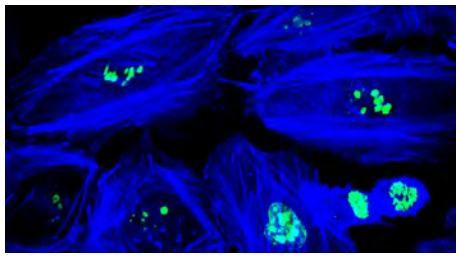
Introducing Zip Alexa Fluor Rapid Antibody Labeling Kits

The new Invitrogen™ Zip Alexa Fluor™ Rapid Antibody Labeling Kits provide reagents and a simple protocol to efficiently label your primary antibody with one of three bright fluorescent Alexa Fluor dyes in just 15 minutes. Not only is the antibody conjugate ready to use in this short time, but you will recover 100% of your antibody because there are no purification steps required. Using a directly labeled primary antibody often produces lower background fluorescence and less nonspecific binding than detection with a secondary antibody. In addition, multiple primary antibodies of the same isotype or derived from the same species can easily be used in the same experiment if they are directly labeled with compatible fluorophores.

The kit contains everything you need to perform three separate labeling reactions and produces fluorescent antibody conjugates that are ideal for a wide range of applications, including flow cytometry, fluorescent microscopy, immunohistochemistry, immunocytochemistry, ELISAs, and indirect FISH. Learn more about our diverse selection of antibody and protein labeling kits designed to fit your starting material and experimental setup at **thermofisher.com/antibodylabeling**.



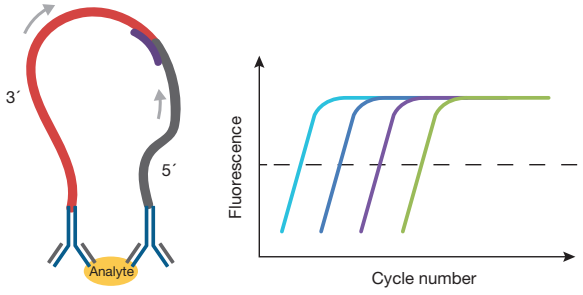
HeLa cells stained with directly labeled primary antibodies. HeLa cells were labeled with a mouse anti-Ki67 antibody directly conjugated to Alexa Fluor 488 dye using the Invitrogen™ Zip Alexa Fluor™ 488 Rapid Antibody Labeling Kit (Cat. No. Z11233) and with Invitrogen™ Alexa Fluor™ Plus 405 Phalloidin (Cat. No. A30104). Cells were imaged using a 40x objective on the Thermo Scientific™ CellInsight™ CX7 LZR High-Content Analysis Platform (Cat. No. CX7A1110LZR) using spinning disk confocal microscopy.

Selected products	Quantity	Cat. No.
Zip Alexa Fluor™ 488 Rapid Antibody Labeling Kit	3 labelings	Z11233
Zip Alexa Fluor™ 555 Rapid Antibody Labeling Kit	3 labelings	Z11234
Zip Alexa Fluor™ 647 Rapid Antibody Labeling Kit	3 labelings	Z11235

Next-generation ProQuantum high-sensitivity immunoassays

Meet the newest easy-to-run immunoassay kits for measuring low levels of cytokine proteins using very small (2 µL) sample volumes. Leveraging a proximity-based amplification technology, the Invitrogen™ ProQuantum™ immunoassays combine the analyte specificity of high-affinity antibody–antigen binding with the high sensitivity and large dynamic range of real-time PCR amplification to achieve simple yet powerful protein quantitation. ProQuantum immunoassays are an open, affordable platform that can be run on any qPCR instrument. See page 16 for a more complete description of our selection of immunoassays, including the ProQuantum kits, and learn more at **thermofisher.com/proquantum**.

Selected products	Quantity	Cat. No.
EGF Human ProQuantum™ Immunoassay Kit	96 reactions	A35579
IFN gamma Human ProQuantum™ Immunoassay Kit	96 reactions	A35576
IL-1 beta Human ProQuantum™ Immunoassay Kit	96 reactions	A35574
IL-2 Human ProQuantum™ Immunoassay Kit	96 reactions	A35603
IL-5 Human ProQuantum™ Immunoassay Kit	96 reactions	A35588
IL-6 Human ProQuantum™ Immunoassay Kit	96 reactions	A35573
IL-8 Human ProQuantum™ Immunoassay Kit	96 reactions	A35575
IL-12 p40 Human ProQuantum™ Immunoassay Kit	96 reactions	A35577



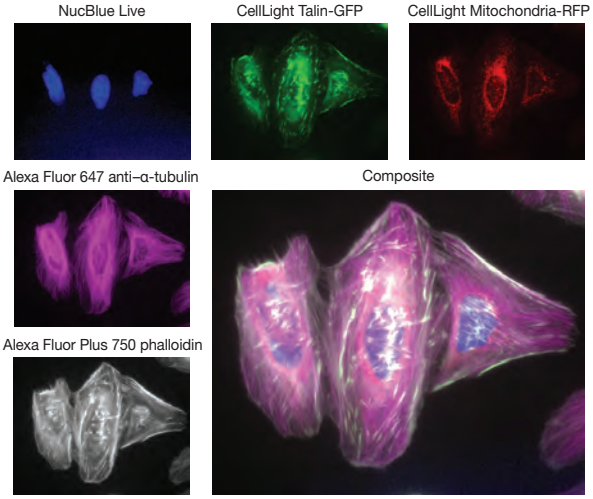
How ProQuantum immunoassays work. Paired antibody–oligonucleotide conjugates bind to the analyte of interest during a 1 hr incubation, followed by ligation of the two oligonucleotides in the presence of a splint oligonucleotide and 40 cycles of qPCR-based amplification. No wash steps are required, and the amount of analyte-specific antibody pair binding is directly proportional to the number of PCR amplicons generated.

New and improved tools for labeling the actin cytoskeleton

Fluorescent phallotoxin derivatives, which stain F-actin selectively at nanomolar concentrations, are powerful labels for identifying and quantifying actin in fixed cells, tissue sections, or cell-free preparations. Thermo Fisher Scientific offers over 26 different fluorescent phalloidins conjugated either to Invitrogen™ Alexa Fluor™ dyes or to classic fluorophores. With recent protocol improvements for making stock solutions, our phalloidin products now produce up to 60% more signal than previous formulations, with an improved workflow.

In addition, we have just added two very bright fluorescent phalloidin conjugates to the portfolio, increasing your labeling choices and facilitating 4- to 6-plex imaging without interference from spectral overlap. The near-infrared–excitable Alexa Fluor Plus 750 Phalloidin can be detected with the 790 nm laser line of the Thermo Scientific™ CellInsight™ CX7 LZE High-Content Analysis Platform or other confocal microscope, the Invitrogen™ EVOS™ Cy®7 Light Cube, or a Cy7 filter set. The violet light–excitable Alexa Fluor Plus 405 Phalloidin can be detected with the 405 nm laser line, the EVOS DAPI Light Cube, or a DAPI filter set. To find out more about our complete set of actin-specific probes, visit **thermofisher.com/phalloidin**.

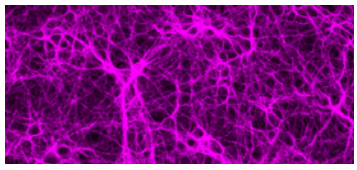
Selected products	Quantity	Cat. No.
Alexa Fluor™ Plus 405 Phalloidin	300 units	A30104
Alexa Fluor™ Plus 750 Phalloidin	300 units	A30105



HeLa cells labeled with Alexa Fluor Plus 750 Phalloidin. HeLa cells were labeled overnight with Invitrogen™ CellLight™ Talin-GFP (BacMam 2.0, Cat. No. C10611), Invitrogen™ CellLight™ Mitochondria-RFP (BacMam 2.0, Cat. No. C10601), and Invitrogen™ NucBlue™ Live ReadyProbes™ Reagent (Cat. No. R37605), and then fixed, permeabilized, and labeled with Invitrogen™ anti–α-tubulin mouse monoclonal antibody (clone DM1A, Cat. No. 62204) in conjunction with Invitrogen™ Alexa Fluor™ 647 goat anti–mouse IgG secondary antibody (Cat. No. A21235) and Invitrogen™ Alexa Fluor™ Plus 750 Phalloidin (Cat. No. A30105). Cells were mounted in Invitrogen™ ProLong™ Glass Antifade Mountant (Cat. No. P36984). Images were acquired using an Invitrogen™ EVOS™ FL Auto 2 Imaging System (Cat. No. AMAFD2000) with an Olympus 60x Aprochromat Oil Objective (Cat. No. AMEP4694) and Invitrogen™ EVOS™ DAPI (Cat. No. AMEP4650), GFP (Cat. No. AMEP4651), RFP (Cat. No. AMEP4652), and Cy®7 (Cat. No. AMEP4667) light cubes.

New Tubulin Tracker Deep Red for labeling polymerized tubulin

The Invitrogen™ Tubulin Tracker™ reagents are cell-permeant fluorescent dyes that specifically label polymerized tubulin in live cells. The new Tubulin Tracker Deep Red—a conjugate of docetaxel and a very bright and photostable far-red fluorophore—easily enters live cells and stains tubulin with deep red fluorescence. Tubulin Tracker Deep Red (excitation/emission = 652/669 nm) can be visualized with standard Cy5 filter settings using almost any fluorescence imaging instrument. This far-red–fluorescent tubulin probe can be multiplexed with blue, green, orange, red, and near-IR fluorophores. Both Tubulin Tracker Deep Red and the original Tubulin Tracker Green are fluorescent derivatives of cytoskeletal drugs (docetaxel and paclitaxel, respectively) that promote and preserve tubulin polymerization. To learn more, visit **thermofisher.com/tubulintracker**.

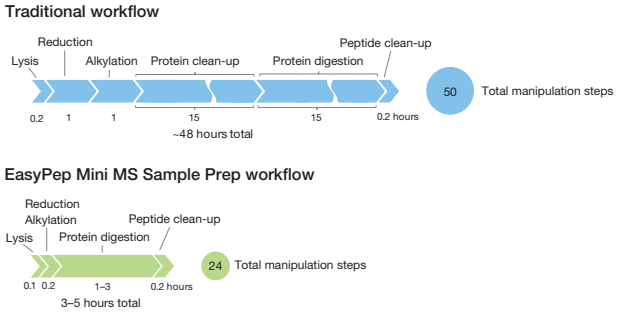


Rat cortical neurons stained with Tubulin Tracker Deep Red. Gibco™ Primary Rat Cortex Neurons (Cat. No. A1084001) were stained with Invitrogen™ Tubulin Tracker™ Deep Red (Cat. No. T34077) and imaged in Invitrogen™ Live Cell Imaging Solution (Cat. No. A14291DJ) on an Invitrogen™ EVOS™ FL Auto 2 Imaging System with a 20x objective and an Invitrogen™ EVOS™ Cy®5 Light Cube.

Product	Quantity	Cat. No.
Tubulin Tracker™ Deep Red	60 slides 300 slides	T34077 T34076
Tubulin Tracker™ Green (Oregon Green™ 488 Taxol, bis-acetate)	60 slides 300 slides	T34078 T34075
Tubulin Tracker™ Variety Pack	2 x 60 slides	T34079

Rapid sample prep for mass spectrometry analysis

Traditional protein sample preparation for mass spectrometry (MS) analysis requires numerous and variable steps and can take up to 2 days to complete. The new Thermo Scientific™ EasyPep™ Mini MS Sample Prep Kit provides preformulated reagents, an MS-grade enzyme mix, peptide clean-up columns, and a robust method for the preparation of high-quality samples for MS analysis in just 3 to 5 hours. This kit enables efficient and reproducible processing of cultured mammalian cells, plasma, and tissue (10–100 µg), providing more protein identifications and higher peptide yields with fewer steps than traditional methods. Learn more at **thermofisher.com/easypep**.



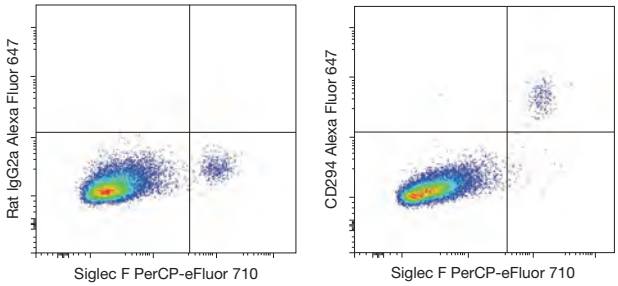
Comparison of the traditional workflow for mass spectrometry sample preparation and the new EasyPep Mini MS Sample Prep workflow.

Flow cytometry antibodies: More markers, more clones, more formats

As a committed supplier of flow cytometry antibodies, Thermo Fisher Scientific has already released more than 1,300 flow cytometry antibody conjugates in 2018, providing you with more options when designing flow cytometry panels. Highlights of recently released markers include:

- Anti–mouse CD294 (CRTH2) antibody—a unique monoclonal for studying innate immunity, for use with eosinophils and mast cells
- Anti–human and anti–mouse VISTA (B7-H5, PD-1H) antibodies—for studying hematopoietic cells in immuno-oncology applications
- Anti–arginase 1 antibody (clone A1exF5)—the only clone available that can detect human or mouse arginase 1 by flow cytometry

Additionally, we've continued to support and extend our portfolio of violet light–excitable Invitrogen™ eBioscience™ Super Bright antibody conjugates, and we now offer Invitrogen™ eBioscience™ Super Bright Staining Buffer in two convenient sizes. Search the entire portfolio of 13,000 flow cytometry antibodies quickly and easily at **thermofisher.com/flowantibodies**.



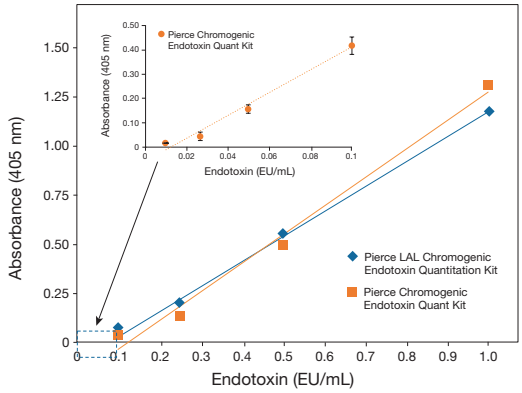
Expression of CD294 (CRTH2) in lysed whole blood cells from mice. Swiss Webster mouse lysed whole blood cells were stained with Invitrogen™ CD170 (Siglec F) Monoclonal Antibody (clone 1RNM44N), PerCP-eFluor™ 710, eBioscience™ (Cat. No. 46-1702-82) and either 0.125 µg of Invitrogen™ Rat IgG2a kappa Isotype Control, Alexa Fluor™ 647, eBioscience™ (left, Cat. No. 51-4321-81) or 0.125 µg of Invitrogen™ CD294 (CRTH2) Monoclonal Antibody (clone No3m1scz), Alexa Fluor™ 647, eBioscience™ (right, Cat. No. 51-2941-82). Total viable cells were used for this flow cytometry analysis.

Selected products*	Quantity	Cat. No.
Arginase 1 Monoclonal Antibody (A1exF5), Alexa Fluor™ 488, eBioscience™	100 µg	53-3697-82
Arginase 1 Monoclonal Antibody (A1exF5), Alexa Fluor™ 700, eBioscience™	100 µg	56-3697-82
Arginase 1 Monoclonal Antibody (A1exF5), APC, eBioscience™	100 µg	17-3697-82
Arginase 1 Monoclonal Antibody (A1exF5), eFluor™ 450, eBioscience™	100 µg	48-3697-82
Arginase 1 Monoclonal Antibody (A1exF5), PE, eBioscience™	100 µg	12-3697-82
Arginase 1 Monoclonal Antibody (A1exF5), PE-Cyanine7, eBioscience™	100 µg	25-3697-82
Arginase 1 Monoclonal Antibody (A1exF5), PerCP-eFluor™ 710, eBioscience™	100 µg	46-3697-82
Super Bright Staining Buffer, eBioscience™	100 tests 1,000 tests	SB-4400-42 SB-4400-75

*To see the complete set of flow cytometry antibodies for CD294 (CRTH2) and VISTA (B7-H5, PD-1H), please visit **thermofisher.com/flowantibodies**.

New Pierce Chromogenic Endotoxin Quant Kit with improved sensitivity and broad-range detection

Recognizing the need for a more sensitive endotoxin detection method, Thermo Fisher Scientific has extended its endotoxin detection line to include the Thermo Scientific™ Pierce™ Chromogenic Endotoxin Quant Kit, which accurately detects endotoxins at levels as low as 0.01 EU/mL in samples. This kit is an endpoint amebocyte lysate assay that quantifies endotoxins (lipopolysaccharides) in a variety of sample types, including protein, vaccine, plasmid, DNA, and RNA samples, with no interference from β-glucans. The kit offers high sensitivity with two linear dynamic ranges of 0.01–0.1 and 0.1–1.0 EU/mL, and reproducibility from test to test and operator to operator with a coefficient of variation (CV) of 3%. Find out more at **thermofisher.com/endotoxin**.

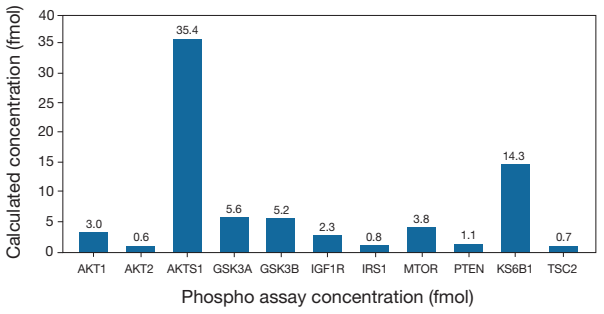


Comparison of Pierce endotoxin quantitation kits. Compared with the Thermo Scientific™ Pierce™ LAL Chromogenic Endotoxin Quantitation Kit, the new Thermo Scientific™ Pierce™ Chromogenic Endotoxin Quant Kit provides a nearly identical linear response curve but with an increased dynamic range of 0.01–0.1 EU/mL. Assays were performed according to the manufacturer's protocols. The standard curves for both kits produced $R^2 \geq 0.98$, and a CV < 5%. The Pierce Chromogenic Endotoxin Quant Kit's standard curve at the lower range (n = 17) showed exceptional linearity, with $R^2 \geq 0.99$ and CV < 5%.

Product	Quantity	Cat. No.
Pierce™ Chromogenic Endotoxin Quant Kit	30 reactions	A39552S
	60 reactions	A39552
	240 reactions	A39553

Quantitative mass spectrometry–based targeted assays for cancer signaling pathways

Thermo Scientific™ SureQuant™ Panels enable multiplex immunoprecipitation to mass spectrometry (mIP-MS) analysis for simultaneous enrichment and quantitation of multiple total and phosphorylated proteins in the AKT/mTOR signaling pathway. Each multiplex panel for absolute or relative quantitation contains two modules: 1) the IP and MS Sample Prep Module, which includes all reagents necessary to immunoenrich AKT/mTOR pathway proteins and perform in-solution MS sample preparation; and 2) the Absolute or Relative Quantitation Module, which includes a system suitability standard and AQUA Ultimate Heavy and Light Peptide (or, in the Relative Quantitation module, only Heavy Peptide) mixtures. The immunoenriched and digested samples spiked with internal standards can be processed using the discovery MS method (nanoLC-MS/MS) or targeted MS method (nanoLC-PRM/MS). See our full portfolio of mass spectrometry kits for cancer signaling pathways at **thermofisher.com/ms-targeted-assays**.



Absolute quantitation of AKT (phospho) signaling pathway proteins in mammalian cells using the SureQuant AKT Pathway (Phospho) Multiplex Panel (Absolute Quantitation). Absolute quantitation of AKT/mTOR phospho pathway proteins was performed using the mammalian cell line MCF7 treated with IGF1. AKT/mTOR pathway proteins were enriched through multiplex immunoprecipitation, followed by nanoLC-PRM/MS analyses on a Thermo Scientific™ Q Exactive™ HF-Orbitrap™ Mass Spectrometer. All targets were quantified by standard curves generated for each target peptide included in the Quantitation Modules.

Product	Quantity	Cat. No.
SureQuant™ AKT Pathway Multiplex Panel (Absolute Quantitation)	10 reactions	A40011
SureQuant™ AKT Pathway Multiplex Panel (Relative Quantitation)	10 reactions	A40080
SureQuant™ AKT Pathway (Phospho) Multiplex Panel (Absolute Quantitation)	10 reactions	A40084
SureQuant™ AKT Pathway (Phospho) Multiplex Panel (Relative Quantitation)	10 reactions	A40085