MERCK MILLIPORE

New PRODUCTS

Antibodies
Small Molecule Inhibitors

Signaling | Cancer | Neuroscience | Immunology | Cell Structure | Epigenetics & Gene Regulation

Merck Millipore—with the expertise of Calbiochem®, Chemicon®, and Upstate®

VOLUME 1

Cancer research giving you mixed signals?

Signaling molecules are deeply embedded in processes associated with cancer. The study of signaling pathways is nearly synonymous with cancer research. Elucidating the various cellular and molecular mechanisms of cancer requires high quality research tools that give you precise, reproducible data. At Merck Millipore, our scientists are dedicated to developing and delivering thoroughly tested and validated tools for life science research.

A Look Inside...

- Cancer Signaling Antibodies: Quality Focus
- New Antibodies and Small Molecules
- New Assays
- Publication Highlights
- Technology Spotlight: CellASIC® Microfluidic Platform

Merck Millipore is a division of MERCK

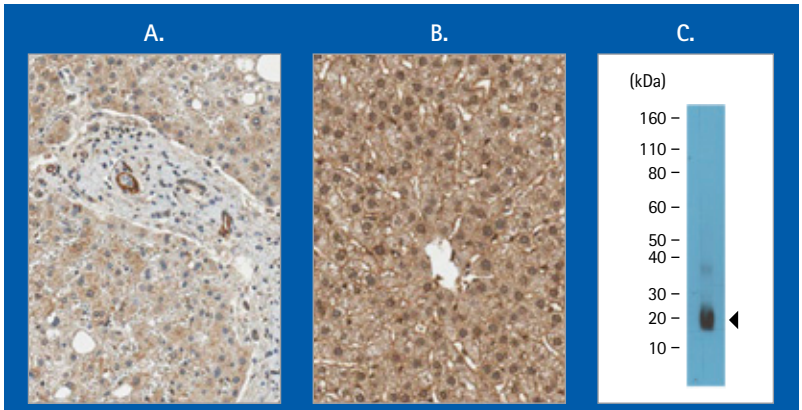
Cancer Signaling Antibodies: A Focus on Quality

Anti-Interferon λ4, clone 4G1 antibody (Cat. No. MABF227)

Chronic infection caused by failure to clear hepatitis C virus is a cause of liver cirrhosis and liver cancer. Interferon λ4 (IFN-λ4), which is encoded by the IFNL4 gene, may play a role. In a significant fraction of the human population, the gene harbors a frameshift mutation that is associated with defective glycosylation, which reduces its secretion, and increases susceptibility to hepatitis C virus and coronaviruses. Further studies are needed to fully understand the involvement of IFN-λ4 signaling in cancer.

Features & Benefits

- Validated for use in Western blotting, immunocytochemistry, and immunohistochemistry
- Positive and consistent staining signal from human and rat liver tissue
- Developed in collaboration with academic partners and published in Nature Genetics*



A. Immunohistochemistry analysis of paraffin-embedded human liver tissue section using Cat. No. MABF227, Anti-Interferon λ4, clone 4G1 shows secretory/cytoplasmic staining of epithelial/endothelial cells of bile ducts and arteries. Mouse monoclonal Ab diluted 1:50, HRP-DAB detection. IFN-λ4 plays an important role in immune response against hepatitis C virus (HCV) and IFNL4 polymorphism is recognized as predictor of antiviral treatment in HCV therapy.

B. Immunohistochemistry analysis of paraffin-embedded mouse liver tissue section using Cat. No. MABF227, Anti-Interferon λ4, clone 4G1 shows cytoplasmic/membrane staining of hepatocytes. The expected staining pattern validates clone 4G1 murine crossreactivity.

C. The suitability of Cat. No. MABF227, Anti-Interferon λ4, clone 4G1 in Western blotting is validated using recombinant human IFN-λ4.

***Citations:**

1. Booth D., and George, J. (2013). Loss of function of the new interferon IFN-λ4 may confer protection from hepatitis C. Nat. Genetics 45, 119-120.
2. Ludmilla, P-O., et al. (2013). A variant upstream of IFNL3 (IL28B) creating a new interferon gene IFNL4 is associated with impaired clearance of hepatitis C virus. Nat. Genetics 45; 164-171.

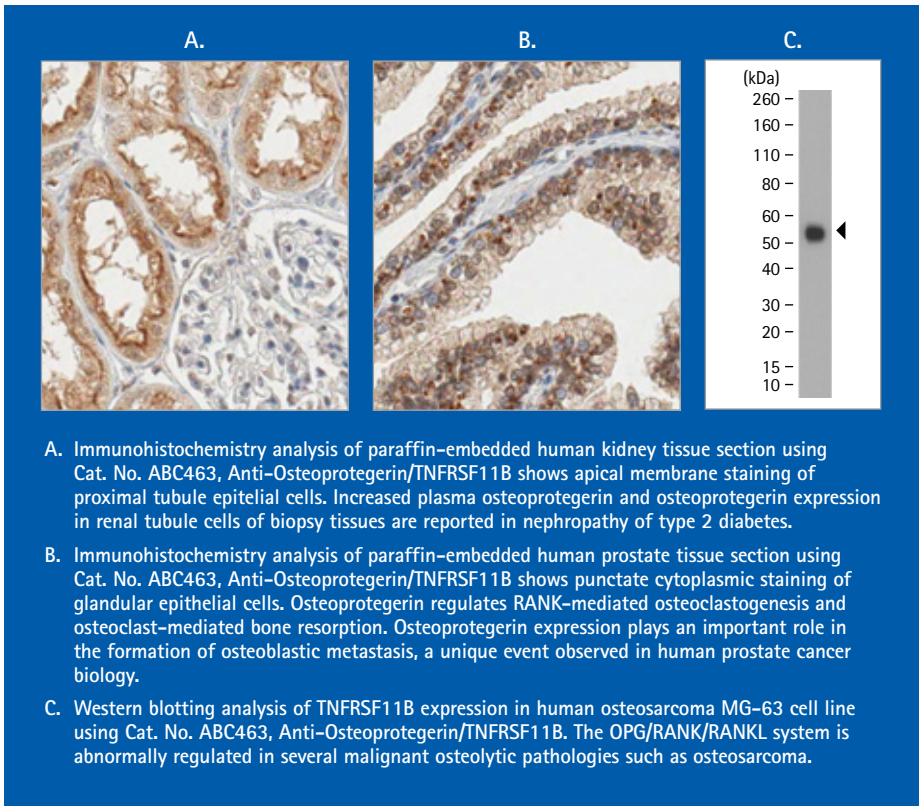
Anti-Fail
We Know Antibodies

As with all Merck Millipore antibodies, these antibody are backed with a **100% satisfaction and performance guarantee**. Merck Millipore provides a large offering of well-published antibodies, as well as inhibitors and assays, to help researchers elucidate signaling mechanisms in cancer.

Cancer Signaling Antibodies: A Focus on Quality

Anti-Osteoprotegerin/TNFRSF11B antibody (Cat. No. ABC463)

Osteoprotegerin (OPG), also known as OCIF or TNFRSF11B, is a cytokine receptor that has a variety of biological functions, including the regulation of bone turnover. Research has implicated OPG in cancers, arthritis, and heart disease. OPG is a potent inhibitor of osteoclast mediated bone resorption, and may serve as a therapeutic for the treatment of both osteoporosis and tumor-induced bone disease. Recent research has solidified the role of OPG in regulating the balance between bone formation and bone resorption, and its effect on osteoclast-mediated bone destruction and bone metastasis (Wu, et al., 2015). Furthermore, upregulated OPG expression is associated with bone invasion and indicates a poor prognosis and reduced survival rate. (Russmueller, et al., 2014). OPG signaling continues to be a hot topic in cancer research.



A. Immunohistochemistry analysis of paraffin-embedded human kidney tissue section using Cat. No. ABC463, Anti-Osteoprotegerin/TNFRSF11B shows apical membrane staining of proximal tubule epitelial cells. Increased plasma osteoprotegerin and osteoprotegerin expression in renal tubule cells of biopsy tissues are reported in nephropathy of type 2 diabetes.

B. Immunohistochemistry analysis of paraffin-embedded human prostate tissue section using Cat. No. ABC463, Anti-Osteoprotegerin/TNFRSF11B shows punctate cytoplasmic staining of glandular epithelial cells. Osteoprotegerin regulates RANK-mediated osteoclastogenesis and osteoclast-mediated bone resorption. Osteoprotegerin expression plays an important role in the formation of osteoblastic metastasis, a unique event observed in human prostate cancer biology.

C. Western blotting analysis of TNFRSF11B expression in human osteosarcoma MG-63 cell line using Cat. No. ABC463, Anti-Osteoprotegerin/TNFRSF11B. The OPG/RANK/RANKL system is abnormally regulated in several malignant osteolytic pathologies such as osteosarcoma.

Features & Benefits

- Extensively validated for use in Western blotting and paraffin-embedded immunohistochemistry
- Positive and consistent staining signal from both human kidney and prostate tissues
- High affinity antibody showing strong Western blot signal even at high dilutions

***Citations:**

1. Wu, P.F., et al (2015). RANK pathway in giant cell tumor of bone: pathogenesis and therapeutic aspects. Tumor Biol. (in press)
2. Russmueller, G., et al. (2014). Upregulation of osteoprotegerin expression correlates with bone invasion and predicts poor clinical outcome in oral cancer. Oral Oncol. S1368-8375; 00349-2.

Cancer

NEWS!

Merck Millipore Recognized as Top Antibody Supplier Among Researchers

Merck Millipore was recently recognized by Cite-Ab, the largest citation-ranked antibody search engine- as being among the top antibody providers in terms of quality, reliability and number of publications. Merck Millipore was chosen for two categories: Researchers Choice and Antibody Company of the Year.

2014 AWARDS CiteAb The Antibody Search Engine

Nominations for the Researchers' Choice were made by researchers around the world who use antibodies in their work and have personally used the companies or suppliers they nominated. The judging panel for this category was made up of researchers who work at the bench and understand the stresses, strains and rewards of using antibodies. Merck Millipore was mentioned in this category as a result of the reliability of their products. Researchers who nominated Merck Millipore said that its products work really well for multiple applications. Companies in this category were mentioned by researchers as demonstrating a commitment to reliability and customer service among the research antibody sector.

Nominations for the Antibody Company of the Year were based on the company that had the highest number of citations per antibody. CiteAb noted that Merck Millipore offers an extensive, focused portfolio of antibodies and assays, with a large average number of citations.

Merck Millipore provides antibodies with breadth and depth in major research areas including neuroscience, epigenetics, cell signaling, cancer and cell structure. All antibodies are highly validated and the company places great pride in the quality of its products.

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies				
Anti-ANGPT1	Rabbit	Hu	WB, IHC	ABC728
Anti-CD81	Rabbit	Hu	IHC, IC	ABC759
Anti-CYP2C8	Rabbit	Hu	IHC	ABC765
Anti-CYR61	Rabbit	Hu	WB, IHC	ABC726
Anti-EPHX1	Rabbit	Hu	WB, IHC	ABC739
Anti-FUT2	Rabbit	Hu	WB, IHC	ABC740
Anti-FZD8	Rabbit	Hu, Ms, Rt	WB, IHC	ABC855
Anti-GOPC, clone EPR4080(2), Rabbit Monoclonal	Rabbit	Hu	WB, IHC	MABC731
Anti-GPER	Rabbit	Hu	WB, IHC	ABC749
Anti-HSPA9	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABC861
Anti-IFIT1B	Rabbit	Hu	IHC	ABC741
Anti-LPAR3	Rabbit	Hu	WB, IHC	ABC857
Anti-LRP2	Rabbit	Hu	IHC, IC	ABC751
Anti-MRAS	Rabbit	Hu	WB, IHC, IC	ABC858
Anti-MTA1	Rabbit	Hu	IHC, IC	ABC742
Anti-NT5E	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABC753
Anti-NUCB2	Rabbit	Hu, Rt, Ms	WB, IHC, IC	ABC754
Anti-PDCD4	Rabbit	Hu	IHC, IC	ABC766
Anti-PDK2	Rabbit	Hu	WB, IHC	ABC755
Anti-PHGDH	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABC760
Anti-PI3	Rabbit	Hu	IHC	ABC743
Anti-PIM2	Rabbit	Hu	WB, IHC, IC	ABC862
Anti-PRODH	Rabbit	Hu	WB, IHC	ABC761
Anti-RFWD2	Rabbit	Hu	WB, IHC, IC	ABC731
Anti-RHOG	Rabbit	Hu, Ms, Rt	WB, IHC	ABC868
Anti-SGMS1	Rabbit	Hu	WB, IHC, IC	ABC732
Anti-SLC22A2	Rabbit	Hu, Rt	WB, IHC	ABC762
Anti-SLPI	Rabbit	Hu	WB, IHC	ABC756
Anti-SPINK5	Rabbit	Hu	IHC	ABC736
Anti-STK4	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABC733
Anti-TFPI	Rabbit	Hu	IHC	ABC758
Anti-TRAF2	Rabbit	Hu	WB, IHC, IC	ABC737
Anti-TRIM29	Rabbit	Hu, Rt	WB, IHC	ABC865
Anti-UBE3A	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABC734
Anti-VEGF-A	Rabbit	Ms, Rt	WB, IHC(P)	AB1876-I
Anti-WNT10A	Rabbit	Hu	WB, IHC	ABC866
Anti-XRCC1	Rabbit	Hu	IHC, IC	ABC738

Description	Details	Cat. No.
Small Molecules & Inhibitors		
Apoptosis Activator IX, DPP-23	A cell-permeable chalcone derivative that enhances the production of reactive oxygen species and reduces glutathione levels selectively in cancer cells while sparing normal cells and induces unfolded protein response (UPR) through up-regulating UPR related genes. Inhibits the growth of in multiple cancer cell lines (Capan-1, MDA-MB231, HCT116, and HT1080 cells) and suppresses the growth of HCT116 tumor xenografts in nude mice via the induction of apoptosis (10 mg/kg, i.p; q.d.). Arrests cell cycle at the G2/M phase and triggers protective autophagy and induces apoptosis by increasing the active forms of caspase 3, 7, and 9. Treatment of serum-starved MIA PaCa-2 cells with DPP-23 induces the phosphorylation of ERK1/2, JNK1/2, and p38 MAPK in a time-dependent manner.	531709

LEGEND

Species: Hu=Human, Ms=Mouse, Rt=Rat, Can=Canine, Mky=Monkey **Applications**: FC=Flow Cytometry, IC=Immunocytochemistry, IHC=Immunohistochemistry, IHC(P)=Immunohistochemistry (Paraffin), DNA-BP=DNA-binding Proteins, DNA Seq=DNA Sequencing, MPX=Multiplexing, IF=Immunofluorescence, IP=Immunoprecipitation, WB=Western Blotting, Neut=Neutralizing, CC=Cell Culture, APA=Affinity Precipitation Assay

For published studies using this new product, visit: www.merckmillipore.com

For publications on using these small molecules, visit: www.merck4biosciences.com

Cancer (continued)

Description	Details	Cat. No.
Small Molecules & Inhibitors (continued)		
Beclin-1 Activator I, TAT-Beclin-1, Scrambled	A randomly shuffled Beclin-1 (267-284) peptide made cell-permeable by covalently attaching to HIV-1 Tat protein transduction domain via a diglycine linker. Reported to serve as a suitable control for autophagy-inducing peptides (Cat. Nos. 506048 & 506146).	531038
BMX/BTK Inhibitor II, QL47	A cell-permeable tricyclic quinoline-acrylamide analog of BMX-IN-1 (Cat. No. 505021) that covalently modifies Cys481 in the kinase hinge region of Bruton's tyrosine kinase (BTK) and acts as a highly potent, selective, irreversible, and time-dependent inhibitor (IC_{50} = 6.6 nM). Displays excellent selectivity against a panel of 456 protein kinases. Diminishes autophosphorylation of BTK on Tyr223 in cells (EC_{50} = 475 nM) and promotes proteasome-mediated degradation of BTK (EC_{50} ~ 1 µM in HEK293T cells). Shown to induce cell cycle arrest at G1 phase and induce apoptotic cell death in Ramos cells. Also blocks the proliferation of several B-cell lymphoma cell lines.	530758
Brk Inhibitor, Cpd 4f	A cell-permeable pyridoindole based compound that acts as a highly potent and selective inhibitor of breast tumor kinase (Brk; IC_{50} = 3.15 nM) with minimal or no effect against a panel of more than 30 other protein kinases (IC_{50} = < 10 µM for PIM2, NEK1 and2, CAMK4, MAPKAPK3 and 5 and MARK1, 3, and 5). Does not affect the activity of Akt isoforms, AGC kinases, ERK1 and 2, JNK 1 and 2 and HIPK isoforms. Displays anti-proliferative activity against multiple breast cancer cell lines.	531000
Cdk7 Inhibitor VIII, THZ1	A cell-permeable, non-toxic, phenylaminopyrimidinyl-acrylamide compound that acts as a highly potent, selective, ATP-site directed, and irreversible inhibitor of Cdk7 (IC_{50} = 3.2 nM). Acts by allosterically and covalently modifying Cys312 located outside the canonical kinase domain. Shown to block the phosphorylation of Ser5 and Ser7 in RNAPII CTD, the intracellular substrate of Cdk7 (< 250 nM, 4 h in Jurkat cells). Does not affect the activity of C312S mutated Cdk7. Exhibits comparatively week activity towards Cdk12 (IC_{50} = 250 nM), Cdk1, and Cdk2. Suppresses the proliferation and cell viability of T-ALL and CLL cell lines and induces apoptosis with significant reduction in the levels of MCL-1 and XIAP. Also induces a significant reduction in the transcript and protein levels of RUNX1, TAL, and GATA3 (~ 50 nM). Suppresses the growth of KOPTK1 cells xenografts in murine model (10 mg/kg, b.i.d).	532372
IRE1 Inhibitor IV, A-106	A cell-permeable naphthaldehyde based compound that specifically targets the RNAse domain of IRE-1 (ERN1) and blocks the activation of X-box binding protein 1 (XBP-1). Shown to be equipotent to its parent compound, STF-083010. Blocks IRE-1 RNase activity via the formation of a stable Schiff base with K907 in the RNase domain of IRE-1, which prevents splicing of XBP-1mRNA. Downregulation of XBP-1 in Em-TCL1 CLL cells leads to apoptosis (~50 to 100 µM). Blocks the proliferation and survival of patient-derived pre-B ALL cells (10 to 50 thousand cells) in sub-lethally irradiated NOD/SCID mice in a dose-dependent manner.	531399
MELK Inhibitor, Compound C1	A cell-permeable benzo[e]pyridoindole based compound that acts as a potent and selective inhibitor of maternal embryonic leucine-zipper kinase (MELK; IC_{50} = 42 nM). Predicted to bind the ATP binding site of MELK. Effectively inhibits neurosphere formation in glioblastoma multiforme (GBM) 146, GBM 157, and GBM206. Significantly diminishes sphere formation in CD133+ tumor cells, but has no apparent effect in CD133- cells. Induces mitotic arrest at G2/M phase and subsequent mitotic catastrophe and apoptosis in glioma stem cells (GSC). Shown to suppress the growth of GBM157 cells in immunocompromized mouse brain and sensitize GSC to radiation treatment.	531072
MELK Inhibitor, OTSSP167	A cell-permeable, orally bioavailable 1, 5-naphthyridine based compound that acts as a highly potent and specific inhibitor of maternal embryonic leucine zipper kinase (MELK; IC_{50} = 410 pM). Inhibits mammospheres formation of MDA-MB-231 and MCF-7 cells by blocking MELK-dependent phosphorylation of proteasome subunit a1 (PSMA1). Also diminishes the phosphorylation of Ser269 on drebin-like (DBNL) in BT549 cells and reduces their invasiveness. Suppresses the growth of xenografted MDA-MD-231 cells in a murine model. Induces the formation of autophagosome-like vesicles in cytoplasm of BT549 breast cancer cells.	532604

PUBLICATION HIGHLIGHT
ON SMALL MOLECULES:

Brk Inhibitor, Cpd 4f
(Cat. No. 531000)

Merck Millipore introduces a new, cell-permeable inhibitor of breast tumor kinase (Brk; IC_{50} = 3.15 nM). This compound exhibits very high selectivity over several other protein kinases (IC_{50} >10 µM).

Given that Brk participates in tumor metastasis, Mahmoud and colleagues from Martin-Luther University Halle-Wittenberg, Germany studied the anti-proliferative properties of this compound against multiple breast cancer cell lines and showed it to be highly potent inhibitor of (GI_{50} = 990 nM; 1.02 µM, and 1.58 µM for MCF7, HS-578/T, BT-549, respectively).

Mahmoud KA, Krug M, Wersig T, Slynko I, Schächtele C, Totzke F, Sippl W, Hilgeroth A. Discovery of 4 anilino α-carbolines as novel Brk inhibitors. Bioorg Med Chem Lett. 2014 Apr 15;24(8):1948-51.

LEGEND
Species: Hu=Human, Ms=Mouse, Rt=Rat, Can=Canine, Mky=Monkey
Applications: FC=Flow Cytometry, IC=Immunocytochemistry, IHC=Immunohistochemistry, IHC(P)=Immunohistochemistry (Paraffin), DNA-BP=DNA-binding Proteins, DNA Seq=DNA Sequencing, MPX=Multiplexing, IF=Immunofluorescence, IP=Immunoprecipitation, WB=Western Blotting, Neut=Neutralizing, CC=Cell Culture, APA=Affinity Precipitation Assay

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CellASIC® ONIX Microfluidic Platform

The analysis of living cells *in vitro* is critical to understanding basic biology, signaling pathways, drug effects, and disease models. But despite dramatic advances in detection methods, which have provided excellent means to interrogate living cells, the technology for controlling the environment of living cells during that analysis has not advanced far beyond the culture dish.

Because the cellular microenvironment, or "niche," is as important as genetic factors for determining cell phenotype, a method for providing more accurate, dynamic control of living cells during experimental analysis can add a groundbreaking dimension to the science of cell biology.
The CellASIC® ONIX Microfluidic Platform was specifically designed to provide the dynamic cellular microenvironment control that has been missing until now.

Delivering advanced control for live cell analysis experiments, the system integrates with your existing microscope to enable dynamic time-lapse experiments never before possible. Cutting-edge microfluidic technology provides an improved cell culture microenvironment, exceptional plate imaging quality for high magnification microscopy and superior media switching controls. An integrated Microincubator Controller maintains a temperature and gas environment directly on the microfluidic plate for long-term cell culture on any microscope stage.

"...We've been able to quickly and easily perform novel and technologically demanding experiments without any prior microfluidic experience. I've been able to focus on the fundamental biological questions while letting CellASIC® provide me with the tools I need to answer them."
~Maheshri Lab, MIT

www.merckmillipore.com/cellasic

TECHNOLOGY SPOTLIGHT

Microfluidic Technology for Dynamic Live Cell Analysis in Cancer Research

Forkhead box O (FOXO) belongs to the large Forkhead transcription factor family that were first found to be altered in several types of cancers such as alveolar rhabdomyosarcomas and mixed-lineage leukemias. These transcription factors can interact with an array of downstream targets and partners that are involved in the regulation of the PI3L-Akt pathway, leading to cell survival or cell death. To date, there are four different FOXO members identified in mammals: FOXO1, FOXO3, FOXO4 and FOXO6. Although the post-transcriptional regulation and the shuttling mechanism of FOXOs may be well understood, little is known about the dynamics of the translocation machinery. Here we exploited FOXO4-GFP U2OS reporter cells as a model to extract time course information for FOXO4 protein translocation in the cells upon Wortmannin treatment. Furthermore, combining live cell analysis, fluorescently-tagged reporter cells, and the unique microenvironmental control capabilities of the CellASIC® ONIX system, we were able to establish the first time course studies for translocation of FOXO proteins following deactivation of the PI3K-Akt pathway which may then provide a platform for the discovery of new targets ad therapeutic compounds in cancer as well as other diseases.

Read the entire application note entitled "**Establishing a time course for translocation of FOXO4 in live cells using a novel microfluidic culture platform assay**" at:
www.merckmillipore.com/cellasic

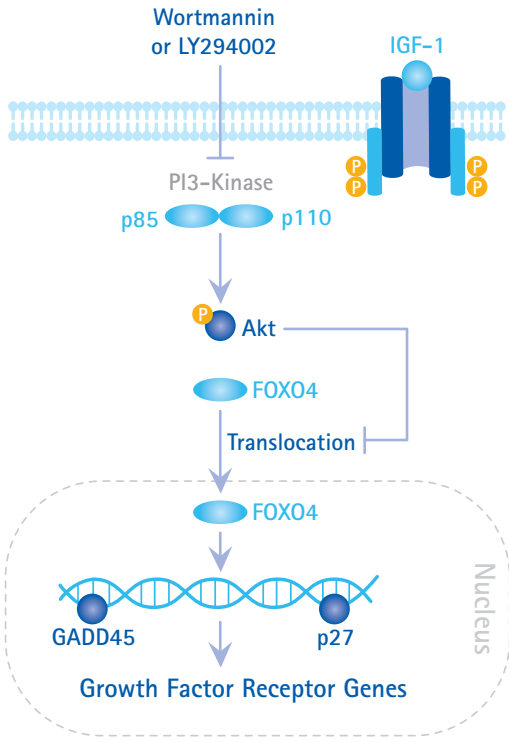

Figure 1.
The fungal metabolite wortmannin is a potent and cell-permeable inhibitor of the FOXO forkhead box transcription factor proteins. Upon treatment with wortmannin, FOXO4 translocates to the nucleus, where it binds target growth factor receptor genes such as GADD45 and p27, which leads to cell cycle arrest and cell death.

For more information on Cancer-research and other applications using the CellASIC® ONIX System, visit our website at:
www.merckmillipore.com/cellasic

MERCK MILLIPORE

Reput(Ab)le Antibodies

We're validated.
We're guaranteed.
We're published.
We create the antibodies most cited by the research community.

Researchers trust our antibodies because we are a thoughtful antibody producer, not a reseller. We're selective about offering the best antibodies based on the expertise of Chemicon® and Upstate®, internal R&D teams and collaborations with leading institutions. We guarantee our antibodies because of a stringent validation process that produces the highest quality antibodies on the market today.

We provide the most reliable, defensible, and publishable antibody performance, because, ultimately, it's not about our reputation. It's about yours.

Put the most reputable antibodies to work for you.

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PUBLICATION HIGHLIGHTS

Anti-Lin28A Antibody, clone 35L33G
(Cat. No. MABE870)

Merck Millipore's newly released anti-Lin28A monoclonal antibody B10 was published in the journal Cell, revealing an unexpected role of Lin28A as a global suppressor of genes in the secretory pathway*.

Cho and colleagues at Seoul National University, Korea, used the mouse monoclonal (clone 35L33G) to specifically immunoprecipitate Lin28A-RNA complexes in mouse ESC cells and were able to obtain Lin28A-interacting RNA libraries, revealing a much broader role for this RNA-binding protein. Their data suggest that LIN28A may contribute to the global translational suppression of ER-associated mRNAs, acting to reduce cell surface receptors and secretory proteins and redirect cellular resources to promote cell-autonomous functions such as cell proliferation, pluripotency and malignancy.

Anti-SMARCB1/BAF47 Antibody, clone 2C2
(Cat. No. MABE1033)

Merck Millipore's new anti-SMARCB1/BAF47 mouse monoclonal antibody (clone 2C2) was recently published in Monoclonal Antibodies in Immunodiagnosis and Immunotherapy**.

Harada and colleagues from Kyushu University, Japan, demonstrated the sensitivity of the antibody for two specific isoforms of the transcriptional regulator in immunoblotting and the precise nuclear localization in immunostaining. SMARCB1 (also known as BAF47) is part of a complex that relieves repressive chromatin structures, allowing the transcriptional machinery to access its targets more effectively. The encoded nuclear protein has also been shown to bind to and enhance the DNA joining activity of HIV-1 integrase. It has been found to be a tumor suppressor, and the loss of SMARCB1 has been associated with malignant rhabdoid tumors. Tumor cells of synovial sarcoma seem to have a post-transcriptional mechanism for regulating SMARCB1.

*Cho J, Chang H, Kwon SC, Kim B, Kim Y, Choe J, Ha M, Kim YK, Kim VN. LIN28A is a suppressor of ER-associated translation in embryonic stem cells. Cell. 2012 Nov 9;151(4):765-77.

**Harada A, Hayashi M, Kuniyoshi Y, Semba Y, Sugahara S, Tachibana T, Ohkawa Y, Fujita M. Generation of a monoclonal antibody for INI1/hSNF5/BAF47. Monoclon Antib Immunodiagn Immunother. 2014 Feb;33(1):49-51.

Epigenetics & Nuclear Function

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies				
Anti-ALKBH1	Rabbit	Hu, Ms	WB, IHC	ABE1310
Anti-E3 ubiquitin-protein ligase UHRF2	Rabbit	Hu	WB, IHC	ABE1028
Anti-EIF3A	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABE696
Anti-EIF3I	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABE697
Anti-ETV6	Rabbit	Hu	WB, IHC, IC	ABE710
Anti-EZH1	Rabbit	Hu	IHC, IC	ABE803
Anti-FHL2	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABE809
Anti-HDAC9	Rabbit	Hu	IHC, IC	ABE698
Anti-INHA	Rabbit	Hu	IHC	ABE708
Anti-Lin28A, clone 35L33G	Mouse	Hu, Ms	WB, IP	MABE870
Anti-MXI1	Rabbit	Hu	WB, IHC	ABE804
Anti-MYOG	Rabbit	Hu	WB, IHC	ABE725
Anti-NFE2L2	Rabbit	Hu	IHC	ABE726
Anti-PADI4	Rabbit	Hu	WB, IHC	ABE688
Anti-PBX1	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABE813
Anti-PHF1	Rabbit	Hu	WB, IHC, IC	ABE699
Anti-PINX1	Rabbit	Hu	WB, IHC	ABE805
Anti-PNPT1	Rabbit	Hu	WB, IHC, IC	ABE806
Anti-PRPF40A	Rabbit	Hu	WB, IHC, IC	ABE690
Anti-RARS	Rabbit	Hu	IHC, IC	ABE692
Anti-RNF2	Rabbit	Hu	WB, IHC, IC	ABE814
Anti-RPB3	Rabbit	Hu, Rt, Ms	WB	ABE999
Anti-SIRT5	Rabbit	Hu	WB, IHC, IC	ABE816
Anti-SMAD7	Rabbit	Hu	IHC, IC	ABE694
Anti-SMARCB1, clone 2C2	Mouse	Hu	WB, IC	MABE1033
Anti-SNRPN	Rabbit	Hu, Ms, Rt	WB, IHC	ABE817
Anti-TBX3	Rabbit	Hu, Rt, Ms	WB, IHC, IC	ABE807
Anti-TPP1	Rabbit	Hu	IHC	ABE693
Anti-UTF1	Rabbit	Ms, Rt	WB, IHC	AB3383-I
Kits & Assays				
Anti-VOPP1	Rabbit	Hu	WB, IHC	ABE705
AbSurance™ Pro Histone Peptide Microarray				16-671
EZ-Magna ChIRP™ RNA Interactome Kit -Isolation and characterization of non-coding RNA:chromatin complexes			DNA-BP, RNA Detection, DNA Seq, Protein Determination, Protein Interaction Assays, Purification with magnetic beads	17-10495
Magna ChIRP™ NEAT1 lncRNA Probe Set			DNA-BP, RNA Detection, DNA Seq, Protein Determination, Protein Interaction Assays, Purification with magnetic beads	03-308

LEGEND
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For published studies using this new product, visit: www.merckmillipore.com

For publications on using these small molecules, visit: www.merck4biosciences.com

Epigenetics & Nuclear Function (continued)

Description	Key Applications	Cat. No.
Kits & Assays		
Magna ChIRP™ Negative Control Probe Set	DNA-BP, RNA Detection, DNA Seq, Protein Determination, Protein Interaction Assays, Purification with magnetic beads	03-307
Magna ChIRP™ RNA Interactome Kit -Isolation and characterization of non-coding RNA:chromatin complexes	DNA-BP, RNA Detection, DNA Seq, Protein Determination, Protein Interaction Assays, Purification with magnetic beads	17-10494
Magna ChIRP™ TERC lncRNA Probe Set	DNA-BP, RNA Detection, DNA Seq, Protein Determination, Protein Interaction Assays, Purification with magnetic beads	03-309

Description	Details	Cat. No.
Small Molecules & Inhibitors		
2-Aminopurine - CAS 452-06-2	A cell-permeable adenine analog that is widely used as a versatile fluorescent probe to investigate RNA and DNA secondary and tertiary structures and their conformation dynamics in response to local environment when interacting with other biomolecules with great sensitivity. Forms stable base pairs with neucleobase uracil found in RNA and thymine in DNA, and moderately stable base pairs with cytosine. Exhibits intensive fluorescence emission (IAbsmax = 303 nM, Iflmax = 370 nM, and fluorescence quantum yield in solution QFI = 0.68) and longer excitation wavelength compared with other neucleobases enabling its selective excitation with low background signals.	531619
DOT1L Inhibitor, EPZ004777	A cell-permeable, non-toxic, a near chemical derivative of S-adenosylmethionine (SAM) that competitively binds to the SAM-binding pocket of DOT1L and inhibits its activity in a reversible manner (IC_{50} = 400 pM; K_i = 300 pM). Shown to inhibit the methylation of cellular H3K79 in MLL cells and block the expression of leukemogenic genes. Displays excellent selectivity over other histone methyltransferases PRMT5 (IC_{50} = 521 nM), CARM1, EHMT2, EZH1, EZH2, PRMT1, PRMT8, SETD7 and WHSC1 (IC_{50} > 50 µM). Inhibits the proliferation of MV4-1, MOLM-13, KOPN-8 cells (IC_{50} = 170, 720, and 620 nM, respectively) and suppresses the growth of MV4-11 xenografts in nude mice model (50 mg/mL, s.c. minipump infusion).	532282
Farnesoid X receptor antagonist, DY268	A trisubstituted-pyrazol carboamide based compound that acts as a highly potent antagonist of farnesoid X receptor (FXR; IC_{50} = 7.5 nM in a FXE TR-FRET binding assay and 468 nM in a FXR antagonistic cell-based assay). Does not display any FXR agonistic activity and cytotoxicity.	531229
JHDM Inhibitor VIII, SD70	A cell-permeable, bioavailable, non-toxic 8-hydroxyquinolinyl based compound that binds to and colocalizes with androgen receptor (AR) at both ligand-dependent and independent transcriptional regulatory elements. Acts as an inhibitor of dihydotestosterone-regulated gene expression. Shown to inhibit prostate cancer cell transcription by blocking the activity of histone lysine demethylase KDM4C (IC_{50} = 30 µM). Increases total H3K9me2 levels in 293 T cells in enhancer and promoter regions and causes a slight diminution in the levels of methylated H3K36. Does not affect the activity of DNA/RNA polymerase or topoisomerase I and II activities in any significant manner. Blocks the proliferation of hormone-independent CWR22Rv1 cells in culture (~ 5 µM) and also inhibits their growth in a prostate cancer xenograft murine model (10 mg/kg, i.p.daily).	531662
LSD1 Inhibitor VI, Cpd 2d	A cell-permeable polyamine derivative that acts as an inhibitor of lysine-specific demethylase-1 (LSD1, KDM1) and increases levels of mono- and di-methylated histone H3K4, H3K9 proteins in acute myeloid leukemia (AML) cancer cells in a dose-dependent manner. Shown to cause significant growth inhibition in different AML cell lines (HL-60, KG1a, HNT-34, and ML-1 cells) at low micromolar concentrations (5 to 10 µM)..	505770

LEGEND
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Signaling

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies				
Anti-ALDOC	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABS1111
Anti-B4GALT1	Rabbit	Hu	WB, IHC, IC	ABS778
Anti-CLMP	Rabbit	Hu	WB, IHC	ABS1084
Anti-CLPS	Rabbit	Hu	WB, IHC	ABS1083
Anti-CSN3	Rabbit	Hu	IHC	ABS774
Anti-CYP7B1	Rabbit	Hu	IHC	ABS1129
Anti-DDAH1	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABS642
Anti-DHCR7	Rabbit	Hu	WB, IHC	ABS1082
Anti-EIF5	Rabbit	Hu	WB, IHC, IC	ABS1085
Anti-FCN1	Rabbit	Hu	WB, IHC	ABS1086
Anti-FGFR2 (N-term)	Rabbit	Hu, Ms, Rt, Mky	WB, IHC, IC	ABN884
Anti-GATM	Rabbit	Hu	WB, IHC	ABS1087
Anti-GMDS	Rabbit	Hu	WB, IHC	ABS1112
Anti-HDC	Rabbit	Hu	IHC	ABS623
Anti-JNK3, clone EPR5493(2), Rabbit Monoclonal	Rabbit	Hu	WB, IC, FC	MABS771
Anti-KLB	Rabbit	Hu	IHC, IC	ABS1113
Anti-LOX-1, clone 9E12.1	Mouse	Hu	WB, IHC(P)	MABS186
Anti-MAOB	Rabbit	Hu	WB, IHC	ABS780
Anti-MAS1	Rabbit	Hu	WB, IHC	ABS775
Anti-Modified Citrulline, clone C4	Human, recombinant	All	WB, ELISA	MABS487
Anti-MSRA	Rabbit	Hu	WB, IHC	ABS1088
Anti-MTG1	Rabbit	Hu	IHC	ABS1120
Anti-Myostatin, Near CT	**Rabbit**	**Hu**	**WB, IHC**	**AB3239-I**
Anti-NCKAP1	Rabbit	Hu	WB, IHC, IC	ABS651
Anti-PGK1 (Center)	Rabbit	Hu, Ms	WB, IHC, IC	ABS787
Anti-phospho-HER4 (Tyr1162)	Rabbit	Hu	WB, IHC, IC	ABS796
Anti-phospho-NKCC1 (Thr212/Thr217)	Rabbit	Hu	WB, IF	ABS1004
Anti-PIM1	Rabbit	Hu	WB, IHC	ABS1089
Anti-PMM2	Rabbit	Hu, Ms, Rt	WB, IHC	ABS1109
Anti-PPCS	Rabbit	Hu	WB, IHC, IC	ABS769
Anti-PPM1L	Rabbit	Hu	WB, IHC, IC	ABS1106
Anti-PPT1	Rabbit	Hu	WB, IHC	ABS1118
Anti-PSAP	Rabbit	Hu	WB, IHC	ABS1090
Anti-RAB32	Rabbit	Hu	WB, IHC	ABN746
Anti-RhoGEF, clone 5G2.1	Mouse	Hu	WB, IHC(P)	MABN777
Anti-S100A6	Rabbit	Hu	WB, IHC, IC	ABS1091
Anti-SCTR	Rabbit	Hu	WB, IHC	ABS1092
Anti-SDSL	Rabbit	Hu, Rt	WB, IHC, IC	ABS1123
Anti-SERPINF2	Rabbit	Hu	WB, IHC	ABS1114
Anti-SGMS2	Rabbit	Hu	WB, IHC	ABS1107
Anti-SLC25A20	Rabbit	Hu	WB, IHC	ABS1108
Anti-SLC7A3	Rabbit	Hu	IHC	ABS655
Anti-SLC9A3R2	Rabbit	Hu	WB, IHC, IC	ABS1094
Anti-SMAD7	Rabbit	Hu	IHC, IC	ABE694
Anti-SRGN	Rabbit	Hu	IHC	ABS1132
Anti-STK4	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABC733
Anti-TGFB1I1	Rabbit	Hu, Ms, Rt	WB, IHC	ABS1096
Anti-TMEM127	Rabbit	Hu	WB, IHC	ABS1097
Anti-TNIP1	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABS1116
Anti-TNNC2	Rabbit	Hu	IHC	ABS1098

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Signaling (continued)

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies (continued)				
Anti-TOM1L2	Rabbit	Hu, Ms, Rt	WB, IHC	ABS1099
Anti-TREH	Rabbit	Hu	IHC	ABS1100
Anti-TYRP1	Rabbit	Hu	WB, IHC	ABS696
Anti-VEGF-A	Rabbit	Ms, Rt	WB, IHC(P)	AB1876-I
Anti-WNT10A	Rabbit	Hu	WB, IHC	ABC866
MultiDsk-Ubiquitin-binding protein reagent		Yeast, Hu	APA	14-1121
Kits & Assays				
MILLIPLEX® MAP 2-Plex Phospho/Total CREB - Cell Signaling Multiplex Assay		Hu, Ms, Rt	MPX	48-628MAG
MILLIPLEX® MAP 2-Plex Phospho/Total IRS1 - Cell Signaling Multiplex Assay		Hu, Ms	MPX	48-626MAG
MILLIPLEX® MAP 2-Plex Phospo/Total mTOR - Cell Signaling Multiplex Assay		Hu, Ms, Rt	MPX	48-625MAG

Description	Details	Cat. No.
Small Molecules & Inhibitors		
5-Lipoxygenase Inhibitor, MK591	A cell-permeable, bioavailable, 2-indolealkanoic acid derived compound that acts as a highly potent and selective inhibitor of leukotriene biosynthesis (IC_{50} = 3.1 nM in intact human polymorphonuclear leukocytes). Shown to inhibit 5-lipoxygenase (5-LOX) activity in LNCaP prostate cancer cells by high-affinity binding to 5-lipoxygenase activating protein (FLAP; IC_{50} = 1.6 nM in a FLAP binding assay). Induces apoptosis in LNCaP cells without blocking PI 3 kinase-Akt or ERK activities. Suppresses the deposition of Ab1-40 and Ab1-42 peptides in Tg2576 mice (~40 mg/kg/day in diet) with concomitant reduction in the levels of presenilin 1, nicastrin, APH-1 and Pen-2, but without affecting notch signaling. Exhibits desirable pharmacokinetic properties with tmax of 3.3 h and t1/2 = ~12 h.	532606
AEBSF, HCl ≥99% by HPLC	Specific irreversible inhibitor of serine proteases. Reacts covalently with a serine at the active site. Inhibits chymotrypsin, kallikrein, plasmin, thrombin, trypsin, and related thrombolytic enzymes. Stable, nontoxic alternative to PMSF (Cat. No. 52332) and DFP (Cat. No. 30967). Used at the same molar concentration (0.1-1.0 mM) as PMSF for most applications. Exhibits low inhibitory activity towards proteinase K. A material with ≥97% purity by HPLC (Cat. No. 101500) & its InSolution™ is also available (Cat. No. 508436).	532586
AP-1/NF-κB Dual Inhibitor, SP100030	A cell-permeable, non-toxic, conformationally restricted pyrimidinecarboxamide compound that acts as a potent, reversible T-cell specific inhibitor of both AP-1 and NF-κB transcriptional activation (IC_{50} = 50 nM). Reduces DNA binding activity of NF-κB and downregulates NF-κB driven cytokine gene expression.	531535
APT1 Inhibitor II, Cpd21	A cell-permeable acetylpiperazine derivative compound that acts as a selective and reversible inhibitor of lysophospholipase 1 (LYPLA1; IC_{50} = 840 nM, K_i = 300 nM) without affecting the activity of LYPLA2 and 25 other serine hydrolases in mouse BW5147 T cell hydridoma proteome. Shown to cause an almost complete inhibition (+90%) of LYPLA1 activity in lung, heart, and kidney (50 mg/kg, 3 h), and in HEK293T, and mouse T cells (~ 5 µM for 3 h).	531620
cPLA2a Inhibitor II, Pyrrophenone	A cell-permeable, non-toxic, pyrolidine derivative that acts as a highly potent, and reversible inhibitor of cytosolic phospholipase A2a (cPLA2a; IC_{50} = 4.2 nM). Does not inhibit the activities of PLA IB and IIA groups even at higher concentrations (~250 µM). Unlike AACOCF3 (Cat. No. 100109), its action is shown to be rapid and does not require a pre-incubation period.	530538
CXCR2 Antagonist IV, Sch527123	A cell-permeable, orally active, non-toxic, cyclobutenedione compound with anti-inflammatory properties. Acts as a specific, high-affinity, and potent allosteric antagonist of CXCR2 (IC_{50} = 2.6 nM for human; K_d = 49, 200, and 80 pM for human, rat, and cynomolgus, respectively). Also exhibits high potency against CXCR1 (IC_{50} = 36 nM for human, K_d = 3.9 and 41 nM for human and cynomolgus, respectively). Displays excellent selectivity over CXCR3, CCR5, and a large panel of GPCRs, enzymes and ion channels (~ 10 µM). Potently inhibits CXCL1- and CXCL8-induced chemotaxis in human neutrophils (hPMN; IC_{50} < 1 nM and 16 nM, respectively).	532283

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PUBLICATION HIGHLIGHT
ON SMALL MOLECULES:

IRE1 Inhibitor IV, KIRA6
(Cat. No. 532281)

Merck Millipore introduces a new highly potent inhibitor of IRE1α type II kinase (IC_{50} = 600 nM) that exhibits high selectivity over several other kinases (IC_{50} >10 μM).

In a recent Cell paper, Ghosh and colleagues from the University of California, San Francisco showed that this inhibitor acts allosterically to stabilize the kinase domain of IRE1α in an inactive conformation and blocks its oligomerization, thereby reducing RNase domain activity. They were able to block brefeldin A–induced endoplasmic reticulum stress and apoptosis in INS-1 cells. Their work also showed that when the compound was administered to Akita diabetic mice, there was a significant improvement in glucose tolerance and β-cell function.

Citation:
Ghosh R, Wang L, Wang ES, Perera BG, Igbaria A, Morita S, Prado K, Thamsen M, et al. Allosteric inhibition of the IRE1α RNase preserves cell viability and function during endoplasmic reticulum stress. Cell. 2014 Jul 31;158(3):534–48.

Description	Details	Cat. No.
Small Molecules & Inhibitors (continued)		
CYP17A1 Inhibitor II, TAK-700	A cell-permeable, orally bioavailable, nontoxic, nonsteroidal naphthylmethylimidazole compound that as a potent, selective and reversible inhibitor of 17,20-lyase (IC_{50} = 140 nM, 27 nM, and 1.2 μM in human, monkey, and rat, respectively) and reduces the weight of androgen-dependent organs. At higher concentrations, affects 17a-hydroxylase (IC_{50} = 760, 38 and > 10,000 nM in human, monkey and rat, respectively) activity with minimal effect on 11b-hydroxylase. Suppresses testosterone (IC_{50} = 640 nM) and androstenedione (IC_{50} = 210 nM) production without affecting the synthesis of corticosterone or aldosterone in rats (up to 30 μM).	532371
GCase Activator, NCGC00188758	A cell-permeable pyrazolopyrimidine-carboxamide compound that directly binds to glucocerebrosidase (GCase; K_d ~ 9 μM for NT-467 fluorescent labeled GCase) and enhances its activity and serves as a chaperone for its translocation to the lysosomal compartment in fibroblasts of patients with Gaucher disease (AC_{50} = 5.2 and 6.5 μM for wild type and mutant N370S, respectively). Shown to increase GCase activity in macrophages from Gaucher's disease patients and in iPSC-derived macrophages (10.7 and 3.2 fold, respectively).	531660
IRAK4 Inhibitor, Compound 26	A cell-permeable indolo[2,3-c]quinoline derivatived compound that acts as a selective and highly potent inhibitor of interleukin-1 receptor associated kinase (IRAK4; IC_{50} = 94 pM). Displays much reduced potency against IRAK1 (IC_{50} = 65 nM) and displays high selectivity over a panel of other 27 kinases, including several involved in TLR-mediated signaling. Blocks R848-induced TNF-a and IL-6 production in primary human monocytes and inhibits LPS-induced TNF-a production in mice (100 mpk). Shows minimal inhibition of Cyp2C9, 2D6, and 3A4 and has excellent microsomal stability and desirable aqueous solubility.	531237
IRE1 Inhibitor IV, KIRA6	A cell-permeable, bioavailable, non-toxic, imidazopyrazinyl-naphthalenyl-phenylurea based compound that acts as a potent, ATP-competitive, reversible, and selective inhibitor of IRE1a kinase (IC_{50} = 600 nM). Exhibits good selectivity over ERK2, JNK2, JNK3, PIM1, PAK4, and PKA (IC_{50} > 10 μM). Stabilizes the kinase domain of IRE1a in an inactive conformation and blocks its oligomerization and thereby reduces RNase domain activity.	532281
Lassomycin	A highly basic synthetic 16-amino acid cyclic peptide that displays bactericidal activity against multiple species of growing and dormant mycobacteria, including drug-resistant Mycobacterium tuberculosis (MBC = 1- 4 μg/mL) in a time-dependent manner. Displays only a trivial activity against other bacteria (MIC > 50 μg/mL) and mammalian cells (IC_{50} = 350 μg/mL in NIH 3T3 and HepG2 cells). Acts by reversibly binding to a highly acidic N-terminal region of the ClpC1 ATPase complex (K_d = 410 nM) and stimulates its ATPase activity.	531147
MPS1 Inhibitor III, AZ3146	A cell-permeable purinone derivative that acts as a highly potent and selective inhibitor of monopolar spindle 1 kinase (MPS1; IC_{50} = ~35 nM). Inhibits the phosphorylation of full-length immunoprecipitated human MPS1 and exhibits minimal activity against a panel of 49 other protein kinases. Has much reduced activity against FAK, JNK1, JNK2, and KIT and does not affect the activity of mitotic-specific phosphoforms of Aurora B and BubR1.	531976
NOX Inhibitor VIII, VAS3947	A cell-permeable triazolo-pyrimidine derivative of VAS2870 (Cat. No. 492000) that displays enhanced solubility and acts as a selective inhibitor NOX family of NADPH oxidase. Shown to inhibit NOX activity in CaCo-2 cells (expressing NOX 1, 2, 4, and 5; IC_{50} = 12 μM), HL-60 cells (mainly expressing NOX2; IC_{50} = 2 μM), and A7r5 cells (mainly expressing NOX3 and 4; IC_{50} = 13 μM). Does not affect the activities of xanthine oxidase and endothelial nitric oxide synthase (eNOS) even at higher concentrations (~100 μM). Acts synergistically with Imatinib (Cat. No. 504595) to reduce the proliferation of chronic myeloid leukemia (CML) cells.	532336
PCSK9 Inhibitor, EGF-A	A 42-mer synthetic peptide that contains a calcium binding site of EGF-A. Binds to the proprotein convertase subtilisin/kexin type 9 (PCSK9) in a pH and calcium-dependent manner (K_d = 300 nM at pH 5.2 and 1.0 μM at pH7.4 and at 2 mM calcium) and blocks its interaction with LDL receptors (IC_{50} = 3.4 μM) and VLDL receptors (IC_{50} = 4.7 μM). Acts as a poor inhibitor of PCSK9 - Apo-ER2 interaction even at high concentrations (~200 μM). Blocks the degradation of mature LDL receptors in HepG2 cells in a dose-dependent manner (~1.5 to 15 μM).	508761
PKR/PERK Activator, DHBDC	A cell-permeable chromenone derivative that acts as a dual activator of protein kinase R (PKR) and PKR-like kinase (PERK). Induces the phosphorylation of IkBa and thereby activates NF-kB pathway. However, the activation of NF-kB is independent of PKR activity. Induces eIF2a phosphorylation and activates its downstream effectors CHOP/GADD153. Does not affect the phosphorylation of Akt, MAP kinase, or 4E-BP1. Inhibits the expression of cyclin D1 and E and blocks the growth of CRL-2813 and MCF-7 cells (IC_{50} = ~ 10 μM).	531551

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Signaling (continued)

Description	Details	Cat. No.
Small Molecules & Inhibitors (continued)		
RORgt Inverse Agonist II, GSK805	A cell-permeable, orally available, non-toxic, conformationally restricted biaryl-amide compound that acts as a potent retinoid-related orphan receptor gt (RORgt) isoform selective inverse agonist. Suppresses T helper 17 (Th17) responses, including IL-17 and IFN-g production (~ 500 nM). Directly and reversibly interacts with the ligand binding domain of RORgt to block its transcriptional effects.	531369
RyR1 Modulator, CCDI	A cell-permeable pyrrolo[1,2-c]imidazolone derived compound that selectively and preferentially binds to the cytoplasmic domain of mammalian ryanodine receptor 1 (RyR1) in a reversible manner and potentiates Ca^{2+}-dependent binding of [3H]-ryanodine to RyR1(EC_{50} = 6 µM). Increases the open probability (Po) of RyR1 without affecting RyR2, RyR3, or the IP3R. Does not alter RyR1 conductance or the K_d for 3H-ryanodine binding to RyR1 in any significant manner (~4 nM vs 4.2 nM with and without CCDI in the medium). Induces Ca^{2+} transients in C2C12 skeletal myotubes, but does not alter Ca^{2+} transients in rat ventricular myocytes.	531547
S1P Receptor 2 Agonist, CYM-5520	A pyrrolyl ketone derivative that acts as a potent, selective, allosteric agonist of sphingosine-1-phosphate receptor 2 (S1PR2; EC_{50} = 480 nM) that does not replace native ligand and its binding is not competitive with JTE-013. Does not affect the activity of S1PR1, 3, and 5 and the activity of 29 other receptors and transports in any significant manner. Acts as a full agonist for both wild type and triple mutant S1PR2 (EC_{50} = 1.6 and 1.5 µM, respectively).	531371
STING Agonist, 2′3′-cGAMP	A cyclic-dinucleotide (cyclic-GMP-AMP) based compound that binds to the C-terminal domain of adaptor endoplasmic reticulum protein known as STING with high affinity (K_d = 4 nM) and induces the synthesis of interferon-β (IFN-β) in mammalian cells (EC_{50} = 20 nM). Shown to increase IFN-β production in M2-polarized macrophages associated with non-small cell lung carcinoma and enhances the expression of M1 markers iNOS and IL-12p40, while simultaneously reducing the expression of the M2 markers, Arg-1 and Fizz1. Exhibits about 300 fold greater affinity for STING than c-DiGMP, 3′,2′-cGAMP, and 3′,3′-cGAMP and about 75 fold greater affinity over 2′,2′-cGAMP.	531889
TLR1/TLR2 Agonist II, CU-T12-9	A diphenyl substituted imidazole based compound that directly and selectively targets TLR1/2 and induces their dimerization. Activates TLR1 & 2 signaling leading to NF-kB and AP-1 activation (KD = 182 and 478 nM, respectively; EC_{50} = 52.9 nM for TLR2 in HEK-Blue cells over-expressing hTLR2). Does not affect the dimerization of TLR2/TLR6 and exhibits poor affinity towards TLR3, TLR4, TLR5, TLR7 and TLR8.	532583

Cell Structure

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies				
Anti-ALMS1	Rabbit	Hu	IHC, IC	ABT414
Anti-ANK1	Rabbit	Hu	IHC	ABT361
Anti-ARHGEF2	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABT423
Anti-CD226	Rabbit	Hu	WB, IHC	ABT375
Anti-CD74	Rabbit	Hu	WB, IHC, IC	ABT385
Anti-ENAH	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABT363
Anti-FERMT1	Rabbit	Hu	WB, IHC, IC	ABT422
Anti-FLII	Rabbit	Hu	WB, IHC, IC	ABT412
Anti-IL17RB	Rabbit	Hu	WB, IHC	ABT384
Anti-IL1RN	Rabbit	Hu	WB, IHC	ABT382
Anti-LARP6	Rabbit	Hu	IHC, IC	ABT372
Anti-MMRN1	Rabbit	Hu	WB, IHC	ABT424
Anti-MOG	Rabbit	Hu	WB, IHC	ABT377
Anti-MYOC	Rabbit	Hu	WB, IHC	ABT365
Anti-PCDHA4	Rabbit	Hu	WB, IHC	ABT373
Anti-PHACTR1	Rabbit	Hu	WB, IHC	ABT415
Anti-SPTBN1	Rabbit	Hu	WB, IHC	ABT413
Anti-SYNE2	Rabbit	Hu	IHC, IC	ABT417
Anti-TES	Rabbit	Hu	WB, IHC, IC	ABT419
Anti-TNNT2	Rabbit	Hu	WB, IHC	ABT369

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Inflammation & Immunology

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies				
Anti-DARC	Rabbit	Hu	IHC	ABF302
Anti-EBI3/IL-35, clone V1.4C4.22 (Neutralizing)	Mouse	Ms	WB, Neut	MABF848
Anti-EBI3/IL-35, clone V1.4H6.25 (Neutralizing)	Mouse	Ms	WB, Neut	MABF836
Anti-FCER2	Rabbit	Hu	WB, IHC, IC	ABF300
Anti-FCGRT	Rabbit	Hu	WB, IHC	ABF264
Anti-FGB	Rabbit	Hu	WB, IHC	ABF266
Anti-G3BP2	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABF276
Anti-GABPA	Rabbit	Hu	WB, IHC, IC	ABF297
Anti-HARS	Rabbit	Hu	WB, IHC, IC	ABF274
Anti-HLA-DPB1	Rabbit	Hu	WB, IHC	ABF273
Anti-HLA-DQB1	Rabbit	Hu	WB, IHC	ABF275
Anti-IFI30	Rabbit	Hu	WB, IHC, IC	ABF277
Anti-IFITM3 (N-term)	Rabbit	Hu	WB, IC	ABF314
Anti-IL17RB	Rabbit	Hu	WB, IHC	ABT384
Anti-IL1RN	Rabbit	Hu	WB, IHC	ABT382
Anti-IL-27A	Rabbit	Hu	WB, IHC, FC	06-1082-I
Anti-IL33	Rabbit	Hu	WB, IHC	ABT387
Anti-IRF8	Rabbit	Hu	WB, IHC, IC	ABF267
Anti-LAG3	Rabbit	Hu	IHC	ABF299
Anti-MX1	Rabbit	Hu	WB, IHC	ABF270
Anti-OAS1	Rabbit	Hu	WB, IHC, IC	ABF268
Anti-RSAD2	Rabbit	Hu	WB, IHC	ABF271
Anti-SERPINB1	Rabbit	Hu	WB, IHC, IC	ABF298
Anti-TOLLIP	Rabbit	Hu, Rt	WB, IHC, IC	ABF296

Metabolism

Description	Host	Species Reactivity	Key Applications	Cat. No.
Kits & Assays				
MILLIPLEX® MAP Rat Adipocyte Panel - Metabolism Assay		Rt	MPX	RADPCMAG-82K
MILLIPLEX® MAP Rat Adipokine Panel - Metabolism Assay		Rt	MPX	RADPKMAG-80K
MILLIPLEX® MAP Rat Adiponectin Single Plex - Metabolism Assay		Rt	MPX	RADPNMAG-81K-01

Toxicity

Description	Host	Species Reactivity	Key Applications	Cat. No.
Kits & Assays				
MILLIPLEX® MAP Canine Kidney Toxicity Panel 2 - Toxicity Multiplex Assay		Can	MPX	CKT2MAG-97K
MILLIPLEX® MAP Rat Liver Injury Panel - Toxicity Multiplex Assay		Rt	MPX	RLI1MAG-92K

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Neuroscience

Description	Host	Species Reactivity	Key Applications	Cat. No.
Antibodies				
Anti-ABCD3	Rabbit	Hu	IHC, IC	ABN546
Anti-AGA	Rabbit	Hu	IHC, IC	ABN725
Anti-ALDH1A2	Rabbit	Hu	WB, IHC	ABN575
Anti-ALDH3A2	Rabbit	Hu	WB, IHC	ABN730
Anti-APLP1	Rabbit	Hu	WB, IHC	ABN724
Anti-ARSA	Rabbit	Hu	WB, IHC	ABN547
Anti-ARSB	Rabbit	Hu	IHC	ABN733
Anti-ATP1B1	Rabbit	Hu	WB, IHC	ABN722
Anti-ATXN2	Rabbit	Hu, Ms, Rt	WB, IHC	ABN579
Anti-AZI2	Rabbit	Hu	IHC	ABN735
Anti-BCR	Rabbit	Hu	IHC	ABN562
Anti-C9orf11	Rabbit	Hu	WB, IHC	ABN1371
Anti-C9orf72	Rabbit	Hu	IHC	ABN736
Anti-COMT	Rabbit	Hu, Rt	WB, IHC, IC	ABN549
Anti-DAO	Rabbit	Hu	IHC	ABN539
Anti-DKK2 (N-term)	Rabbit	Hu, Ms	WB, IHC	ABN879
Anti-DMTF1	Rabbit	Hu	IHC, IC	ABN568
Anti-DNAJB7	Rabbit	Hu	WB, IHC	ABN726
Anti-DSD-1, clone 473HD	Rat	Ms	WB, IHC	MAB5790-I
Anti-FDFT1	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABN558
Anti-FGFR2 (N-term)	Rabbit	Hu, Ms, Rt, Mky	WB, IHC, IC	ABN884
Anti-GPD2	Rabbit	Hu	WB, IHC	ABN543
Anti-GRHL1	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABN577
Anti-HESX1	Rabbit	Hu	IHC	ABN536
Anti-HNF4A	Rabbit	Hu	WB, IHC	ABN570
Anti-HPGDS	Rabbit	Hu	IHC	ABN739
Anti-HPRT1	Rabbit	Hu	WB, IHC, IC	ABN550
Anti-ITGAD	Rabbit	Hu	IHC	ABN551
Anti-KALRN	Rabbit	Hu	IHC	ABN542
Anti-KCNJ8	Rabbit	Hu	WB, IHC	ABN552
Anti-MAP1A	Rabbit	Hu	IHC	ABN727
Anti-MCAT	Rabbit	Hu	WB, IHC	ABN544
Anti-mGluR2	Rabbit	Rt	WB, IP	07-261-I
Anti-NEUROD1	Rabbit	Hu	IHC	ABN533
Anti-P2RX5	Rabbit	Hu	WB, IHC	ABN559
Anti-PANK2	Rabbit	Hu	WB, IHC	ABN545
Anti-PCDH8	Rabbit	Hu	IHC	ABN553
Anti-PON2	Rabbit	Hu	IHC	ABN743
Anti-POR	Rabbit	Hu	WB, IHC	ABN561
Anti-POU4F3	Rabbit	Hu	WB, IHC, IC	ABN744
Anti-RAB32	Rabbit	Hu	WB, IHC	ABN746
Anti-RhoGEF, clone 5G2.1	Mouse	Hu	WB, IHC(P)	MABN777
Anti-SELS	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABN747
Anti-SEMA5B	Rabbit	Hu	IHC	ABN555
Anti-SLC5A2	Rabbit	Hu	IHC	ABN565
Anti-STXBP1	Rabbit	Hu, Ms, Rt	WB, IHC	ABN541
Anti-TFAP2B	Rabbit	Hu, Ms, Rt	WB, IHC, IC	ABN748
Anti-UEVLD	Rabbit	Hu	WB, IHC	ABN749
Anti-UNC13B	Rabbit	Hu	IHC, IC	ABN581

LEGEND
Species: Hu=Human, Ms=Mouse, Rt=Rat, Can=Canine, Mky=Monkey
Applications: FC=Flow Cytometry, IC=Immunocytochemistry, IHC=Immunohistochemistry, IHC(P)=Immunohistochemistry (Paraffin), DNA-BP=DNA-binding Proteins, DNA Seq=DNA Sequencing, MPX=Multiplexing, IF=Immunofluorescence, IP=Immunoprecipitation, WB=Western Blotting, Neut=Neutralizing, CC=Cell Culture, APA=Affinity Precipitation Assay

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Lit No. PR1151ENEU BS-GEN-15-11078 Printed in the USA. 02/2015