop-in reagent for FITC/RPE/APC MultiMix products.

FITC/RPE/APC Reagent Line

The FITC/RPE/APC Reagent Line is based on the combination of three antibodies labeled with fluorescein isothiocyanate (FITC), R-phycoerythrin (RPE) and allophycocyanin (APC).

Monoclonal Mouse Anti-Human
B Cell (FMC7)/FITC + CD23/RPE + CD19/APC
Clone: FMC7, MHM6 and HD37
Isotype: IgM, kappa, IgG1, kappa and IgG1, kappa

CE	TC68301-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC68301-2 allows simultaneous detection and enumeration of FMC7-positive, CD23-positive and CD19-positive cells. The FMC7 antigen is expressed by B cells in normal peripheral blood. The antigen is also expressed by malignant cells in chronic lymphoproliferative disorders, including B-cell prolymphocytic leukemia, hairy cell leukemia, mantle cell lymphoma, follicle centre lymphoma, marginal zone lymphoma, mucosa-associated lymphoid tissue lymphoma, diffuse large cell lymphoma, Burkitt's lymphoma and Waldenström macroglobulinemia. CD23 is identical to the low affinity IgE receptor (FceRII) found on B cells. CD23 is primarily expressed by B cells and monocytes and is also strongly expressed by EBV-transformed B lymphoblasts. In addition, CD23 is present on a large variety of other cells, such as T cells, eosinophils, platelets, Langerhans' cells and a subset of thymic epithelial cells. CD19 is a pan-B-cell antigen that is expressed by B lymphocytes at all stages of maturation excepting differentiated plasma cells. Antibodies to CD19 are considered essential for the initial evaluation of acute and chronic lymphoproliferative disorders.

Monoclonal Mouse Anti-Human
CD2/FITC + CD7/RPE + CD3/APC
Clone: MT910, CBC.37 and UCHT1
Isotype: IgG1, kappa, IgG2b, kappa and IgG1, kappa

CE	TC67701-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC67701-2 allows simultaneous detection and enumeration of T cell subpopulations. CD2 is a useful marker in the assessment of lymphoid malignancies as it is expressed in the majority of precursor and postthymic lymphomas and leukemias. In some neoplastic T-cell populations, e.g. in peripheral T-cell lymphomas, CD2 may be aberrantly deleted. CD7 is expressed on mature T cells and anti-CD7 is considered essential for the initial evaluation of T-cell acute lymphoblastic leukemias (T-ALL) and T-cell chronic leukemias together with a panel of other antibodies. CD3 is a pan-T-cell restricted antigen and is a valuable marker for normal and neoplastic T cells.

Monoclonal Mouse Anti-Human
CD2/FITC + CD34/RPE + CD5/APC
Clone: MT910, BIRMA-K3 and DK23
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66601-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66601-2 allows simultaneous detection and enumeration of CD2+ T cells, CD34+ cells and CD5+ B cells. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD3/FITC + CD19/RPE + CD45/APC
Clone: UCHT1, HD37 and 2D1
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC69001-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC69001-2 allows simultaneous detection and enumeration of CD3-positive T cells and CD19-positive B cells in combination with CD45-positive leucocytes. CD3 is a pan-T-cell restricted antigen, which is a valuable marker for normal and neoplastic T cells. CD19 is the broadest lineage-specific surface marker for B cells and it is present on the surface of virtually all B lymphocytes, including early B progenitor cells. CD19 expression is maintained in B-lineage cells that have undergone neoplastic transformation. Antibodies to CD19 are considered essential for the initial evaluation of acute and chronic lymphoproliferative disorders. CD45 is one of the most abundant leucocyte cell surface glycoproteins and is expressed exclusively on cells of the hematopoietic system and their progenitors. Anti-CD45, together with a panel of other antibodies, is considered essential for the initial evaluation of chronic lymphoproliferative disorders and acute leukemias. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD5/FITC + CD10/RPE + CD19/APC
Clone: DK23, SS2/36 and HD37
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66401-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66401-2 allows simultaneous detection and enumeration of CD5+ T cells, CD10+ cells and CD19+ B cells. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD8/FITC + CD4/RPE + CD3/APC
Clone: DK25, MT310 and UCHT1
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66001-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66001-2 is intended for identification of the relative percentages of CD4 and CD8-positive T cells. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD13/FITC + HLA-DR Antigen/RPE + CD117/APC
Clone: WM-47, AB3 and 104D2
Isotype: IgG1, kappa, IgG2a, kappa and IgG1, kappa

CE	TC68501-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC68501-2 allows simultaneous detection and enumeration of cells expressing CD13, HLA-DR antigen and CD117. CD13 is expressed on the surface of committed granulocyte-monocyte progenitors (CFU-GM) and by cells of the granulocyte and monocyte lineages at all stages of differentiation, as well as by neoplastic counterparts of these cells. The HLA-DR antigen is constitutively expressed on antigen-presenting cells, such as B lymphocytes, monocytes and dendritic cells, but it can also be detected on activated T lymphocytes and activated granulocytes. The antigen has been found expressed in cases of different types of acute lymphoblastic leukemias, acute myeloid leukemias (AML) except AML-M3, chronic T-cell leukemias, chronic myeloid leukemias (CML) and B and T-cell non-Hodgkin's leukemias. CD117 is a marker for tissue mast cells, hematopoietic stem cells, and progenitor cells in normal human bone marrow. The majority of CD117+ marrow cells co-express CD34 and comprise progenitor cells and their precursors of all hematopoietic lineages. Antibodies to CD117, together with a panel of other antibodies, are useful for identification of AML, and for classification of leukemias. TC68501-2 is not intended for tissue typing.

Monoclonal Mouse Anti-Human
CD16/FITC + CD56/RPE + CD3/APC
Clone: DJ130c, C5.9 and UCHT1
Isotype: IgG1, kappa, IgG2b, kappa and IgG1, kappa

CE	TC66101-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66101-2 allows simultaneous detection and enumeration of NK cells and T cells.

Monoclonal Mouse Anti-Human
CD19/FITC + CD34/RPE + CD22/APC
Clone: HD37, BIRMA-K3 and 4KB128
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC68901-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC68901-2 allows simultaneous detection and enumeration of cells expressing CD19, CD34 and CD22. CD19 is the broadest lineage-specific surface marker for B cells and it is present on the surface of virtually all B lymphocytes, including early B progenitor cells. CD19 expression is maintained in B-lineage cells that have undergone neoplastic transformation. Antibodies to CD19 are considered essential for the initial evaluation of acute and chronic lymphoproliferative disorders. CD34 is present on hematopoietic progenitor cells in bone marrow and blood, whereas CD34 is normally not detected on peripheral blood leucocytes and platelets. Approximately 60% of acute B-lymphoid leukemias, 40% of acute myeloid leukemias (AML), and 1-5% of acute T-lymphoid leukemias express CD34. Chronic lymphoid leukemias, lymphomas and multiple myelomas have been found to be uniformly CD34 negative. CD22 is expressed on normal and neoplastic B lymphocytes in bone marrow and blood. CD22 is present in neoplasms of B-cell origin, including primitive lymphomas that lack monoclonal surface immunoglobulins, and most cases of common acute lymphoblastic leukemia. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD19/FITC +
Polyclonal Rabbit Anti-Human
Lambda Light Chains/RPE + Kappa Light Chains/APC
Clone: HD37 • Isotype: IgG1, kappa

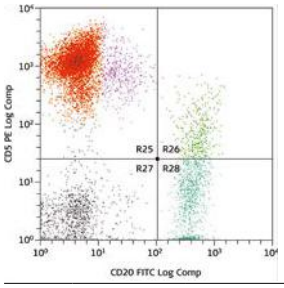
CE	TC66901-2	FITC. Purified; RPE and APC. Affinity-isolated F(ab')$_2$	50 tests, 1 mL

TC66901-2 allows simultaneous detection and enumeration of kappa and lambda light chain bearing B cells. Recommended control reagent is Code X097901-2.

Monoclonal Mouse Anti-Human
CD20/FITC + CD5/RPE + CD19/APC
Clone: B-Ly1, DK23 and HD37
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66301-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66301-2 allows simultaneous detection and enumeration of CD19+ and/or CD20+ B cells and CD5+ T cells. Recommended control reagent is Code X097801-2.



Normal peripheral blood stained with TC66301-2, Monoclonal Mouse Anti-Human CD20/FITC + CD5/RPE + CD19/APC. The sample is gated on lymphocytes on an FSC/SSC dot plot. The orange population is the CD5+ T cells and the magenta population shows the CD5+CD20dim T cells.

Monoclonal Mouse Anti-Human
CD33/FITC + CD34/RPE + CD117/APC
Clone: WM-54, BIRMA-K3 and 104D2
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC68601-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC68601-2 allows simultaneous detection and enumeration of CD33, CD34 and CD117-positive cells. CD33 is expressed by subsets of myeloid progenitors, monocytes, granulocytic precursors, and at low levels by neutrophils. CD33 has been found on the cell surface of leukemic blasts from the vast majority of cases of acute myeloid leukemia (AML). CD34 expression is confined to lympho-hematopoietic progenitor cells, with the exception of capillary endothelial cells. CD34 appears to be expressed at the highest levels on the earliest progenitors, and to decrease progressively with maturation. Approximately 60% of acute B-lymphoid leukemias, 40% of AML and 1-5% of acute T-lymphoid leukemias express CD34. CD117 is a marker for hematopoietic stem and progenitor cells, and tissue mast cells. The majority (50-70%) of CD117-positive cells co-express CD34 and comprise progenitor cells and their precursors of all hematopoietic lineages. CD117 is frequently found to be expressed on blasts of patients with AML, but is absent from ALL blasts. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD38/FITC + CD56/RPE + CD19/APC
Clone: AT13/5, C5.9 and HD37
Isotype: IgG1, kappa, IgG2b, kappa and IgG1, kappa

CE	TC67401-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC67401-2 allows simultaneous detection and enumeration of plasma cells, NK cells and B cells. CD38 is a plasma cell marker, and anti-CD38 is useful for the identification of poorly differentiated plasma cells, which may mimick other blastic lymphoid cells. Additionally anti-CD38 is valuable for the immunophenotyping of acute leukemias. CD56 is the prototypic marker of human NK cells, and it is also expressed by a subset of CD4+ and CD8+ T cells in peripheral blood. CD19 is the broadest lineage-specific surface marker for B cells, and its expression is maintained in B-lineage cells that have undergone neoplastic transformation. Anti-CD19 is considered essential for the initial evaluation of acute and chronic lymphoproliferative disorders.

Monoclonal Mouse Anti-Human
CD38/FITC + CD56/RPE + CD45/APC
Clone: AT13/5, C5.9 and 2D1
Isotype: IgG1, kappa, IgG2b, kappa and IgG1, kappa

CE	TC67101-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC67101-2 allows simultaneous detection and enumeration of CD38 and CD56-positive cells in combination with CD45-positive leucocytes. CD38 is a useful marker in the immunophenotyping of acute leukemias. Additionally, antibodies to CD38 are valuable for the identification of plasma cells, as poorly differentiated plasma cells may mimick other blastic lymphoid cells. CD56 is the prototypic marker of natural killer (NK) cells and it is also present on a subset of CD4+ and CD8+ T cells in peripheral blood. CD45 is one of the most abundant leucocyte cell surface glycoproteins and is expressed exclusively on cells of the hematopoietic system and their progenitors. Anti-CD45, together with a panel of other antibodies, is considered essential for the initial evaluation of chronic lymphoproliferative disorders and acute leukemias.

Monoclonal Mouse Anti-Human
CD41/FITC + CD34/RPE + CD61/APC
Clone: 5B12, BIRMA-K3 and Y2/51
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC68701-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC68701-2 allows simultaneous detection and enumeration of CD41 and CD61-positive platelets and CD34-positive progenitor cells. CD41 and CD61 are selective markers of platelets and platelet precursors, and they may be of value for immunophenotyping of megakaryoblastic leukemias. The CD41/CD61 complex appears early in megakaryocyte maturation. The activated CD41/CD61 complex is a receptor for von Willebrand factor, soluble fibrinogen and fibronectin and plays a central role in platelet activation and aggregation. CD34 is present on hematopoietic progenitor cells in bone marrow and blood, whereas CD34 is normally not detected on peripheral blood leucocytes and platelets. Approximately 60% of acute B-lymphoid leukemias, 40% of acute myeloid leukemias (AML), and 1-5% of acute T-lymphoid leukemias express CD34. Chronic lymphoid leukemias, lymphomas and multiple myelomas have been found to be uniformly CD34-negative. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD71/FITC + CD235a/RPE + CD45/APC
Clone: Ber-T9, JC159 and 2D1
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

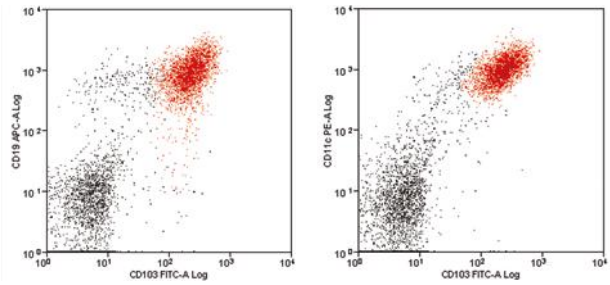
CE	TC67501-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC67501-2 allows simultaneous detection and enumeration of cells expressing CD71, CD235a and CD45. In normal tissues, high expression of CD71 (transferrin receptor) is seen in erythroid precursors and hemoglobinsynthesizing reticulocytes but expression is lost in mature erythrocytes. Activated, but not resting, lymphocytes express CD71. Anti-CD71, together with a panel of other antibodies, is considered relevant for the initial evaluation of acute leukemias of the erythroid lineage. CD235a (glycophorin A) is expressed on erythroid cells beginning on morphologically recognizable erythroid precursors, just after the CFU-E stage, to the mature erythrocyte. The majority of cases of erythroleukemia express CD235a on neoplastic erythroblasts, whereas acute myeloid leukemia and acute lymphoblastic leukemia only very rarely express CD235a. CD45 is one of the most abundant leucocyte cell surface glycoproteins and is expressed exclusively on cells of the hematopoietic system and their progenitors. Anti-CD45, together with a panel of other antibodies, is considered essential for the initial evaluation of chronic lymphoproliferative disorders and acute leukemias. Recommended control reagent is Code X097801-2.

Monoclonal Mouse Anti-Human
CD103/FITC + CD11c/RPE + CD19/APC
Clone: Ber-ACT8, KB90 and HD37
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66501-2	FITC, RPE and APC. Purified	50 tests, 1 mL

CD103, CD11c and CD19. CD103 is expressed on mucosal T cells, on activated CD8+ T cells and on hairy cell leukemia cells. In several malignant conditions, such as T-cell lymphomas and hairy cell leukemias, the cells express CD103. Antibodies to CD103 are valuable for the evaluation of chronic B-cell leukemias and T-cell lymphomas. CD11c is expressed on a variety of cells including granulocytes, monocytes, macrophages, natural killer (NK) cells, dendritic cells and neoplastic cells. Antibodies to CD11c are useful for the initial evaluation of B-cell lymphoproliferative disorders, e.g. hairy cell leukemia and B-cell chronic lymphocytic leukemia. CD19 is the broadest lineage-specific surface marker for B cells and it is present on the surface of virtually all B lymphocytes, including early B progenitor cells. CD19 expression is maintained in B-lineage cells that have undergone neoplastic transformation. Antibodies to CD19 are considered essential for the initial evaluation of acute and chronic lymphoproliferative disorders. Recommended control reagent is Code X097801-2.

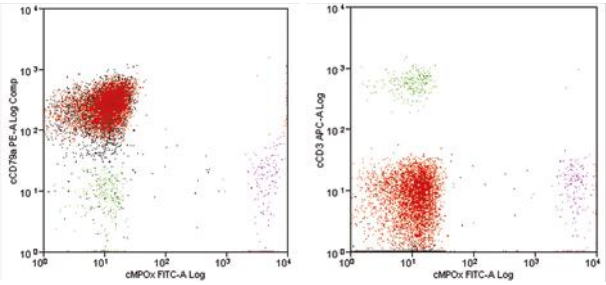


Peripheral blood from a case of hairy cell leukemia stained with TC66501-2. Hairy cell leukemia cells (CD11c+CD19+CD103+) are shown in red. Courtesy of professor Peter Hokland.

Monoclonal Mouse Anti-Human
MPO/FITC + CD79αcy/RPE + CD3/APC
Clone: MPO-7, HM57 and UCHT1
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66701-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66701-2 allows simultaneous detection and enumeration of granulocytes, B cells and T cells. Recommended control reagent is Code X097801-2.

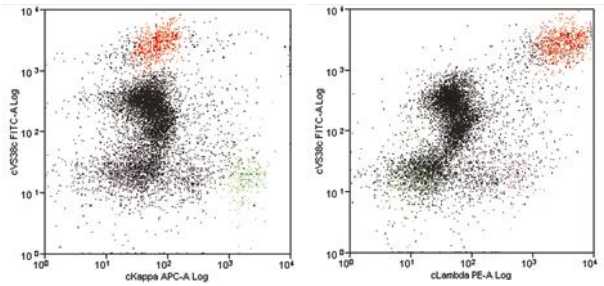


Bone marrow from a case of B-cell acute lymphoblastic leukemia (B-ALL) stained with TC66701-2. B-ALL cells (CD79αcy+) are shown in red. Normal myeloid cells (MPO+) are shown in magenta. Normal T cells (CD3+) are shown in green. Courtesy of professor Peter Hokland.

Monoclonal Mouse Anti-Human
Plasma Cell/FITC +
Polyclonal Rabbit Anti-Human
Lambda Light Chains/RPE + Kappa Light Chains/APC
Clone: VS38c • Isotype: IgG1, kappa

CE	TC67001-2	FITC. Purified; RPE and APC. Affinity-isolated F(ab')$_2$	50 tests, 1 mL

TC67001-2 allows simultaneous intracellular detection and enumeration of kappa and lambda light chains in plasma cells. Recommended control reagent is Code X097901-2.



Bone marrow from a case of multiple myeloma stained with TC67001-2. The multiple myeloma cells (VS38c+lambda+) are shown in red. Normal B cells (kappa+ or lambda+) are shown in green and magenta, respectively. Courtesy of professor Peter Hokland.

Monoclonal Mouse Anti-Human
TdT/FITC + CD22/RPE + CD3/APC
Clone: HT-6, 4KB128 and UCHT1
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC66801-2	FITC, RPE and APC. Purified	50 tests, 1 mL

TC66801-2 allows simultaneous detection and enumeration of T and B-lymphocyte precursor cells, B cells and T cells. Recommended control reagent is Code X097801-2.

FITC/RPE/RPE-Cy5 Reagent Line

The FITC/RPE/RPE-Cy5 Reagent Line is based on the combination of three antibodies labeled with fluorescein isothiocyanate (FITC), R-phycoerythrin (RPE) and R-phycoerythrin-Cy5 (RPE-Cy5). The fluorochrome RPE-Cy5 consists of the cyanine dye, Cy5, covalently coupled to RPE.

Monoclonal Mouse Anti-Human
CD8/FITC + CD4/RPE + CD3/RPE-Cy5
Clone: DK25, MT310 and UCHT1
Isotype: IgG1, kappa, IgG1, kappa and IgG1, kappa

CE	TC64150-2	FITC, RPE and RPE-Cy5. Purified	50 tests, 0.5 mL

TC64150-2 allows simultaneous detection and enumeration of T cells, and the suppressor/cytotoxic and helper/inducer T-cell subsets. Recommended control reagent is Code X095650-2.

Polyclonal Rabbit Anti-Human
Kappa Light Chains/FITC + Lambda Light Chains/RPE +
Monoclonal Mouse Anti-Human
CD19/RPE-Cy5
Clone: HD37 • Isotype: IgG1, kappa

CE	TC05150-2	FITC and RPE. Affinity-isolated F(ab')$_2$; RPE-Cy5. Purified	50 tests, 0.5 mL

TC05150-2 allows simultaneous detection and enumeration of kappa and lambda bearing B cells.Recommended control reagent is Code X095750-2.

Isotype and Control Reagents

Isotype and fluorochrome-matched control reagents are important tools for assessing the specificity of immunological stainings. Our mouse antibody controls are based on monoclonal mouse antibodies of different isotypes, and unless indicated otherwise, directed towards Aspergillus niger glucose oxidase, an enzyme which is neither present nor inducible in mammalian tissues. The controls are provided as conjugated, purified antibodies. Our rabbit antibody controls have been prepared from the serum of nonimmunized rabbits. The controls have been processed in the same way as our conjugated, solid-phase absorbed F(ab')$_2$ fragment rabbit antibodies.

Single-Color Mouse Isotype Reagents

Mouse IgG1			
CE	X096801-2	APC. Purified	1 mL
CE	X092701-2	FITC. Purified	1 mL
CE	X092801-2	RPE. Purified	1 mL
CE	X095501-2	RPE-Cy5. Purified	1 mL

Flow cytometry control reagents for single-color monoclonal mouse antibodies of isotype IgG1.

Mouse IgG2a			
CE	X093301-2	FITC. Purified	1 mL
CE	X095001-2	RPE. Purified	1 mL

Flow cytometry control reagents for single-color monoclonal mouse antibodies of isotype IgG2a.

Single-Color Rabbit Ig Reagents

Rabbit F(ab')$_2$			
CE	X099801-2	APC. Solid-phase absorbed F(ab')$_2$	1 mL
CE	X092901-2	FITC. Solid-phase absorbed F(ab')$_2$	1 mL
CE	X093001-2	RPE. Solid-phase absorbed F(ab')$_2$	1 mL

Flow cytometry control reagents for single-color solid-phase absorbed APC, FITC and RPE-conjugated rabbit antibodies provided as F(ab')$_2$ fragments.

Dual-Color Mouse Isotype/Rabbit Ig Reagents

Mouse IgG1/FITC + Mouse IgG1/RPE			
CE	X093250-2	FITC and RPE. Purified	0.5 mL

Flow cytometry control reagent for MultiMix Dual-Color Reagents of the composition: monoclonal mouse antibody isotype IgG1/FITC, and monoclonal mouse antibody isotype IgG1/RPE.

Mouse IgG1/FITC + Mouse IgG2a/RPE			
CE	X094950-2	FITC and RPE. Purified	0.5 mL

Flow cytometry control reagent for MultiMix Dual-Color Reagents of the composition: monoclonal mouse antibody isotype IgG1/FITC, and monoclonal mouse antibody isotype IgG2a/RPE.

Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE			
CE	X093550-2	FITC and RPE. Solid-phase absorbed F(ab')$_2$	0.5 mL

Flow cytometry control reagent for MultiMix Dual-Color Reagents of the composition: solid-phase absorbed rabbit antibody F(ab')$_2$ fragment/FITC, and solid-phase absorbed rabbit antibody F(ab')$_2$ fragment/RPE.

Triple-Color Mouse Isotype/Rabbit Ig Reagents, FITC/RPE/APC Reagent Line

Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/APC			
CE	X097801-2	FITC, RPE and APC. Purified	50 tests, 1 mL

Flow cytometry control reagent for MultiMix Triple-Color Reagents of the composition: monoclonal mouse antibody isotype IgG1/FITC, monoclonal mouse antibody isotype IgG1/RPE, and monoclonal mouse antibody isotype IgG1/APC.

Mouse IgG1/FITC + Rabbit F(ab')$_2$/RPE + Rabbit F(ab')$_2$/APC			
CE	X097901-2	FITC, RPE and APC. Purified	1 mL

Flow cytometry control reagent for MultiMix Triple-Color Reagents of the composition: monoclonal mouse antibody isotype IgG1/FITC, solid-phase absorbed rabbit antibody F(ab')$_2$ fragment/RPE, and solid-phase absorbed rabbit antibody F(ab')$_2$ fragment/APC.

Triple-Color Mouse Isotype/Rabbit Ig Reagents, FITC/RPE/RPE-Cy5 Reagent Line

Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/RPE-Cy5			
CE	X095650-2	FITC, RPE and RPE-Cy5. Purified	0.5 mL

Flow cytometry control reagent for MultiMix Triple-Color Reagents of the composition: monoclonal mouse antibody isotype IgG1/FITC, monoclonal mouse antibody isotype IgG1/RPE, and monoclonal mouse antibody isotype IgG1/RPE-Cy5.

Rabbit $F(ab')_2$/FITC + Rabbit $F(ab')_2$/RPE + Mouse IgG1/RPE-Cy5			
CE	X095750-2	FITC and RPE. Solid-phase absorbed $F(ab')_2$; RPE-Cy5. Purified	0.5 mL

Flow cytometry control reagent for MultiMix Triple-Color Reagents of the composition: solid-phase absorbed rabbit antibody $F(ab')_2$ fragment/FITC, solid-phase absorbed rabbit antibody $F(ab')_2$ fragment/RPE, and monoclonal mouse antibody isotype IgG1/ RPE-Cy5.

Unconjugated Control Reagents

Mouse IgG1			
CE	X093101-2	Culture supernatant	1 mL

X093101-2 is a cell culture supernatant containing monoclonal mouse IgG1 antibody to Aspergillus niger glucose oxidase, an enzyme which is neither present nor inducible in mammalian tissues. X093101-2 is well-suited as a negative control in all techniques utilizing monoclonal mouse antibodies of isotype IgG1.

Secondary Antibody Conjugates

The reagents listed in this section have been tailored to provide optimal specific fluorescence and a very low non-specific background in indirect immunofluorescence techniques.

Polyclonal Goat Anti-**Mouse Immunoglobulins**			
CE	F047902-2	FITC. Affinity-isolated $F(ab')_2$	2 mL
CE	R048001-2	RPE. Affinity-isolated $F(ab')_2$	1 mL

Cross-reaction with human immunoglobulins and fetal calf serum has been removed by solid-phase absorption.

Polyclonal Rabbit Anti-**Mouse Immunoglobulins**			
CE	F031302-2	FITC. $F(ab')_2$	2 mL
CE	R043901-2	RPE. Affinity-isolated $F(ab')_2$	1 mL

Cross-reaction with human immunoglobulins and fetal calf serum has been removed by solid-phase absorption.

Ancillary for Flow Cytometry

Phosphate-Buffered Saline (PBS), pH 7.0		
CE	S302430-2	6 x 1 L

The buffer is supplied as 6 packages. Each makes 1 L of 0.02 mol/L sodium phosphate buffer, 0.15 mol/L NaCl, pH 7.0.

Kits and Accessories

This section includes a diverse range of kits and reagents used in flow cytometry such as our intracellular staining solution IntraStain and research solutions for quantitative determination of cell-surface antigens (QIFIKIT®) and measurement of telomeric sequences in vertebrate interphase hematopoietic cells (Telomere PNA Kit/FITC).

Calibration Beads

FluoroSpheres 6-Peak, Sensitivity Particles			
CE	K011011-2	Calibration beads for daily monitoring of the flow cytometer	40 tests

FluoroSpheres 6-Peak are polystyrene microparticles suited for daily monitoring of the flow cytometer. FluoroSpheres contain a mixture of 3.2 µm microparticles of six different fluorescence intensities. Each particle contains a mixture of fluorochromes to be excited at any wavelength from 364 to 650 nm. This broad excitation range allows the kit to be used in instruments with UV, and single or dual laser light sources.

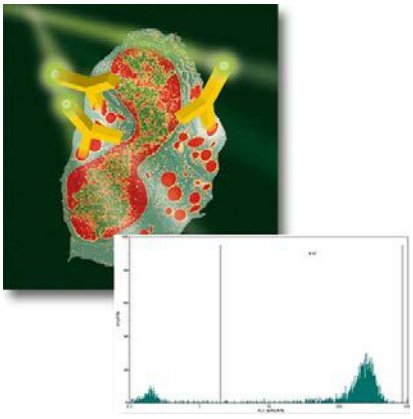
Lysing, Fixation and Permeabilization Reagents

Erythrocyte-Lysing Reagent without Fixative, EasyLyse			
CE	S236430-2	Concentrated x 20	300 tests, 6 x 5 mL

This reagent provides complete and gentle lysis of erythrocytes. It is used following immunofluorescence staining of cells from whole blood, leukapheresis samples or cord blood, and prior to flow cytometric analysis. The reagent contains ammonium chloride and no fixative. One package contains 6 vials of 5 mL 20 x concentrated solution. Owing to the optical matching properties of EasyLyse, the residual red cell debris does not need to be removed by centrifugation for most samples, making the reagent suitable for use in both 'wash' and 'no wash' staining procedures. The reagent is designed for use with most commercially available flow cytometers.

IntraStain			
CE	K231111-2		100 tests

Fixation and permeabilization kit for flow cytometry. IntraStain is intended for two-step fixation and permeabilization of single-cell suspensions. This procedure allows immunological detection of intracellular antigens while the cellular structure, morphologic light scatter, and cell surface immunoreactivity remain intact. Cells treated with IntraStain can, therefore, be identified in flow cytometry by their light scatter properties and surface marker expression, while simultaneously being analysed for intracellular antigens.



Intracellular staining of cells from a case of acute myeloid leukemia using IntraStain, Code K231111-2, andAnti-Myeloperoxidase/ FITC, CodeF071401-2.

Quantitative Analysis

QIFIKIT®*			
RUO	K007811-8		10 calibrations

QIFIKIT® is intended for the quantitative determination of cell surface antigens by flow cytometry using indirect immunofluorescence assay (1, 2). QIFIKIT® consists of a series of 6-bead populations, approximately 10 µm in diameter and coated with different, but well-defined quantities of a mouse monoclonal antibody (Mab). The number of Mab molecules on the 6-bead populations ranges from 0 to 400 000-800 000. The precise values are provided with the kit. The beads mimic cells labeled with a specific primary mouse monoclonal antibody. Briefly, the procedure for quantitation is as follows: Specimen cells are labeled with primary mouse Mab at saturating concentration. Under this condition the primary Mab binds to the cell surface antigen monovalently. Therefore, the number of bound antibody molecules corresponds to the number of antigenic sites. Then, the cells are incubated, in parallel with the QIFIKIT® beads, with Polyclonal Goat Anti-Mouse Immunoglobulins/FITC, Goat $F(ab')_2$, at saturating concentration. A calibration curve is constructed by plotting the fluorescence intensity of the individual bead populations against the number of Mab molecules on the beads. The number of antigenic sites on the specimen cells are then determined by interpolation. The kit is presented as two complementary bead cocktails: A 'Set-Up Cocktail' and a 'Calibration Cocktail', each containing 1 mL, enough for 10 calibrations. Also included in the kit is 200 µL Polyclonal Goat Anti-Mouse Immunoglobulins/ FITC, Goat $F(ab')_2$. The kit is economical in use, as different cell specimens may be labeled with different primary antibodies and then quantitated using the same set of calibration beads. The only requirement is that specimens and beads are incubated with the conjugate simultaneously.

* Registered trademark of BIOCYTEX

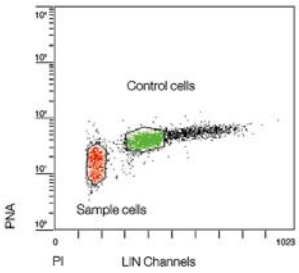
References:

1. Poncelet P, Carayon P. Cytofluorometric quantification of cell-surface antigens by indirect immunofluorescence using monoclonal antibodies. J Immunol Methods 1985;85:65-74.
2. Poncelet P, Lavabre-Bertrand T, Carayon P. Quantitative phenotypes of B chronic lymphocytic leukemia B cells established with monoclonal antibodies from the B cell protocol. In: Reinherz EL et al., eds. Leukocyte Typing II. New York-Berlin-Heidelberg-Tokyo: Springer-Verlag, 1986;2:329-43.

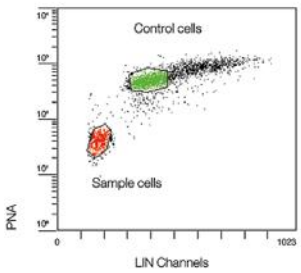
Telomere PNA Kit

Telomere PNA Kit/FITC, for Flow Cytometry		
RUO	K532711-8	20 duplicate tests

Telomere PNA Kit/FITC for Flow Cytometry provides a convenient method for measuring telomeric sequences in vertebrate interphase hematopoietic cells. The kit contains reagents for 20 duplicate tests (40 single tests). In addition to the fluorescein-conjugated peptide nucleic acid (PNA) probe in hybridization solution, the kit contains hybridization solution without probe for correction of cell autofluorescence, wash solution for post-hybridization washes and DNA staining solution for identification of $G_{0/1}$-cells. The kit has been designed so that post-hybridization washes are kept to a minimum and formamide washes are avoided. In a mixture of sample cells (provided by the user) and control cells (provided by the user), the sample DNA is denatured at 82 °C for 10 minutes in an Eppendorf tube in the presence of hybridization solution with or without fluorescein-conjugated PNA telomere probe. Then, hybridization takes place in the dark at room temperature overnight. The hybridization is followed by 2 washes in wash solution at 40 °C for 10 minutes each. Finally the cells are resuspended in DNA-staining solution and stored in the dark at 2-8 °C for 2-3 hours before analysis by flow cytometry. The specific fluorescence from telomere staining will be observed in FL1, and fluorescence from DNA staining will be observed in FL3. Compared with the traditional telomere restriction fragment (TRF) method, a major advantage of the Telomere PNA Kit/FITC assay is that it does not suffer from the interaction of subtelomere sequences.



Cells mixed with hybridization solution without probe.



Cells hybridized with hybridization solution containing Telomere PNA Probe/FITC.

General Product Information – Reagents & Kits

Monoclonal Antibodies

We produce a wide range of monoclonal mouse antibodies, which have been carefully selected on the basis of their value, either for research or for the analysis of pathological human cells by immunohistochemistry or flow cytometry.

Tissue Culture Antibodies. With only a few exceptions, our monoclonal antibodies are produced in tissue culture. This gives advantages in the use of the antibodies. For example, background problems are virtually absent with such reagents because all the mouse immunoglobulin molecules are directed against the target antigen.

Specificity. Our monoclonal antibodies are extensively screened on a multitude of tissue sections or other relevant biological material to ascertain that they possess the necessary specificity and give consistent, strong labeling reactions.

Solvent. Our monoclonal antibodies are, generally, supplied in the liquid form. The majority of unconjugated antibodies are supplied as tissue culture supernatants containing 0.05 mol/L Tris/HCl, pH 7.2, and 15 mmol/L sodium azide. The azide can be removed by dialysis or gel filtration if it interferes with the use of the antibody. However, after removal of the azide, the antibody must be stored frozen.

Storage. 2-8 °C.

Further Information. A package insert is supplied with each vial of monoclonal antibody. It states intended/recommended use, clone, isotype, specificity, as well as recommended staining procedure when applicable. Package inserts are also avaliable on www.agilent.com.

The products require no hazard labeling.

Polyclonal Antibodies

Since 1966, we have produced polyclonal antibodies and our portfolio is constantly growing. Extensive knowledge of protein chemistry and immunochemistry, careful selection of animals for immunization, and optimal, long-term immunization schemes form the basis of our high-quality products.

Advantages of Rabbit Polyclonal Antibodies. Human antibodies reacting with rabbit immunoglobulins occur rarely. Therefore, rabbit antibodies can be used without risk of non-specific binding even in very sensitive techniques.

Low Batch-to-Batch Variation. Our batches of polyclonal antibodies consist of the pooled sera from a large number of animals. This method eliminates the presence of a single predominating atypical antibody and therefore leads to a minimal batch-to-batch variation.

Immunoglobulin fractions. Our polyclonal antibodies are offered in the form of immunoglobulin fractions, with a few exceptions.

Specificity. Monospecificity of our polyclonal antibodies is obtained by the use of highly purified antigens for immunization. Traces of unwanted antibodies are removed by liquid or solid-phase absorption.

Affinity-isolated antibodies. Our antibodies are prepared by immuneaffinity chromatography, using antigens coupled to a solid matrix. The elution and adsorption techniques used guarantee antibodies of high affinity.

$F(ab')_2$. We also provide antibodies lacking the Fc region. These $F(ab')_2$ fragments are derived from full-length antibody by proteolytic cleavage and carry the antigen binding region. The antigen binding fragment is purified by chromatographic methods to ensure consistent high purity and quality.

Fluorochrome-Conjugated Antibodies for Flow Cytometry

Characterization of Allophycocyanin (APC) Conjugates. Purified monoclonal antibodies or $F(ab')_2$ fragments of affinity-isolated antibodies are conjugated with cross-linked allophycocyanin (APC). After conjugation, unreacted APC and unreacted antibodies are completely removed by gel filtration. The molar APC/antibody ratio is approximately 1. APC conjugates can be excited at 633 nm or 635 nm (red lasers), and emit light at 660 nm.

Characterization of Fluorescein (FITC) Conjugates. Purified monoclonal antibodies or $F(ab')_2$ fragments of affinity-isolated polyclonal antibodies are conjugated with fluorescein isothiocyanate isomer 1 (FITC). After conjugation, unreacted FITC is completely removed by gel filtration. The molar FITC/antibody ratio is approximately 4. FITC conjugates can be excited at 488 nm (blue laser) and emit light at 530 nm.

Characterization of Pacific Blue (PB) Conjugates. Purified monoclonal antibodies are conjugated with Pacific Blue (PB)*. After conjugation, unreacted PB is completely removed by gel filtration. The molar PB/ab ratio is approximately 6. PB conjugates can be excited at 406 nm (violet laser) and emit light at 456 nm.

Characterization of Peridinin Chlorophyll Protein Complex (PerCP) Conjugates. Purified monoclonal antibodies are conjugated with Peridinin Chlorophyll Protein (PerCP). After conjugation, unreacted PerCP is completely removed by gel filtration. The molar PerCP/antibody ratio is approximately 2. PerCP conjugates can be excited at 488 nm (blue laser) and emit light at 676 nm.

Characterization of Peridinin Chlorophyll Protein Complex-Cy5.5 (PerCP-Cy5.5) Conjugates. Purified monoclonal antibodies are conjugated with an energy transfer fluorochrome (PerCP-Cy5.5) consisting of a cyanine dye, Cy5.5, covalently coupled to Peridinin Chlorophyll Protein Complex (PerCP). The excitation energy, absorbed at 488 nm by PerCP is transferred to Cy5.5, which emits light at 695 nm. After conjugation, unreacted PerCP-Cy5.5 complex and unreacted antibodies are completely removed by gel filtration. The molar PerCP-Cy5.5/antibody ratio of the conjugate is approximately 1.

Characterization of R-Phycoerythrin (RPE) Conjugates. Purified monoclonal antibodies or $F(ab')_2$ fragments of affinity-isolated polyclonal antibodies are conjugated with R-phycoerythrin (RPE). After conjugation, unreacted RPE and unreacted antibodies are completely removed by gel filtration. The molar RPE/antibody ratio is approximately 1. RPE conjugates can be excited at 488 nm (blue argon laser) and emit light at 570 nm.

Characterization of R-Phycoerythrin-Cy5 (RPE-Cy5) Conjugates.
Purified monoclonal antibodies are conjugated with an energy transfer fluorochrome (RPE-Cy5) consisting of a cyanine dye, Cy5, covalently coupled to R-phycoerythrin (RPE). The excitation energy, absorbed at 488 nm by RPE, is transferred to Cy5, which emits light at 670 nm. After conjugation, unreacted RPE-Cy5-complex and unreacted antibodies are completely removed by gel filtration. The molar RPE-Cy5/antibody ratio of the conjugate is approximate[1]. Please note that RPE-Cy5 conjugates may bind to monocytes resulting in background staining (1).

Dual-Color Reagents. MultiMix Dual-Color Reagents for flow cytometry are based on the combination of two antibodies labeled with FITC and RPE, respectively. This combination is particularly effective as both fluorochromes can be excited at 488 nm, and the fluorescence emission for FITC is in the green region around 530 nm while the RPE emission is in the

orange region above 570 nm. Dual-Color Reagents are excellent for distinguishing different cell populations simultaneously.

Triple-Color Reagents. MultiMix Triple-Color Reagents for flow cytometry are based on the combination of three antibodies labeled with FITC, RPE and APC, or FITC, RPE and RPE-Cy5, respectively. The Triple-Color Reagents are designed for flow cytometers equipped with a 488 nm (blue) light source for excitation of FITC, RPE and RPE-Cy5, and a 633/635 nm (red) light source for excitation of APC. The antibody and fluorochrome combinations are carefully chosen to provide convenient and reliable reagents for simultaneous identification of specific cell populations.

Performance Testing. All conjugates are thoroughly tested to confirm optimal performance in flow cytometry.

Solvent. The fluorochrome conjugates are offered in liquid form in buffer, containing 15 mmol/L sodium azide and 1% bovine serum albumin.

Storage. The conjugates should be stored in the dark at 2-8 °C.

Further Information. A package insert is supplied with each vial of conjugate. It provides product-specific details. Package inserts are also available on www.agilent.com.

The products require no hazard labeling.

References

1. **van Vugt MJ, van den Herik-Oudijk IE, van de Winkel JGJ. Binding of PE-Cy5 conjugates to the human high-affinity receptor for IgG (CD64). Blood 1996;88:2358-61.**

* *The Pacific Blue™ antibody conjugates are sold under license from Life Technologies Corporation.*

Flow Cytometers & Software

The Agilent line of NovoCyte flow cytometers provides an expanded set of capabilities that accommodate today's high-end and increasingly sophisticated multi-color flow cytometry assays.

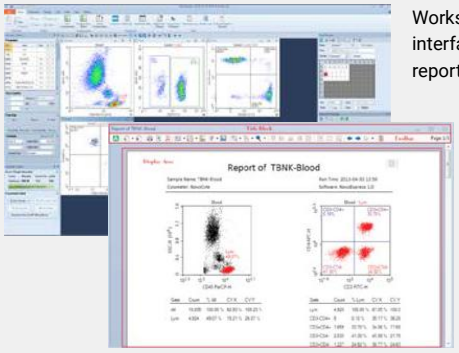
Laboratories now have the flexibility to choose 1-5 lasers, and up to 30 fluorescence channels. When throughput is essential, the auto-sampling capabilities can be integrated into different laboratory automation platforms, efficiently process both FACS tubes (using a 40-tube rack) and 24-, 48-, 96-, and 384-well plates, and allow for walk-away sample acquisition. The intuitive and industry leading NovoExpress software has been further advanced, providing an exceptional user experience in data acquisition, analysis and reporting.

- Expanded flexibility with 1-5 lasers and up to 30 fluorescence channel options, customizable, and upgradeable
- Sample recovery mode serves to collect unused sample at end of acquisition
- Excellent sensitivity and resolution
- Intuitive and powerful software for data acquisition, analysis, and reporting
- Smart-design functionalities and walk-away operation simplify your workflow
- Automation-ready capability for high-throughput needs
- Wide, 7.2-log dynamic range eliminates the need for routine detector adjustments
- High-speed collection up to 100,000 events/second
- Accurate absolute cell count in every experiment, which eliminates the need for reference beads

Stable and consistent results on a daily basis

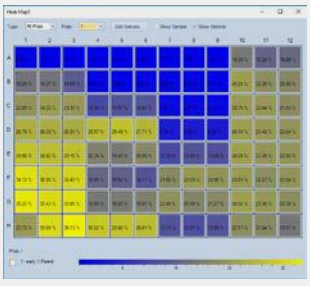
Equipped with high-quality lasers, optical filters and detectors to ensure consistent signal detection, and combined with fluidic feedback control mechanisms to maintain steady flow rates, you can rely on the NovoCyte line of flow cytometers. They have demonstrated superior stability across a wide range of sample flow rates, a critical requirement for flow cytometry to provide consistent results under variable operating conditions. Agilent flow cytometers give you peace of mind so you can focus more on your experiments.

Streamline your experiment's design, setup and data analysis with the NovoExpress software



Workspace + Report: NovoExpress user-friendly interface for easy access to settings, analysis, reports, and plates/sample layout.

Toolbar: Instrument toolbar showing quick access to QC and fluidic maintenance functions.



Heat map: Heat map data display.

NovoCyte

NovoCyte Advanteon

NovoCyte Quanteon

NovoCyte Penteon

NovoCyte Instrument Configurations

For more information on NovoCyte instruments, please visit **www.agilent.com/chem/novocyte**

Product	Lasers	349 nm	405 nm	488 nm	561 nm	637 nm	Max. No. of Fluorescence Channels
NovoCyte**	1			●			6
					●		6
	2		●	●			11
				●	●		11
				●		●	9
	3		●	●	●		15
				●	●	●	15
			●	●		●	13
NovoCyte Advanteon**	1			●			7
					●		6
	2		●	●			15
				●	●		13
				●		●	11
	3		●	●	●		21
				●	●	●	17
			●	●		●	19
NovoCyte Quanteon**	4		●	●	●	●	25
NovoCyte Penteon*	5	●	●	●	●	●	30

* *For Research Use Only. Not for use in diagnostic procedures.*
** *Selected configurations are registered as CE-IVD*

Product Code Index – Reagents & Kits

Code	Product	Package size	Page
C			
C022201-2	Polyclonal Rabbit Anti-Human Kappa Light Chains/APC, Rabbit F(ab')$_2$	100 tests, 1 mL	26
C706601-2	Monoclonal Mouse Anti-Human CD19/RPE-Cy5, Clone HD37	100 tests, 1 mL	20
C706701-2	Monoclonal Mouse Anti-Human CD3/RPE-Cy5, Clone UCHT1	100 tests, 1 mL	19
C709901-2	Monoclonal Mouse Anti-Human CD45, Leucocyte Common Antigen/RPE-Cy5, Clone T29/33	100 tests, 1 mL	24
C722401-2	Monoclonal Mouse Anti-Human CD19/APC, Clone HD37	100 tests, 1 mL	20
C722501-2	Monoclonal Mouse Anti-Human CD3/APC, Clone UCHT1	100 tests, 1 mL	19
C722601-2	Monoclonal Mouse Anti-Human CD4/APC, Clone MT310	100 tests, 1 mL	19
C722701-2	Monoclonal Mouse Anti-Human CD8/APC, Clone DK25	100 tests, 1 mL	19
C723001-2	Monoclonal Mouse Anti-Human CD45, Leucocyte Common Antigen/APC, Clone T29/33	100 tests, 1 mL	22
C723850-2	Monoclonal Mouse Anti-Human CD34 Class III/APC, Clone BIRMA-K3	50 tests, 0.5 mL	21
C724201-2	Monoclonal Mouse Anti-Human CD5/APC, Clone DK23	100 tests, 1 mL	19
C724401-2	Monoclonal Mouse Anti-Human CD117, c-kit/APC, Clone 104D2	100 tests, 1 mL	24
C724601-2	Monoclonal Mouse Anti-Human Myeloperoxidase/APC, Clone MPO-7	100 tests, 1 mL	26
C725201-2	Monoclonal Mouse Anti-Human CD79acy/APC, Clone HM57	100 tests, 1 mL	24
C725601-2	Monoclonal Mouse Anti-Human CD138/APC, Clone MI15	100 tests, 1 mL	24
C727801-2	Monoclonal Mouse Anti-Human CD64, Fc Gamma Receptor I/APC, Clone 10.1	100 tests, 1 mL	23
C728001-2	Monoclonal Mouse Anti-Human CD61, Platelet Glycoprotein IIIa/APC, Clone Y2/51	100 tests, 1 mL	23
C728101-2	Monoclonal Mouse Anti-Human CD22/APC, Clone 4KB128	100 tests, 1 mL	21
F			
F005801-2	Polyclonal Rabbit Anti-Human IgM/FITC, Rabbit F(ab')$_2$	100 tests, 1 mL	25
F018501-2	Polyclonal Rabbit Anti-Human IgG/FITC, Rabbit F(ab')$_2$	100 tests, 1 mL	25
F018801-2	Polyclonal Rabbit Anti-Human IgA/FITC, Rabbit F(ab')$_2$	100 tests, 1 mL	25
F018901-2	Polyclonal Rabbit Anti-Human IgD/FITC, Rabbit F(ab')$_2$	100 tests, 1 mL	25
F031302-2	Polyclonal Rabbit Anti-Mouse Immunoglobulins/FITC, Rabbit F(ab')$_2$	2 mL	33
F037201-2	Polyclonal Rabbit Anti-Human Lysozyme EC 3.2.1.17/FITC	100 tests, 1 mL	26
F043401-2	Polyclonal Rabbit Anti-Human Kappa Light Chains/FITC, Rabbit F(ab')$_2$	100 tests, 1 mL	26
F043501-2	Polyclonal Rabbit Anti-Human Lambda Light Chains/FITC, Rabbit F(ab')$_2$	100 tests, 1 mL	26
F047902-2	Polyclonal Goat Anti-Mouse Immunoglobulins/FITC, Goat F(ab')$_2$	2 mL	33
F071301-2	Monoclonal Mouse Anti-Human CD11c, Protein 150,95/FITC, Clone KB90	100 tests, 1 mL	20
F071401-2	Monoclonal Mouse Anti-Human Myeloperoxidase/FITC, Clone MPO-7	100 tests, 1 mL	26
F076501-2	Monoclonal Mouse Anti-Human CD8/FITC, Clone DK25	100 tests, 1 mL	19
F076601-2	Monoclonal Mouse Anti-Human CD4/FITC, Clone MT310	100 tests, 1 mL	19
F076701-2	Monoclonal Mouse Anti-Human CD2/FITC, Clone MT910	100 tests, 1 mL	19
F076801-2	Monoclonal Mouse Anti-Human CD19/FITC, Clone HD37	100 tests, 1 mL	20
F078901-2	Monoclonal Mouse Anti-Human CD7/FITC, Clone DK24	100 tests, 1 mL	19
F079501-2	Monoclonal Mouse Anti-Human CD5/FITC, Clone DK23	100 tests, 1 mL	19
F079901-2	Monoclonal Mouse Anti-Human CD20/FITC, Clone B-Ly1	100 tests, 1 mL	20
F080001-2	Monoclonal Mouse Anti-Human CD45R0/FITC, Clone UCHL1	100 tests, 1 mL	22
F080101-2	Monoclonal Mouse Anti-Human CD25, Interleukin-2 Receptor/FITC, Clone ACT-1	100 tests, 1 mL	21
F080301-2	Monoclonal Mouse Anti-Human CD61, Platelet Glycoprotein IIIa/FITC, Clone Y2/51	100 tests, 1 mL	23
F081701-2	Monoclonal Mouse Anti-Human HLA-DP, DQ, DR Antigen/FITC, Clone CR3/43	100 tests, 1 mL	25
F081801-2	Monoclonal Mouse Anti-Human CD3/FITC, Clone UCHT1	100 tests, 1 mL	19
F082601-2	Monoclonal Mouse Anti-Human CD10/FITC, Clone SS2/36	100 tests, 1 mL	19
F082901-2	Monoclonal Mouse Anti-Human CD71, Transferrin Receptor/FITC, Clone Ber-T9	100 tests, 1 mL	23
F083001-2	Monoclonal Mouse Anti-Human CD15/FITC, Clone C3D-1	100 tests, 1 mL	20
F083101-2	Monoclonal Mouse Anti-Human CD13/FITC, Clone WM-47	100 tests, 1 mL	20
F083201-2	Monoclonal Mouse Anti-Human CD33/FITC, Clone WM-54	100 tests, 1 mL	21
F084401-2	Monoclonal Mouse Anti-Human CD14/FITC, Clone TÜK4	100 tests, 1 mL	20
F084901-2	Monoclonal Mouse Anti-Human CD30/FITC, Clone Ber-H2	100 tests, 1 mL	21
F086001-2	Monoclonal Mouse Anti-Human Epithelial Antigen/FITC, Clone Ber-EP4	100 tests, 1 mL	25
F086101-2	Monoclonal Mouse Anti-Human CD45, Leucocyte Common Antigen/FITC, Clone T29/33	100 tests, 1 mL	22
F087001-2	Monoclonal Mouse Anti-Human CD235a, Glycophorin A/FITC, Clone JC159	100 tests, 1 mL	24
F701101-2	Monoclonal Mouse Anti-Human CD16, Fc Gamma Receptor III/FITC, Clone DJ130c	100 tests, 1 mL	20

Product Code Index – Reagents & Kits

Code	Product	Package size	Page
F705301-8	Monoclonal Mouse Anti-Human BCL2 Oncoprotein/FITC, Clone 124	100 tests, 1 mL	18
F706001-2	Monoclonal Mouse Anti-Human CD22/FITC, Clone 4KB128	100 tests, 1 mL	21
F706201-2	Monoclonal Mouse Anti-Human CD23/FITC, Clone MHM6	100 tests, 1 mL	21
F708101-2	Monoclonal Mouse Anti-Human CD34 Class III/FITC, Clone BIRMA-K3	100 tests, 1 mL	21
F708801-2	Monoclonal Mouse Anti-Human CD41, Platelet Glycoprotein IIb/FITC, Clone 5B12	100 tests, 1 mL	22
F710101-2	Monoclonal Mouse Anti-Human CD38/FITC, Clone AT13/5	100 tests, 1 mL	22
F710201-2	Monoclonal Mouse Anti-Human CD43/FITC, Clone DF-T1	100 tests, 1 mL	22
F711001-2	Monoclonal Mouse Anti-Human B Cell/FITC, Clone FMC7	100 tests, 1 mL	18
F711201-2	Monoclonal Mouse Anti-Human CD66abce/FITC, Clone Kat4c	100 tests, 1 mL	23
F713401-2	Monoclonal Mouse Anti-Human CD24/FITC, Clone SN3	100 tests, 1 mL	23
F713501-2	Monoclonal Mouse Anti-Human CD68/FITC, Clone KP1	100 tests, 1 mL	23
F713701-2	Monoclonal Mouse Anti-Human CD79ß/FITC, Clone SN8	100 tests, 1 mL	24
F713801-2	Monoclonal Mouse Anti-Human CD103, Mucosa Lymphocyte Antigen/FITC, Clone Ber-ACT8	100 tests, 1 mL	24
F713950-2	Monoclonal Mouse Anti-Human Terminal Deoxynucleotidyl Transferase/FITC, Clone HT-6	50 tests, 0.5 mL	26
F714101-2	Monoclonal Mouse Anti-Human CD1a/FITC, Clone NA1/34	100 tests, 1 mL	18
F714301-8	Monoclonal Mouse Anti-Human CD54, ICAM-1/FITC, Clone 6.5B5	100 tests, 1 mL	22
F714901-2	Monoclonal Mouse Anti-Human Plasma Cell/FITC, Clone VS38c	100 tests, 1 mL	26
F717801-8	Monoclonal Mouse Anti-Human CD27/FITC, Clone M-T271	100 tests, 1 mL	21
F726601-2	Monoclonal Mouse Anti-Human HLA-DR Antigen/FITC, Clone AB3	100 tests, 1 mL	25
F726801-8	Monoclonal Mouse Anti-Human Ki-67 Antigen/FITC, Clone MIB-1	100 tests, 1 mL	26
F727001-2	Monoclonal Mouse Anti-Human CD57/FITC, Clone TB01	100 tests, 1 mL	23
F727601-2	Monoclonal Mouse Anti-Human CD7/FITC, Clone CBC.37	100 tests, 1 mL	19
FR04450-2	MultiMix Dual-Colour Reagent, Anti-Human Lambda Light Chains/FITC + Anti-Human CD19/RPE	50 tests, 0.5 mL	27
FR04850-2	MultiMix Dual-Colour Reagent, Anti-Human Kappa Light Chains/FITC + Anti-Human CD19/RPE	50 tests, 0.5 mL	27
FR48150-2	MultiMix Dual-Colour Reagent, Anti-Human Kappa Light Chains/FITC + Anti-Human Lambda Light Chains/RPE	50 tests, 0.5 mL	27
FR70050-2	MultiMix Dual-Colour Reagent, Anti-Human CD45/FITC + Anti-Human CD14/RPE	50 tests, 0.5 mL	27
FR72950-2	MultiMix Dual-Colour Reagent, Anti-Human CD5/FITC + Anti-Human CD20/RPE	50 tests, 0.5 mL	27
FR86650-2	MultiMix Dual-Colour Reagent, Anti-Human CD3/FITC + Anti-Human CD19/RPE	50 tests, 0.5 mL	27
FR86750-2	MultiMix Dual-Colour Reagent, Anti-Human HLA-DP, DQ, DR Antigen/FITC + Anti-Human CD3/RPE	50 tests, 0.5 mL	27
FR86850-2	MultiMix Dual-Colour Reagent, Anti-Human CD4/FITC + Anti-Human CD8/RPE	50 tests, 0.5 mL	27
FR87550-2	MultiMix Dual-Colour Reagent, Anti-Human CD3/FITC + Anti-Human CD4/RPE	50 tests, 0.5 mL	27
FR88150-2	MultiMix Dual-Colour Reagent, Anti-Human CD3/FITC + Anti-Human CD8/RPE	50 tests, 0.5 mL	27
FR88250-2	MultiMix Dual-Colour Reagent, Anti-Human CD5/FITC + Anti-Human CD19/RPE	50 tests, 0.5 mL	27
FR88350-2	MultiMix Dual-Colour Reagent, Anti-Human CD10/FITC + Anti-Human CD19/RPE	50 tests, 0.5 mL	27
FR89450-2	MultiMix Dual-Colour Reagent, Anti-Human CD2/FITC + Anti-Human CD19/RPE	50 tests, 0.5 mL	27
K			
K007811-8	QIFIKIT®	10 calibrations	34
K011011-2	FluoroSpheres	40 tests	34
K231111-2	IntraStain	100 tests	34
K532711-8	Telomere PNA Kit/FITC for Flow Cytometry	20 duplicate tests	35
P			
PB98201-8	Monoclonal Mouse Anti-Human CD3/PB, Clone UCHT1	100 tests, 1 mL	19
PB98401-8	Monoclonal Mouse Anti-Human CD8/PB, Clone DK25	100 tests, 1 mL	19
PB98501-8	Monoclonal Mouse Anti-Human CD19/PB, Clone HD37	100 tests, 1 mL	20
PB98601-8	Monoclonal Mouse Anti-Human CD45, Leucocyte Common Antigen/PB, Clone T29/33	100 tests, 1 mL	22
PR70101-2	Monoclonal Mouse Anti-Human CD45, Leucocyte Common Antigen/PerCP, Clone 2D1	100 tests, 1 mL	22
PR70201-2	Monoclonal Mouse Anti-Human CD3/PerCP, Clone UCHT1	100 tests, 1 mL	19
PR70350-2	Monoclonal Mouse Anti-Human CD19/PerCP-Cy5.5, Clone HD37	100 tests, 0.5 mL	20
PR70450-2	Monoclonal Mouse Anti-Human Myeloperoxidase/PerCP-Cy5.5, Clone MPO-7	100 tests, 0.5 mL	26
PR70650-2	Monoclonal Mouse Anti-Human CD34 Class III/PerCP-Cy5.5, Clone BIRMA-K3	100 tests, 0.5 mL	21
PR70750-2	Monoclonal Mouse Anti-Human CD22/PerCP-Cy5.5, Clone 4KB128	100 tests, 0.5 mL	21
PR71050-2	Monoclonal Mouse Anti-Human CD1a/PerCP-Cy5.5, Clone NA1/34	100 tests, 0.5 mL	18
PR71150-2	Monoclonal Mouse Anti-Human CD7/PerCP-Cy5.5, Clone CBC.37	100 tests, 0.5 mL	19
PR71250-2	Polyclonal Rabbit Anti-Human Lambda Light Chains/PerCP-Cy5.5	100 tests, 0.5 mL	26
PR71350-2	Monoclonal Mouse Anti-Human Plasma Cell/PerCP-Cy5.5, Clone VS38c	100 tests, 0.5 mL	26

Product Code Index – Reagents & Kits

Code	Product	Package size	Page
R			xx
R043601-2	Polyclonal Rabbit Anti-Human Kappa Light Chains/RPE, Rabbit F(ab')$_2$	100 tests, 1 mL	26
R043701-2	Polyclonal Rabbit Anti-Human Lambda Light Chains/RPE, Rabbit F(ab')$_2$	100 tests, 1 mL	26
R043901-2	Polyclonal Rabbit Anti-Mouse Immunoglobulins/RPE, Rabbit F(ab')$_2$	1 mL	33
R048001-2	Polyclonal Goat Anti-Mouse Immunoglobulins/RPE, Goat F(ab')$_2$	1 mL	33
R071501-2	Monoclonal Mouse Anti-Human CD13/RPE, Clone WM-47	100 tests, 1 mL	20
R074501-2	Monoclonal Mouse Anti-Human CD33/RPE, Clone WM-54	100 tests, 1 mL	21
R080501-2	Monoclonal Mouse Anti-Human CD4/RPE, Clone MT310	100 tests, 1 mL	19
R080601-2	Monoclonal Mouse Anti-Human CD8/RPE, Clone DK25	100 tests, 1 mL	19
R080701-2	Monoclonal Mouse Anti-Human CD2/RPE, Clone MT910	100 tests, 1 mL	19
R080801-2	Monoclonal Mouse Anti-Human CD19/RPE, Clone HD37	100 tests, 1 mL	20
R081001-2	Monoclonal Mouse Anti-Human CD3/RPE, Clone UCHT1	100 tests, 1 mL	19
R081101-2	Monoclonal Mouse Anti-Human CD25, Interleukin-2 Receptor/RPE, Clone ACT-1	100 tests, 1 mL	21
R084101-8	Monoclonal Mouse Anti-Human CD11b, C3bi Receptor/RPE, Clone 2LPM19c	100 tests, 1 mL	20
R084201-2	Monoclonal Mouse Anti-Human CD5/RPE, Clone DK23	100 tests, 1 mL	19
R084301-2	Monoclonal Mouse Anti-Human CD45R0/RPE, Clone UCHL1	100 tests, 1 mL	22
R084801-2	Monoclonal Mouse Anti-Human CD10/RPE, Clone SS2/36	100 tests, 1 mL	19
R086401-2	Monoclonal Mouse Anti-Human CD14/RPE, Clone TÜK4	100 tests, 1 mL	20
R511101-2	Polyclonal Rabbit Anti-Human IgM/RPE, Rabbit F(ab')$_2$	100 tests, 1 mL	25
R511201-2	Polyclonal Rabbit Anti-Human IgD/RPE, Rabbit F(ab')$_2$	100 tests, 1 mL	25
R700001-2	Monoclonal Mouse Anti-Human HLA-ABC Antigen/RPE, Clone W6/32	100 tests, 1 mL	25
R701201-2	Monoclonal Mouse Anti-Human CD16, Fc Gamma Receptor III/RPE, Clone DJ130c	100 tests, 1 mL	20
R701301-2	Monoclonal Mouse Anti-Human CD20/RPE, Clone B-Ly1	100 tests, 1 mL	20
R701401-2	Monoclonal Mouse Anti-Human CD42b, Platelet Glycoprotein Ib/RPE, Clone AN51	100 tests, 1 mL	22
R705801-2	Monoclonal Mouse Anti-Human CD41, Platelet Glycoprotein IIb/RPE, Clone 5B12	100 tests, 1 mL	22
R706101-2	Monoclonal Mouse Anti-Human CD22/RPE, Clone 4KB128	100 tests, 1 mL	21
R707801-2	Monoclonal Mouse Anti-Human CD235a, Glycophorin A/RPE, Clone JC159	100 tests, 1 mL	24
R708601-2	Monoclonal Mouse Anti-Human CD45RA/RPE, Clone 4KB5	100 tests, 1 mL	22
R708701-2	Monoclonal Mouse Anti-Human CD45, Leucocyte Common Antigen/RPE, Clone T29/33	100 tests, 1 mL	22
R710801-2	Monoclonal Mouse Anti-Human CD23/RPE, Clone MHM6	100 tests, 1 mL	21
R712501-2	Monoclonal Mouse Anti-Human CD34 Class III/RPE, Clone BIRMA-K3	100 tests, 1 mL	21
R712701-2	Monoclonal Mouse Anti-Human CD56/RPE, Clone MOC-1	100 tests, 1 mL	23
R714401-2	Monoclonal Mouse Anti-Human CD38/RPE, Clone AT13/5	100 tests, 1 mL	22
R714501-2	Monoclonal Mouse Anti-Human CD117, c-kit/RPE, Clone 104D2	100 tests, 1 mL	24
R715901-2	Monoclonal Mouse Anti-Human CD79acy/RPE, Clone HM57	100 tests, 1 mL	24
R716401-8	Monoclonal Mouse Anti-Human CD28/RPE, Clone CD28.1	100 tests, 1 mL	21
R718801-2	Monoclonal Mouse Anti-Human CD103, Mucosa Lymphocyte Antigen/RPE, Clone Ber-ACT8	100 tests, 1 mL	24
R718901-2	Monoclonal Mouse Anti-Human CD1a/RPE, Clone NA1/34	100 tests, 1 mL	18
R720901-2	Monoclonal Mouse Anti-Human Myeloperoxidase/RPE, Clone MPO-7	100 tests, 1 mL	26
R721901-2	Monoclonal Mouse Anti-Human CD64, Fc Gamma Receptor I/RPE, Clone 10.1	100 tests, 1 mL	23
R722901-2	Monoclonal Mouse Anti-Human CD138/RPE, Clone MI15	100 tests, 1 mL	24
R725101-2	Monoclonal Mouse Anti-Human CD56/RPE, Clone C5.9	100 tests, 1 mL	23
R726701-2	Monoclonal Mouse Anti-Human HLA-DR Antigen/RPE, Clone AB3	100 tests, 1 mL	25
R727201-2	Monoclonal Mouse Anti-Human CD79ß/RPE, Clone SN8	100 tests, 1 mL	24
R727701-2	Monoclonal Mouse Anti-Human CD7/RPE, Clone CBC.37	100 tests, 1 mL	19
S			
S236430-2	EasyLyse, Erythrocyte-Lysing Reagent	300 tests, 6 x 5 mL	34
S302430-2	Phosphate-Buffered Saline (PBS), pH 7.0	6 x 1 L	33

Product Code Index – Reagents & Kits

Code	Product	Package size	Page
T			
TC05150-2	MultiMix Triple-Colour Reagent, Anti-Human Kappa Light Chains/FITC + Anti-Human Lambda Light Chains/RPE + Anti-Human CD19/RPE-Cy5	50 tests, 0.5 mL	31
TC64150-2	MultiMix Triple-Colour Reagent, Anti-Human CD8/FITC + Anti-Human CD4/RPE + Anti-Human CD3/RPE-Cy5	50 tests, 0.5 mL	31
TC66001-2	MultiMix Triple-Colour Reagent, Anti-Human CD8/FITC + Anti-Human CD4/RPE + Anti-Human CD3/APC	50 tests, 1 mL	28
TC66101-2	MultiMix Triple-Colour Reagent, Anti-Human CD16/FITC + Anti-Human CD56/RPE + Anti-Human CD3/APC	50 tests, 1 mL	29
TC66301-2	MultiMix Triple-Colour Reagent, Anti-Human CD20/FITC + Anti-Human CD5/RPE + Anti-Human CD19/APC	50 tests, 1 mL	29
TC66401-2	MultiMix Triple-Colour Reagent, Anti-Human CD5/FITC + Anti-Human CD10/RPE + Anti-Human CD19/APC	50 tests, 1 mL	28
TC66501-2	MultiMix Triple-Colour Reagent, Anti-Human CD103/FITC + Anti-Human CD11c/RPE + Anti-Human CD19/APC	50 tests, 1 mL	30
TC66601-2	MultiMix Triple-Colour Reagent, Anti-Human CD2/FITC + Anti-Human CD34 Class III/RPE + Anti-Human CD5/APC	50 tests, 1 mL	28
TC66701-2	MultiMix Triple-Colour Reagent, Anti-Human MPO/FITC + Anti-Human CD79acy/RPE + Anti-Human CD3/APC	50 tests, 1 mL	31
TC66801-2	MultiMix Triple-Colour Reagent, Anti-Human TdT/FITC + Anti-Human CD22/RPE + Anti-Human CD3/APC	50 tests, 1 mL	31
TC66901-2	MultiMix Triple-Colour Reagent, Anti-Human CD19/FITC + Anti-Human Lambda Light Chains/RPE + Anti-Human Kappa Light Chains/APC	50 tests, 1 mL	29
TC67001-2	MultiMix Triple-Colour Reagent, Anti-Human Plasma Cell/FITC + Anti-Human Lambda Light Chains/ RPE + Anti-Human Kappa Light Chains/APC	50 tests, 1 mL	31
TC67101-2	MultiMix Triple-Colour Reagent, Anti-Human CD38/FITC + Anti-Human CD56/RPE + Anti-Human CD45/APC	50 tests, 1 mL	30
TC67401-2	MultiMix Triple-Colour Reagent, Anti-Human CD38/FITC + Anti-Human CD56/RPE + Anti-Human CD19/APC	50 tests, 1 mL	30
TC67501-2	MultiMix Triple-Colour Reagent, Anti-Human CD71/FITC + Anti-Human CD235a/RPE + Anti-Human CD45/APC	50 tests, 1 mL	30
TC67701-2	MultiMix Triple-Colour Reagent, Anti-Human CD2/FITC + Anti-Human CD7/RPE + Anti-Human CD3/APC	50 tests, 1 mL	28
TC68301-2	MultiMix Triple-Colour Reagent, Anti-Human B Cell (FMC7)/FITC + Anti-Human CD23/RPE + Anti-Human CD19/APC	50 tests, 1 mL	28
TC68501-2	MultiMix Triple-Colour Reagent, Anti-Human CD13/FITC + Anti-Human HLA-DR Antigen/RPE + Anti-Human CD117/APC	50 tests, 1 mL	29
TC68601-2	MultiMix Triple-Colour Reagent, Anti-Human CD33/FITC + Anti-Human CD34/RPE + Anti-Human CD117/APC	50 tests, 1 mL	29
TC68701-2	MultiMix Triple-Colour Reagent, Anti-Human CD41/FITC + Anti-Human CD34/RPE + Anti-Human CD61/APC	50 tests, 1 mL	30
TC68901-2	MultiMix Triple-Colour Reagent, Anti-Human CD19/FITC + Anti-Human CD34/RPE + Anti-Human CD22/APC	50 tests, 1 mL	29
TC69001-2	MultiMix Triple-Colour Reagent, Anti-Human CD3/FITC + Anti-Human CD19/RPE + Anti-Human CD45/APC	50 tests, 1 mL	27
X			
X092701-2	Control Reagent, Mouse IgG1/FITC	1 mL	32
X092801-2	Control Reagent, Mouse IgG1/RPE	1 mL	32
X092901-2	Control Reagent, Rabbit F(ab')$_2$/FITC	1 mL	32
X093001-2	Control Reagent, Rabbit F(ab')$_2$/RPE	1 mL	32
X093101-2	Control Reagent, Mouse IgG1	1 mL	32
X093250-2	MultiMix Dual-Colour Control Reagent, Mouse IgG1/FITC + Mouse IgG1/RPE	0.5 mL	32
X093301-2	Control Reagent, Mouse IgG2a/FITC	1 mL	32
X093550-2	MultiMix Dual-Colour Control Reagent, Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE	0.5 mL	32

Product Code Index – Reagents & Kits

Code	Product	Package size	Page
X094950-2	MultiMix Dual-Colour Control Reagent, Mouse IgG1/FITC + Mouse IgG2a/RPE	0.5 mL	32
X095001-2	Control Reagent, Mouse IgG2a/RPE	1 mL	32
X095501-2	Control Reagent, Mouse IgG1/RPE-Cy5	1 mL	32
X095650-2	MultiMix Triple-Colour Control Reagent, Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/RPE-Cy5	0.5 mL	33
X095750-2	MultiMix Triple-Colour Control Reagent, Rabbit F(ab')$_2$/FITC + Rabbit F(ab')$_2$/RPE + Mouse IgG1/RPE-Cy5	0.5 mL	33
X096801-2	Control Reagent, Mouse IgG1/APC	1 mL	32
X097801-2	MultiMix Triple-Colour Control Reagent, Mouse IgG1/FITC + Mouse IgG1/RPE + Mouse IgG1/APC	1 mL	xx
X097901-2	MultiMix Triple-Colour Control Reagent, Mouse IgG1/FITC + Rabbit F(ab')$_2$/RPE + Rabbit F(ab')$_2$/APC	1 mL	32
X099801-2	Control Reagent, Rabbit F(ab')$_2$/APC	1 mL	32

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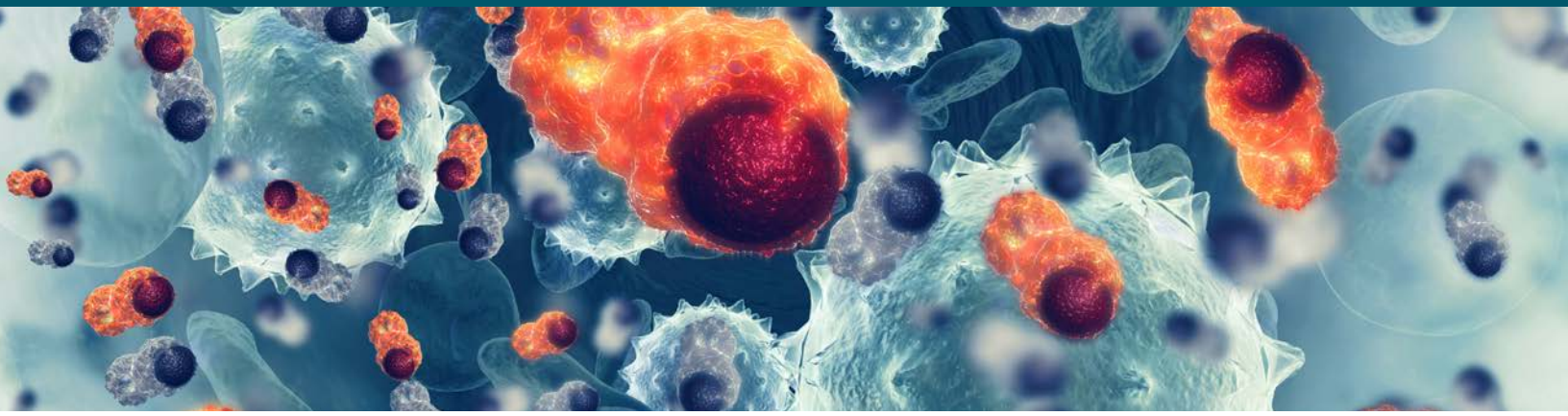

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CERTIFICATE OF ANALYSIS

EO0491 Proteinase K (rec.), PCR grade

Packaging Lot: **2940367**
Expiry Date: 29.02.2028 (DD.MM.YYYY)
Storage: at -20±5°C

Filling lots for components in package:

Lot	Quantity	Description
2913298	1 mL	Proteinase K (rec.), PCR grade

QUALITY CONTROL

Parameter	Method	Requirement	Result
Unit definition	One unit of the enzyme that liberates Folin-positive amino acids and peptides, corresponding to 1 µmol in 1 min. at 37 ºC using denatured hemoglobin as substrate.	≥ 600 U/mL	Conforms
Endodeoxyribonucleases (nicking activity)	Incubation of supercoiled plasmid DNA with Proteinase K.	Not detectable	Conforms
Ribonucleases	Incubation of RNA transcript with Proteinase K.	Not detectable	Conforms
Endonucleases	Incubation of DNA standard with Proteinase K.	Not detectable	Conforms

ISO CERTIFICATION
Manufactured by Thermo Fisher Scientific Baltics UAB, in compliance with ISO 9001 and ISO 13485 certified quality management system.

Quality authorized by QC: J. Žilinskienė

Proteinase K (recombinant), PCR grade

Catalog Number EO0491, EO0492

Pub. No. MAN0012880 **Rev.** D.00

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from **thermofisher.com/support.**

Product description

Proteinase K is an endolytic protease that cleaves peptide bonds at the carboxylic sides of aliphatic, aromatic or hydrophobic amino acids. The Proteinase K is classified as a serine protease (1). The smallest peptide to be hydrolyzed by this enzyme is a tetrapeptide.

Contents and storage

Cat. No.	Contents	Source	Molecular Weight	Amount	Storage
EO0491	Proteinase K (recombinant), PCR grade	Pichia pastoris cells with a cloned gene from *Tritirachium album*	28.9 kDa monomer (6)	1 mL, ≥ 600 U/mL (~20 mg/mL)	-25 °C to -15 °C
EO0492				5 x 1 mL, ≥ 600 U/mL (~20 mg/mL)	

Applications

- Isolation of genomic DNA from mouse tail.
- Isolation of genomic DNA from cultured cells.
- Removal of DNases and RNases when isolating DNA and RNA from tissues or cell lines (2, 3).
- Determination of enzyme localization (4).
- Improving cloning efficiency of PCR products (5).

Definition of Activity Unit

One unit of the enzyme liberates Folin-positive amino acids and peptides corresponding to 1 µmol tyrosine in 1 min at 37 °C using denatured hemoglobin as substrate. Enzyme activity is assayed in the following mixture: 0.08 M potassium phosphate (pH 7.5), 5 M urea, 4 mM NaCl, 3 mM $CaCl_2$ and 16.7 mg/mL hemoglobin.

Storage Buffer

The enzyme is supplied in: 10 mM Tris-HCl (pH 7.5), containing calcium acetate and 50 % (v/v) glycerol.

Inhibition and Inactivation

- Phenylmethylsulfonyl fluoride and diisopropyl phosphorofluoridate completely inhibit the enzyme (1).
- Proteinase K is not inactivated by metal chelators, by thiol-reactive reagents or by specific trypsin and chymotrypsin inhibitors.

Note

- The recommended working concentration for Proteinase K is 0.05-1 mg/mL. The activity of the enzyme is stimulated by 0.2-1 % SDS or by 1-4 M urea (3).
- Ca^{2+} protects Proteinase K against autolysis, increases the thermal stability and has a regulatory function for the substrate binding site of Proteinase K (7).
- Stable over a wide pH range: 4.0-12.5, optimum pH 7.5-8.0 (8).

References

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Limited product warranty

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For descriptions of symbols on product labels or product documents, go to **thermofisher.com/symbols-definition**.

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