

# New products

ANTIBODIES, ASSAYS, SMALL MOLECULES, INHIBITORS, AND PROTEINS

Signaling

Cancer

Neuroscience

Cell Structure

Stem Cell

Epigenetics &  
Gene Regulation

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## Apoptosis & Autophagy in Cancer: Cell Survival by Eluding Cell Death

The ability of tumor cells to elude programmed cell death, also known as apoptosis, is a hallmark of most types of cancer. Similarly, autophagy is a highly regulated, homeostatic degradative process where cells destroy their own components via the lysosomal machinery and recycle them for prolonged cell survival. Via extensive crosstalk with pro-apoptotic signaling pathways, autophagy can also contribute to cell death and greatly influence general cell health. Elucidating the correlation between autophagy and apoptotic cell death has become the focus of a great deal of research, particularly in tumor biology. On one hand, autophagy may induce cell death by degrading essential components; on the other hand, it may facilitate survival of cancer cells under unfavorable metabolic conditions.

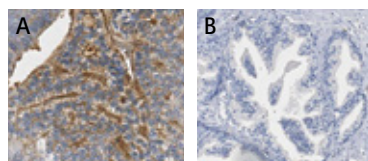
Merck Millipore provides a large offering of well-published antibodies, inhibitors and assays to help researchers detect apoptosis and autophagy in cancer cells & tissue samples.

### Featured Apoptosis Antibodies:

#### Anti-TRAIL/CD253 Monoclonal Antibody (Cat. No. MABC147)

Merck Millipore's newly released Anti-TRAIL/CD253 monoclonal antibody is a highly specific antibody that detects TRAIL/CD253 in human cancer tissues and cells via immunohistochemistry and flow cytometry analysis.

TRAIL is a type II membrane protein and is expressed in a variety of human tissues and induces apoptosis and NF- $\kappa$ B activation.



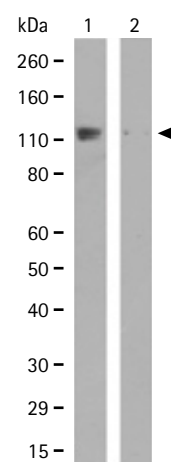
Immunohistochemistry Analysis: FOLH1 positive staining was observed in formalin fixed paraffin embedded (FFPE) human prostate cancer tissue (A), but not in normal human prostate tissue (B) using Anti-FOLH1 (Cat. No. MABC147).

#### Anti-phospho-ULK1, clone 15D12.3 Monoclonal Antibody (Cat. No. MABC307)

Merck Millipore's newly released monoclonal antibody against phosphorylated ULK1 at Ser467 is a highly specific antibody that detects phosphorylated ULK1 Ser467 in autophagic (serum starved) cells, but not in non-autophagic (normal) cells.

ULK1 or autophagy-related protein 1 homolog (ATG1) is a serine/threonine protein kinase. It is involved in the signaling pathway of mTOR receptors leading to the regulation of autophagy in nutrient-deprived cells.

Western Blot Analysis (right): A-431 serum starved cell lysate (Lane 1) and normal A-431 cell lysate (Lane 2) were probed with Anti-phospho-ULK1 (Ser 467), clone 15D12.3 (catalog no. MABC307). Arrow indicates phospho-ULK1 (Ser467) (~112 kDa).



# Cancer

## PUBLICATION HIGHLIGHT

### Anti-MLKL Mouse Monoclonal Antibody

(Cat. No. MABC604)

Merck Millipore's newly released Anti-MLKL mouse monoclonal antibody (MABC604) has recently been published in an important study revealing a key mechanism in the control of cancer related necroptosis. The Australian and New Zealand University researchers were able to show how protein MLKL, a component of the "necrosome," the multiprotein complex that triggers tumor necrosis factor (TNF)-induced cell death by necroptosis, is essential for propagation of the necroptosis pathway downstream of RIPK3. In the J. M. Murphy et al. Immunity paper entitled: The pseudokinase MLKL mediates necroptosis via a molecular switch mechanism\*the researchers were able to use the MLKL antibody to help characterize the manipulations of the protein's unusual pseudokinase structure clearly demonstrated through mutation and 3D crystal structure analysis, and corresponding function in the necroptotic process. Necroptosis is a form of programmed cell death that occurs when apoptosis and caspase activity are inhibited. Because this constitutes a mechanism that may allow elimination of pathogens that are able to subvert classical apoptotic cell death or as a failsafe in other situations where the preferred apoptosis pathway fails, there has been considerable interest in defining the molecular regulators of necroptosis and their mechanisms of action. This research suggests that further investigation of MLKL as a potential tumor suppressor in some cancer contexts is warranted.

\* (2013) Immunity. 39(3).443-453.

| Description                                | Host   | Species Reactivity | Key Applications | Cat. No. |
|--------------------------------------------|--------|--------------------|------------------|----------|
| <b>Antibodies</b>                          |        |                    |                  |          |
| Anti-AMBRA1                                | Rabbit | Hu, Rt             | WB, IHC, IF      | ABC821   |
| Anti-ARC                                   | Rabbit | Hu                 | WB, IHC          | ABC837   |
| Anti-ARC                                   | Rabbit | Hu                 | WB               | ABC838   |
| Anti-Arl1, clone 11A12.1                   | Mouse  | Hu                 | WB, IC           | MABC164  |
| Anti-ATR                                   | Rabbit | Hu                 | WB, IHC, IC      | ABC839   |
| Anti-BCAS3                                 | Rabbit | Hu, Rt             | WB, IHC          | ABC826   |
| Anti-Bcl-2-like protein 11                 | Rabbit | Hu                 | WB, IHC          | ABC233   |
| Anti-BCL7A, clone 15C                      | Mouse  | Hu                 | IHC, IF          | MABC523  |
| Anti-BCMA                                  | Rabbit | Hu                 | WB, IHC, IF      | ABC840   |
| Anti-BIRC2/IAP-2, clone 1E1-1-10           | Rat    | Ms, Hu             | WB               | MABC535  |
| Anti-Caspase-14                            | Rabbit | Hu                 | WB, IHC          | ABC841   |
| Anti-CHORDC1                               | Rabbit | Hu                 | WB, IC           | ABC850   |
| Anti-CIP2A                                 | Rabbit | Hu                 | IHC, WB          | ABC307   |
| Anti-CYP17A1                               | Rabbit | Hu                 | WB, IHC, IF      | ABC392   |
| Anti-DCK                                   | Rabbit | Hu                 | WB               | ABC415   |
| Anti-DDB1                                  | Rabbit | Hu, Ms, Rt         | WB, IC           | ABC238   |
| Anti-Death-associated protein 1            | Rabbit | Ms, Hu             | WB, IHC          | ABC259   |
| Anti-Delta-like protein 4                  | Rabbit | Hu                 | WB, IHC          | ABC473   |
| Anti-DR6                                   | Rabbit | Hu                 | WB               | ABC842   |
| Anti-dUTPase                               | Rabbit | Hu                 | WB               | ABC457   |
| Anti-ELMO3, clone 3C12.1                   | Mouse  | Hu                 | WB, IC           | MABC208  |
| Anti-EPHX2, clone 60083-1                  | Mouse  | Hu                 | WB, IF           | MABC696  |
| Anti-FAM60A                                | Rabbit | Hu                 | WB, IHC          | ABC452   |
| Anti-FANCA, clone 5G9                      | Mouse  | Hu                 | WB, IP           | MABC557  |
| Anti-FANCI/BACH1, clone 2G7                | Mouse  | Hu                 | WB, IC, IP       | MABC538  |
| Anti-FYVE, clone 7F11.1                    | Mouse  | Hu                 | IHC(P)           | MABC195  |
| Anti-GITRL                                 | Rabbit | Hu                 | WB, IC           | ABC843   |
| Anti-HBB                                   | Rabbit | Hu                 | WB, IHC          | ABC385   |
| Anti-hERV-WL                               | Rabbit | Hu                 | WB, FC           | ABC505   |
| Anti-HMMR/CD168                            | Rabbit | Hu                 | WB               | ABC323   |
| Anti-HPGD                                  | Rabbit | Hu                 | WB, IHC          | ABC248   |
| Anti-IEX1                                  | Rabbit | Hu                 | WB, IHC, IF      | ABC844   |
| Anti-IFITM1                                | Rabbit | Hu, Ms             | WB, IC, IF       | ABC827   |
| Anti-LC3B                                  | Rabbit | Hu                 | WB               | ABC432   |
| Anti-LIMP II                               | Rabbit | Hu                 | WB, IHC, IF      | ABC822   |
| Anti-MACC1                                 | Rabbit | Hu, Ms             | WB, IHC, IF      | ABC851   |
| Anti-MAP17, clone 165C                     | Mouse  | Hu                 | WB, IHC          | MABC522  |
| Anti-MLKL, clone 3H1                       | Rat    | Ms                 | WB, IP, IF       | MABC604  |
| Anti-NDUFB7                                | Rabbit | Hu, Ms             | WB, IHC          | ABC391   |
| Anti-Nop30                                 | Rabbit | Ms                 | WB               | ABC845   |
| Anti-OCIAD1                                | Rabbit | Hu                 | WB               | ABC828   |
| Anti-phospho ULK1 (Ser777)                 | Rabbit | Hu                 | WB, PIA          | ABC213   |
| Anti-phospho-MLKL (Ser358) Antibody Set    | Rabbit | Hu                 | WB               | 17-10400 |
| Anti-phospho-ULK1 (Ser 467), clone 15D12.3 | Mouse  | Hu                 | WB               | MABC307  |
| Anti-Podocan                               | Rabbit | Hu, Ms             | WB, IHC          | ABC308   |
| Anti-Rab11-FIP1/RCP                        | Rabbit | Hu, Ms, Rt         | WB, IC, IP       | ABC513   |
| Anti-RAB8A                                 | Rabbit | Hu                 | WB               | ABC423   |
| Anti-RARB, clone 11E8.1                    | Mouse  | Rt, Hu             | WB, IHC          | MABC302  |
| Anti-RASSF1, clone 5C9.1                   | Mouse  | Hu                 | WB, IHC          | MABC112  |

## LEGEND

**Species:** Hu=Human, Ms=Mouse, Rt=Rat, Bov=Bovine, Chk=Chicken

**Applications:** FC=Flow Cytometry, IC=Immunocytochemistry, IHC=Immunohistochemistry, IHC(P)=Immunohistochemistry (Paraffin), IF=Immunofluorescence, IP=Immunoprecipitation, WB=Western Blotting, ChIP=Chromatin IP, ELISA=Enzyme Immunoassay, DB=Dot Blot, PIA=Peptide Inhibition Assay, CC=Cell Culture, AA=Activity Assay, MPX=Multiplexing, RIA=Radioimmunoassay, GF=Growth Factors, CBA=Cell Based Assays, Inhib=Inhibition, AF=Affects Function, Neut=Neutralizing

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## Cancer (continued)

| Description                                  | Host   | Species Reactivity | Key Applications | Cat. No. |
|----------------------------------------------|--------|--------------------|------------------|----------|
| <b>Antibodies (continued)</b>                |        |                    |                  |          |
| Anti-RIP1/RIPK1, clone 3C6.1                 | Mouse  | Hu                 | WB               | MABC82   |
| Anti-S1PR1                                   | Rabbit | Ms                 | WB               | ABC394   |
| Anti-SCRN1                                   | Rabbit | Hu                 | WB, IHC, IF      | ABC829   |
| Anti-SDHD                                    | Rabbit | Ms                 | WB, IC           | ABC835   |
| Anti-SEC62                                   | Rabbit | Rt, Ms             | WB, IHC          | ABC830   |
| Anti-SFRP2, clone 80.8.6, azide-free         | Mouse  | Hu                 | IHC, Inhib       | MABC539  |
| Anti-SkiP                                    | Rabbit | Ms, Rt             | WB, IF           | ABC831   |
| Anti-Slc22A17                                | Rabbit | Hu                 | WB, IF           | ABC846   |
| Anti-SPATA18                                 | Rabbit | Rt                 | WB               | ABC853   |
| Anti-SSTR5/SS5R (P335L mutation), clone D2F2 | Mouse  | Hu                 | WB, IC, IHC      | MABC528  |
| Anti-Sulphamidase                            | Rabbit | Hu                 | WB, IHC          | ABC306   |
| Anti-SULT2A1                                 | Rabbit | Hu                 | WB               | ABC400   |
| Anti-TACI                                    | Rabbit | Hu                 | WB, IC           | ABC847   |
| Anti-Thymidylate Kinase/TMPK                 | Rabbit | Hu                 | WB, IP           | ABC458   |
| Anti-TMEM16B                                 | Rabbit | Hu, Rt             | WB, IHC, IF      | ABC832   |
| Anti-Toso                                    | Rabbit | Hu                 | WB               | ABC848   |
| Anti-TRAIL/CD253, clone 6D12.2               | Mouse  | Hu                 | FC, IHC          | MABC147  |
| Anti-TRIM25                                  | Rabbit | Hu                 | WB, IC           | ABC833   |
| Anti-Trop-2                                  | Rabbit | Hu                 | WB, IHC          | ABC425   |
| Anti-Trop-2, clone 2EF, azide-free           | Mouse  | Hu                 | IC, FC, Inhib    | MABC518  |
| Anti-Trop-2, clone 2G10, azide-free          | Mouse  | Hu                 | IC, FC, Inhib    | MABC519  |
| Anti-Tropomyosin, isoforms 5a, 5b, Br2, Br3  | Sheep  | Hu, Rt, Ms         | WB, IHC, IC      | ABC499   |
| Anti-USP7S                                   | Rabbit | Hu                 | WB               | ABC226   |
| Anti-XBP1s, clone 143F (active form)         | Mouse  | Hu                 | IHC, WB          | MABC521  |
| Anti-ZIP-1                                   | Rabbit | Hu, Ms             | WB, IHC          | ABC849   |
| Anti-ZIP-6                                   | Rabbit | Ms                 | WB, IHC          | ABC834   |

| Description                             | Details                                                                                                                                                                                                                                                                                                                                                                                                                       | Cat. No.     |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors</b> |                                                                                                                                                                                                                                                                                                                                                                                                                               |              |
| 3,3'-Diamino-4'-methoxyflavone, DD1     | A cell-permeable flavone derivative that arrests the proliferation of acute myeloid leukemia cells (NB4, U937, HL-60, OCI AML3), in a dose and time-dependent manner (optimum at ~20 $\mu$ M and 96 h) and blocks the colony formation in samples from acute myeloid leukemia patients, without affecting normal blood cells.                                                                                                 | 5.06047.0001 |
| Akt/MEK Dual Pathway Inhibitor, TIC10   | A cell-permeable pyridopyrimidinone that effectively blocks the phosphorylation/activation of cellular Akt and MEK as well as their downstream signaling events both in cultures <i>in vitro</i> (2.5 to 10 $\mu$ M; HCT116 p53 <sup>-/-</sup> ) and in mice <i>in vivo</i> (25 mg/kg via i.v.; HCT116 p53 <sup>-/-</sup> xenograft) without affecting Akt1/2/3 or Erk1/2 kinase activity even at concentrations >10 $\mu$ M. | 5.04190.0001 |
| ATR Inhibitor IV                        | A cell-permeable phenylpyrazine derivative that acts as a potent, ATP-competitive ( $K_i$ = 13 nM; $IC_{50}$ [ATP] = 70 nM/50 $\mu$ M and 128 nM/100 $\mu$ M), ATR-selective inhibitor with much reduced or little potency against 4 related PIKKs ( $K_i$ = 2.2, 3.9, 16, and >1 $\mu$ M, respectively, against DNA-PK, PI 3-Kg, ATM, and mTOR) and 50 other kinases.                                                        | 5.04972.0001 |
| Autophagy Inhibitor IV, Cpd1 1PC X 10MG | A cell-permeable 3-methyladenine (3-MA) derivative that acts as an autophagy inhibitor via the inhibition of class III PI3K, and without touching class I PI3K.                                                                                                                                                                                                                                                               | 5.05980.0001 |
| Beclin-1 Activator I, TAT-Beclin-1      | A cell-permeable autophagy-inducing peptide (Effective conc. 30 to 100 $\mu$ M) that is designed based on the essential HIV-1 virulence factor Nef-binding sequence of atg6/beclin1 and N-terminally fused to the HIV-1 Tat protein transduction domain sequence.                                                                                                                                                             | 5.06048.0001 |
| BLM Helicase Inhibitor, ML216           | A cell-permeable pyridinyl-thiadiazolylurea compound that selectively blocks Bloom's syndrome protein (BLM) helicase activity of both full-length as well as truncated BLM636-1298 forms ( $IC_{50}$ = 2.98 and 0.97 $\mu$ M, respectively). Competes with and reversibly blocks DNA binding to BLM.                                                                                                                          | 5.06384.0001 |



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## PUBLICATION HIGHLIGHT ON SMALL MOLECULES:

### BMX-IN-1 (N-(2-Methyl-5-(9-(4-(methylsulfonamido)phenyl)-2-oxobenzo[h][1,6]naphthyridin-1(2H)-yl)phenyl)acrylamide)

(Cat. No. 5.05021.0001)

Merck Millipore introduces a new cell-permeable tricyclic quinoline-acrylamide compound that acts as a selective, potent, and irreversible inhibitor of BMX and BTK non-receptor tyrosine kinases ( $IC_{50}$  = 8 and 10.4 nM, respectively).

Recently, Feiyang Liu and colleagues from the Chinese Academy of Sciences, Hefei, China and Dana-farber Cancer Institute, Boston have shown that MBX-IN-1 covalently modifies Cys496 in the ATP binding site of the enzyme and exhibits high selectivity over JAK3, BLK, TEC, ITK, and EGFR kinases ( $IC_{50}$  = 175 nM, 377 nM; 653 nM, 5.25  $\mu$ M, and 4.28  $\mu$ M, respectively). They also showed that this compound potently inhibits the proliferation of TEL-BMX transformed Ba/F3 Ba/F3 ( $GI_{50}$  = 25 nM).

\* Ref.: Liu, F., Zhang, X., Weisberg, E., Chen, S., Hur, W., Zhai, Z., Wang, W., Mao, M., Cai, C., Simon, N.I., Sanda, T., Wang, J., Look, A.T., Griffin, J.D., Balk, S.P., Liu, Q., and Gray, N.S. (2013). Discovery of a Selective Irreversible BMX Inhibitor for Prostate Cancer. ACS Chem. Biol. 8, 1423–1428.

## LEGEND

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| Description                                         | Details                                                                                                                                                                                                                                                                                                                                                                                                     | Cat. No.     |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors (continued)</b> |                                                                                                                                                                                                                                                                                                                                                                                                             |              |
| BMX-IN-1 1 PC X 10 MG                               | A cell-permeable tricyclic quinoline-acrylamide compound that potently inhibits BMX and BTK kinase activity ( $IC_{50}$ = 8 and 10.4 nM, respectively) by covalently targeting ATP-binding site cysteine, while being less potent against TEC family kinases TEC, JAK3, BLK with the same conserved cysteine ( $IC_{50}$ = 175, 377, and 653 nM, respectively).                                             | 5.05021.0001 |
| Casein Kinase II Inhibitor XII, TBBz                | A cell-permeable halogenated benzimidazole compound that acts as a selective and ATP competitive inhibitor of casein kinase II (CK2, $K_i$ = 70 nM for the active hetero-tetrameric form).                                                                                                                                                                                                                  | 5.05766.0001 |
| Cell Proliferation Inducer, WS3                     | A cell-permeable, diarylurea analog that can reversibly induce cell proliferation of primary retinal pigment epithelial (RPE) cells from rodents and from fetal and adult human donors (~ 25 nM).                                                                                                                                                                                                           | 5.06028.0001 |
| FMS/KIT Dual Kinase Inhibitor, PLX647               | A cell-permeable and bio-available azaindolylmethylpyridamine derivative that acts as a potent inhibitor against FMS and KIT ( $IC_{50}$ = 28 and 16 nM, respectively) by targeting the kinases in their inactive DGF-out conformation.                                                                                                                                                                     | 5.05146.0001 |
| Galectin-1 Antagonist, DB21                         | A dibenzofuran conjugated peptidomimetic (13-mer) that acts as an allosteric inhibitor of galectin-1 binding to cell surface glycans ( $IC_{50}$ = 3 $\mu$ M). Shown to reduce the proliferation of endothelial cells and reduce vessel density in murine tumor models.                                                                                                                                     | 5.05823.0001 |
| Gap Junction Enhancer, PQ7                          | A cell-permeable quinoline derived compound with low toxicity that enhances gap junctional activity by about 16-fold (at ~500 nM) in T47D breast cancer cells and thereby potentiates the effect of chemotherapeutic agents.                                                                                                                                                                                | 5.06216.0001 |
| InSolution™ Batimastat                              | A Marimastat (Cat. No. 444289) type of peptidyl hydroxamate-based inhibitor that potently inhibits a broad-spectrum of metalloproteinases, including MMP-1, MMP-2, MMP-3/stromelysin, MMP-7/matrilysin, MMP-9, $\Delta$ MT1 (MMP-14 without TM domain), ADAM8, and ADAM17/TACE ( $IC_{50}$ = 3, 4, 20, 6, 4, 2.08, 51.3, and 19 nM, respectively).                                                          | 5.08408.0001 |
| InSolution™ Calyculin A, Discodermia calyx          | A cell-permeable inhibitor of protein phosphatase 2A (PP2A; $IC_{50}$ = 0.5-1 nM) and protein phosphatase 1 (PP1; $IC_{50}$ = 2 nM).                                                                                                                                                                                                                                                                        | 5.08226.0001 |
| InSolution™ Glutaminase Inhibitor, Compound 968     | A cell-permeable benzophenanthridinone compound that acts as an allosteric and reversible inhibitor of mitochondrial glutaminase activity and represses the growth and invasive activity in glutaminase upregulated fibroblasts and in tumor cells ( $IC_{50}$ $\leq$ 10 $\mu$ M in NIH3T3 cells stably expressing Dbl, Cdc42-F28L, Rac-F28L or RhoC-F30L mutants and in SKBR3 and MDA-MB231 cancer cells). | 5.06073.0001 |
| InSolution™ Necrostatin-1                           | A cell-permeable, potent, and selective blocker of necroptosis ( $EC_{50}$ = 494 nM in FADD-deficient Jurkat cells treated with TNF- $\alpha$ ), a nonapoptotic necrotic cell death pathway mediated by death-domain receptors (DRs) that offers neuroprotection in a murine model of ischemic brain injury.                                                                                                | 5.05224.0001 |
| InSolution™ Paclitaxel, Taxus sp.                   | Antitumor and antileukemic agent isolated from the bark of the yew tree. Promotes assembly of microtubules and inhibits tubulin disassembly.                                                                                                                                                                                                                                                                | 5.08227.0001 |
| InSolution™ PERK Inhibitor I, GSK2606414            | A cell-permeable pyrrolopyrimidine compound that acts as a highly potent EIF2AK3/PERK inhibitor ( $IC_{50}$ = 0.4 nM; [ATP] = 5 $\mu$ M) by targeting PERK in its inactive DFG conformation at the ATP-binding region                                                                                                                                                                                       | 5.08340.0001 |
| L- Buthionine Sulfoximine 1PC X 100MG               | A cell-permeable, sulfoximine based compound that acts a potent, fast acting, irreversible inhibitor of g-glutamylcysteine synthetase and depletes cellular glutathione levels.                                                                                                                                                                                                                             | 5.08228.0001 |
| Lactate Dehydrogenase A Inhibitor, FX11             | A cell permeable, gossypol analog that acts as a selective, reversible, and NADH competitive inhibitor of lactate dehydrogenase A (LDHA; $K_i$ = 8 $\mu$ M for human liver LDHA).                                                                                                                                                                                                                           | 427218-10MG  |
| Lactimidomycin                                      | A glutarimide based 12-membered macrolide antibiotic with antifungal properties. Acts as a potent inhibitor of cell migration, cell proliferation, and protein synthesis ( $IC_{50}$ = 37.82 nM), but does not affect RNA synthesis even at high concentrations ( $IC_{50}$ > 10 $\mu$ M).                                                                                                                  | 5.06291.0001 |
| LRH-1 Antagonist                                    | A cell-permeable pyrazolobiphenylethanone compound that targets LRH-1/ NR5A2 ligand binding domain (LBD) via direct affinity interaction ( $K_d$ = 1.5 $\mu$ M), preventing LRH-1 from assuming an active conformation.                                                                                                                                                                                     | 5.05601.0001 |
| MALT1 Inhibitor I, MI-2                             | A cell-permeable chloromethyl amide that inhibits MALT1 proteolytic activity ( $IC_{50}$ = 5.84 $\mu$ M against MALT1 paracaspase domain dimer-catalyzed Ac-LRSR-AMC hydrolysis) in an irreversible manner via covalent interaction, displaying little or no activity against caspase-3, -8, or -9.                                                                                                         | 5.00491.0001 |
| MAT2A Inhibitor II, FIDAS-5                         | A cell-permeable fluorinated N,N-dialkylaminostilbene (FIDAS) analogue of FIDAS-3 (Cat. No. 681677) that competes against SAM for MAT2A binding and is >2-fold more potent than FIDAS-3 in inhibiting MAT2A-catalyzed SAM synthesis both in cell-free assays ( $IC_{50}$ = 2.1 $\mu$ M) and in LS174T colorectal cancer (CRC) cultures (3 $\mu$ M).                                                         | 5.04173.0001 |

# Cell Structure

| Description                                        | Host   | Species Reactivity | Key Applications           | Cat. No.   |
|----------------------------------------------------|--------|--------------------|----------------------------|------------|
| <b>Antibodies</b>                                  |        |                    |                            |            |
| Anti-ADAMTS-4                                      | Rabbit | Hu, Ms, Rt         | WB                         | ABT178     |
| Anti-ADAMTS5, clone 3A2.1                          | Mouse  | Hu                 | IHC(P)                     | MABT175    |
| Anti-AGR2, clone 5G1.1                             | Mouse  | Hu                 | WB, IHC                    | MABT122    |
| Anti-ALCAM/CD166                                   | Rabbit | Hu                 | WB                         | ABT278     |
| Anti-Anoctamin-1/TMEM16A, clone 5F8.1              | Mouse  | Hu                 | WB, IHC                    | MABT379    |
| Anti-CAPN6                                         | Rabbit | Hu, Rt             | WB, IHC, IF                | ABT404     |
| Anti-CELSR3                                        | Rabbit | Hu                 | IHC                        | ABT267     |
| Anti-Claudin-4, clone 10B4.3                       | Mouse  | Hu                 | WB, IHC(P)                 | MABT140    |
| Anti-COL1A2, clone $\alpha$ 2CT, azide-free        | Mouse  | Hu                 | IHC, AA                    | MABT200    |
| Anti-Desmocollin-2, clone 7G6                      | Mouse  | Hu                 | WB, IP, IHC, IC            | MABT411    |
| Anti-EB1, EB2 and EB3, clone KT65                  | Rat    | Hu, Ms             | WB, IC, IP                 | MABT371    |
| Anti-EFS                                           | Rabbit | Hu, Ms             | WB, IF                     | ABT349     |
| Anti-GPVI, clone 8A2, detection antibody           | Rat    | Hu                 | WB, ELISA                  | MABT418    |
| Anti-GPVI, clone 8E9, capture antibody             | Rat    | Hu                 | WB, ELISA                  | MABT406    |
| Anti-Hu GBP-1/GBP-1, clone 6C5.1                   | Mouse  | Hu                 | WB, IHC(P)                 | MABT386    |
| Anti-Integrin $\alpha$ 3, clone ASC-1 (azide-free) | Mouse  | Hu                 | FC, IP, IHC, AF            | MAB2056Z   |
| Anti-Integrin $\beta$ 1, clone N29 (azide-free)    | Mouse  | Hu                 | FC, IHC, IP, AF, CC, WB    | MAB2252Z-I |
| Anti-Integrin $\beta$ 1, clone P5D2 (azide-free)   | Mouse  | Hu                 | ELISA, FC, IC, IHC, IP, AF | MAB1959Z   |
| Anti-Integrin $\beta$ 4, clone ASC-8 (azide-free)  | Mouse  | Hu                 | FC, IP, IHC, AF            | MAB2059Z   |
| Anti-KIF5                                          | Rabbit | Hu                 | WB, IC, IF                 | ABT405     |
| Anti-Leukemia-associated RhoGEF/LARG, clone 13D2.1 | Mouse  | Hu                 | WB, IC                     | MABT124    |
| Anti-LRRFIP1                                       | Rabbit | Hu                 | WB                         | ABT406     |
| Anti-MATN3                                         | Rabbit | Ms                 | WB, IC                     | ABT410     |
| Anti-MLCK, clone 6A11.1                            | Mouse  | Hu, Rt             | WB, IHC                    | MABT194    |
| Anti-MMP-10                                        | Rabbit | Hu, Ms, Rt         | WB, IHC(P)                 | ABT289     |
| Anti-MYOZAP                                        | Rabbit | Rt                 | WB                         | ABT407     |
| Anti-Nephrin                                       | Rabbit | Hu                 | WB, IHC(P)                 | ABT319     |
| Anti-Nesprin-2, clone K20-478                      | Mouse  | Hu, Ms             | WB, IC, IP                 | MABC86     |
| Anti-Nudel                                         | Rabbit | Hu                 | WB, IC, IF                 | ABT408     |
| Anti-Parvin $\alpha$ , clone 7E2.1                 | Mouse  | Hu                 | WB, IHC(P)                 | MABT157    |
| Anti-phospho DNM1 (Ser637)                         | Rabbit | Rt                 | WB, PIA                    | ABC231     |
| Anti-Pirh2, clone 11G8.1                           | Mouse  | Hu, Ms             | WB                         | MABT123    |
| Anti-Protocadherin 19                              | Rabbit | Hu, Ms             | IHC(P)                     | ABT318     |
| Anti-ROCK2                                         | Rabbit | Hu                 | WB, IHC, IF                | ABT353     |
| Anti-SUN1                                          | Rabbit | Hu, Rt             | WB, IC                     | ABT273     |
| Anti-SUN2                                          | Rabbit | Hu, Ms             | WB, IC                     | ABT272     |
| Anti-Syntaxin-2, clone 2F2.1                       | Mouse  | Hu                 | WB, IC                     | MABT390    |

| Description                             | Details                                                                                                                                                                                                                                                                      | Cat. No.     |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors</b> |                                                                                                                                                                                                                                                                              |              |
| Divin 1PC X 25MG                        | A cell-permeable, stable benzimidazolylpropanehydrazone that acts as a potent bacteriostatic agent and reduces the growth rate and transmembrane potential of bacterial cells without altering their membrane permeability.                                                  | 5.05757.0001 |
| Filastatin                              | A cell-permeable, nontoxic benzoyl-nitrophenylpiperazine compound with anti-fungal properties. Prevents the adhesion of multiple pathogenic Candida species to polystyrene surfaces and human cells ( $IC_{50} = 3 \mu M$ in A549 cells).                                    | 5.08048.0001 |
| Mitochondrial Content Inducer, BRD6897  | A cell-permeable indolylphenylthienopyrimidinone compound that increases mitochondrial content without affecting the cell size ( $\sim 10 \mu M$ ). Reduces mitochondrial protein turnover without affecting any known transcriptional programs of mitochondrial biogenesis. | 5.05984.0001 |



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### LEGEND

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## Stem Cell Research

| Description                             | Host           | Species Reactivity | Key Applications | Cat. No.     |
|-----------------------------------------|----------------|--------------------|------------------|--------------|
| <b>Antibodies</b>                       |                |                    |                  |              |
| Anti-ESRRB Antibody   ABD137            | Rabbit         | Hu                 |                  | ABD137       |
| Anti-PAX3/7BP Antibody   ABD85          | Rabbit         | Hu, Rt, Ms         |                  | ABD85        |
| Anti-SOX10, clone 12H6.1   MABD83       | Mouse          | Hu                 |                  | MABD83       |
| <b>Culture Media &amp; Reagents</b>     |                |                    |                  |              |
| Alizarin-Red Staining Solution          |                |                    |                  | TMS-008-C    |
| Poly-L-Lysine Solution (0.01%)          |                |                    |                  | A-005-C      |
| <b>Proteins &amp; Enzymes</b>           |                |                    |                  |              |
| PluriSTEM-XF™ Recombinant Vitronectin   | <i>E. coli</i> |                    |                  | CC130        |
| <b>Small Molecules &amp; Inhibitors</b> |                |                    |                  |              |
| Hhat Inhibitor, RU-SKI 43               |                |                    |                  | 5.04521.0001 |

## Epigenetics & Nuclear Function

| Description                                              | Host   | Species Reactivity    | Key Applications           | Cat. No.                                                                                      |
|----------------------------------------------------------|--------|-----------------------|----------------------------|-----------------------------------------------------------------------------------------------|
| <b>Antibodies</b>                                        |        |                       |                            |                                                                                               |
| Anti-acetyl Histone H3 (Lys27)                           | Rabbit | Hu, Yeast             | WB, DB, ChIP               | ABE536                                                                                        |
| Anti-acetyl Histone H3 (Lys 14)                          | Rabbit | Hu, Yeast             | WB, ChIP                   | ABE539                                                                                        |
| Anti-acetyl Histone H3 (Lys18)                           | Rabbit | Hu, Yeast             | WB, DB, ChIP               | ABE538                                                                                        |
| Anti-acetyl Histone H4 (Lys12)                           | Rabbit | Hu, Yeast             | WB, DB                     | ABE532                                                                                        |
| Anti-acetyl Histone H4 (Lys16)                           | Rabbit | Yeast, Hu             | WB, DB                     | ABE533                                                                                        |
| Anti-acetyl Histone H4 (Lys5)                            | Rabbit | Yeast, Hu             | WB, ChIP                   | ABE535                                                                                        |
| Anti-acetyl Histone H4 (Lys8)                            | Rabbit | Hu, Yeast             | WB, DB                     | ABE534                                                                                        |
| Anti-acetyl-Histone H3 (Lys9), trial size                | Rabbit | Hu, Ms, Rt, Eukaryote | DB, WB, ChIP-seq           | 06-942-S                                                                                      |
| Anti-ADAR1, clone 15.8.6                                 | Mouse  | Hu, Ms                | WB, IHC, IC                | MABE888  |
| Anti-ADAR2, clone 1.3.1                                  | Mouse  | Hu                    | WB                         | MABE889                                                                                       |
| Anti-APC8                                                | Rabbit | Hu                    | WB, IC                     | ABE797                                                                                        |
| Anti-Ash1L                                               | Rabbit | Hu                    | WB                         | ABE204                                                                                        |
| Anti-B-Myb, clone LX015.1                                | Mouse  | Hu, Ms                | WB                         | MABE886                                                                                       |
| Anti-CAVIN-3/PRKDCBP                                     | Rabbit | Ms, Rt                | WB                         | ABE1043                                                                                       |
| Anti-CDC7                                                | Rabbit | Hu                    | WB                         | ABS530                                                                                        |
| Anti-Chd2, clone 8H3                                     | Rat    | Hu, Ms                | WB, IP, IC, ChIP           | MABE873  |
| Anti-dimethyl Histone H3 (Arg2), symmetric               | Rabbit | Hu                    | WB, DB, IHC, ChIP          | ABE460                                                                                        |
| Anti-dimethyl Histone H3 (Arg26), asymmetric             | Rabbit | Hu                    | WB, IC, DB                 | ABE411                                                                                        |
| Anti-dimethyl Histone H3 (Arg26), asymmetric, trial size | Rabbit | Hu                    | WB, IC, DB                 | ABE411-S                                                                                      |
| Anti-dimethyl Histone H4 (Arg3), asymmetric              | Rabbit | Hu                    | WB, IC, DB                 | ABE441                                                                                        |
| Anti-dimethyl Histone H4 (Arg3), asymmetric, trial size  | Rabbit | Hu                    | WB, IC, DB                 | ABE441-S                                                                                      |
| Anti-dimethyl-Histone H3 (Arg2), clone 20.2, trial size  | Rabbit | Hu, VertebRtes        | DB, MPX,PIA, WB            | 04-808-S                                                                                      |
| Anti-dimethyl-Histone H3 (Lys4), clone AW30              | Rabbit | Hu, Chk               | WB, ChIP-seq, ChIP, DB,PIA | 04-790-S                                                                                      |
| Anti-EIF4A2                                              | Rabbit | Hu                    | WB, IF                     | ABE620                                                                                        |
| Anti-Eri1/Exoribonuclease 1, clone 5G8                   | Rat    | Ms                    | WB, IP                     | MABE894                                                                                       |
| Anti-FAM120A                                             | Rabbit | Hu, Rt                | WB, IHC, IF                | ABE792                                                                                        |
| Anti-GTF2H2C                                             | Rabbit | Hu                    | WB                         | ABE633                                                                                        |
| Anti-Histone demethylase UTY                             | Rabbit | Hu, Ms                | WB                         | ABE410                                                                                        |
| Anti-Histone H3, clone 1B1-B2                            | Mouse  | Hu, Ms, Yeast         | WB, ChIP                   | MABE923                                                                                       |
| Anti-Histone-lysine N-methyltransferase SUV420H2         | Rabbit | Hu                    | WB                         | ABE548                                                                                        |
| Anti-hMOF                                                | Rabbit | Hu, Ms, Rt            | WB, ChIP                   | ABE479                                                                                        |
| Anti-HSF 1                                               | Rabbit | Hu, Ms                | WB, IP, ChIP               | ABE1044                                                                                       |

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# Epigenetics & Nuclear Function (continued)

| Description                                                                                                                     | Host   | Species Reactivity              | Key Applications                        | Cat. No.  |
|---------------------------------------------------------------------------------------------------------------------------------|--------|---------------------------------|-----------------------------------------|-----------|
| <b>Antibodies (continued)</b>                                                                                                   |        |                                 |                                         |           |
| Anti-JARID1C                                                                                                                    | Rabbit | Hu                              | WB                                      | ABE1082   |
| Anti-JMJD2E/KDM4E                                                                                                               | Rabbit | Hu, Ms, Rt                      | WB                                      | ABE1081   |
| Anti-KPNA6                                                                                                                      | Rabbit | Hu                              | WB, IF                                  | ABE798    |
| Anti-L3MBTL1                                                                                                                    | Rabbit | Hu                              | WB                                      | ABE433    |
| Anti-LSM1, clone 5F3                                                                                                            | Rat    | Ms                              | WB, IP                                  | MABE893   |
| Anti-m3G-cap, m7G-cap, clone H-20                                                                                               | Mouse  | All                             | DB, IP, WB, IC                          | MABE419   |
| Anti-Maelstrom                                                                                                                  | Rabbit | Hu                              | WB                                      | ABE793    |
| Anti-Methyltransferase-like protein 13                                                                                          | Rabbit | Hu, Ms, Rt                      | WB, IP                                  | ABE556    |
| Anti-MINA                                                                                                                       | Rabbit | Hu, Ms                          | WB, IHC                                 | ABE796    |
| Anti-MLL2 (C-Term)                                                                                                              | Rabbit | Hu                              | WB, IHC                                 | ABE206    |
| Anti-monomethyl Histone H3 (Lys9), clone CMA306, trial size                                                                     | Mouse  | Hu                              | WB, PIA                                 | 05-1248-S |
| Anti-monomethyl Histone H4 (Arg3)                                                                                               | Rabbit | Hu, Ms, Rt                      | WB, DB, IC                              | ABE362    |
| Anti-monoubiquityl Histone H2B (Lys119), clone 7B4                                                                              | Mouse  | Hu                              | WB, IHC                                 | MABE453   |
| Anti-MSL-1                                                                                                                      | Rabbit | Hu, Ms                          | WB, ChIP                                | ABE469    |
| Anti-MSL3-like 1                                                                                                                | Rabbit | Hu                              | WB, ChIP                                | ABE467    |
| Anti-PABP-2                                                                                                                     | Rabbit | Hu, Rt, Ms                      | WB, IP, IC                              | ABE371    |
| Anti-Pax5, clone 1H9                                                                                                            | Rat    | Ms, Hu                          | WB, IHC                                 | 05-1573   |
| Anti-PCBP4                                                                                                                      | Rabbit | Hu                              | WB, IC, IF                              | ABE794    |
|  Anti-phospho Cyclin-dependent kinase 7 (Thr170) | Rabbit | Hu, Ms, Rt                      | WB, ChIP                                | ABE1317   |
| Anti-phospho Histone H2A (Ser129)                                                                                               | Rabbit | Yeast                           | WB, DB, PIA, IP, IC                     | 07-745-I  |
| Anti-phospho Histone H3 (Ser57)                                                                                                 | Rabbit | Hu, Ms                          | WB, IC, IP, DB                          | ABE219    |
| Anti-phospho Histone H3 (Ser57), trial size                                                                                     | Rabbit | Hu, Ms                          | WB, IC, IP, DB                          | ABE219-S  |
| Anti-phospho-Histone H2A.X (Ser139), clone JBW301, (Ascites Free)                                                               | Mouse  | Hu, Ms, Rt                      | WB, IC, ChIP, IF                        | 05-636-I  |
| Anti-PIAS4                                                                                                                      | Rabbit | Hu                              | WB, IHC                                 | ABE801    |
| Anti-POLR2B                                                                                                                     | Rabbit | Hu                              | WB                                      | ABE628    |
| Anti-POU3F1                                                                                                                     | Rabbit | Hu                              | WB                                      | ABE636    |
| Anti-PRDM16                                                                                                                     | Rabbit | Hu                              | WB, IP, IHC                             | ABE543    |
| Anti-RCC1                                                                                                                       | Rabbit | Hu                              | WB                                      | ABS701    |
| Anti-RNA Helicase A/Dhx9, clone 8E3                                                                                             | Rat    | Hu, Ms                          | WB, IC                                  | MABE878   |
| Anti-RRM1                                                                                                                       | Rabbit | Hu                              | WB, IF                                  | ABE612    |
| Anti-RRM1, clone 60073-2                                                                                                        | Mouse  | Hu                              | WB, IHC                                 | MABE567   |
| Anti-SIK1                                                                                                                       | Rabbit | Hu                              | WB                                      | ABE799    |
| Anti-SIRT4                                                                                                                      | Rabbit | Hu                              | WB                                      | ABE800    |
| Anti-TAF15, clone 4D71                                                                                                          | Mouse  | Hu                              | WB, IC                                  | MABE901   |
| Anti-TAF15, clone 8TA-2B10                                                                                                      | Mouse  | Hu, Ms, Rt                      | WB, IP                                  | MABE450   |
| Anti-TCF12                                                                                                                      | Rabbit | Hu, Ms                          | WB, IHC                                 | ABE629    |
| Anti-Tet1                                                                                                                       | Rabbit | Hu, Ms, Rt                      | WB, ChIP                                | ABE1034   |
| Anti-Tet3                                                                                                                       | Rabbit | Ms                              | WB, IF                                  | ABE383    |
| Anti-TOP1                                                                                                                       | Rabbit | Hu                              | WB                                      | ABE617    |
| Anti-Translin                                                                                                                   | Rabbit | Rt                              | WB                                      | ABE795    |
| Anti-TRERF1                                                                                                                     | Rabbit | Hu                              | WB                                      | ABE634    |
| Anti-trimethyl Histone H3 (Lys79), trial size                                                                                   | Rabbit | Hu                              | WB, DB, MPX                             | 07-952-S  |
| Anti-trimethyl-Histone H3 (Lys4), clone 15-10C-E4, Recombinant, trial size                                                      | Rabbit | Hu                              | WB, ChIP, ChIP-seq, DB, ELISA, PIA, MPX | 05-745R-S |
| Anti-trimethyl-Histone H4 (Lys20), rabbit, trial size                                                                           | Rabbit | Hu, Vertebrates                 | WB, DB                                  | 04-079-S  |
| Anti-WD repeat-containing protein 5                                                                                             | Rabbit | Hu, Ms, Rt                      | WB                                      | ABE1075   |
| Anti- $\alpha$ -ketoglutarate-dependent dioxygenase FTO                                                                         | Rabbit | Hu                              | WB, IP                                  | ABE552    |
| ChIPAb+™ Androgen Receptor Antibody/Primer Set                                                                                  | Rabbit | Hu, Ms, Rt, Amphibian, Bov, Chk | ChIP, WB, IHC, IP                       | 17-10489  |
| ChIPAb+™ Nanog Antibody/Primer Set                                                                                              | Mouse  | Hu                              | ChIP, IC, WB                            | 17-655    |



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# Inflammation & Immunology

| Description                                            | Host             | Species Reactivity | Key Applications   | Cat. No. |
|--------------------------------------------------------|------------------|--------------------|--------------------|----------|
| <b>Antibodies</b>                                      |                  |                    |                    |          |
| Anti-ABIN3                                             | Rabbit           | Hu, Ms             | WB, IHC            | ABF287   |
| Anti-AIRE, clone 5H12                                  | Rat              | Ms                 | FC, WB, IC, IHC    | 04-150   |
| Anti-ARG1                                              | Rabbit           | Hu                 | WB, IHC            | ABF228   |
| Anti-C5AR1                                             | Rabbit           | Hu                 | WB, IHC, IF        | ABF248   |
| Anti-CD117 (c-kit) (mouse), APC, clone ACK2            | Rat              | Ms                 | WB, IHC, IC, FC    | MABF360  |
| Anti-CD11b (human/mouse), APC, clone M1/70             | Rat              | Hu, Ms             | IP, IHC, FC, IF    | MABF520  |
| Anti-CD11c (human), APC, clone 3.9                     | Mouse            | Hu                 | IP, IF, FC         | MABF521  |
| Anti-CD11c (mouse), APC, clone N418                    | Armenian Hamster | Ms                 | IP, IHC, IF, FC    | MABF526  |
| Anti-CD126 (IL-6R $\alpha$ ) (human), PE, clone UV4    | Mouse            | Hu                 | FC                 | MABF343  |
| Anti-CD2 (mouse), FITC, clone RM2-5                    | Rat              | Ms                 | FC, IP             | MABF353  |
| Anti-CD2 (mouse), PE, clone RM2-5                      | Rat              | Ms                 | FC, IP             | MABF354  |
| Anti-CD25 (mouse), APC, clone PC61.5                   | Rat              | Ms                 | IP, IHC, FC        | MABF396  |
| Anti-CD25 (mouse), APC, clone PC61.5                   | Rat              | Ms                 | IP, IHC, FC        | MABF548  |
| Anti-CD27 (human), APC, clone O323                     | Mouse            | Hu                 | FC                 | MABF551  |
| Anti-CD28 (human), APC, clone CD28.2                   | Mouse            | Hu                 | IP, IHC, FC        | MABF408  |
| Anti-CD28 (human), APC, clone CD28.2                   | Mouse            | Hu                 | IP, IHC, FC        | MABF557  |
| Anti-CD284 (TLR4) (human), PE, clone HTA125            | Mouse            | Hu                 | FC, IHC, IF        | MABF350  |
| Anti-CD4 (human), APC, clone OKT4                      | Mouse            | Hu                 | WB, IP, IC, IF, FC | MABF572  |
| Anti-CD8a (human), AlexaFluor® 488, clone HIT8a        | Mouse            | Hu                 | FC, IHC            | MABF916  |
| Anti-CLEC9A, clone 10B4                                | Rat              | Ms                 | WB, FC             | 04-148   |
| Anti-CXCL16, clone 60123-1                             | Mouse            | Hu                 | WB                 | MABF207  |
| Anti-CXCR7                                             | Rabbit           | Hu                 | WB, IHC, IF        | ABF243   |
| Anti-GALNS                                             | Rabbit           | Hu                 | WB, IHC            | ABF249   |
| Anti-HPGD                                              | Rabbit           | Hu                 | WB, IHC            | ABC248   |
| Anti-IFIT1/p56                                         | Rabbit           | Ms, Hu             | WB, IC, FC         | ABF117   |
| Anti-IK $\alpha$ (p45), clone 881H3                    | Mouse            | Hu                 | WB, IHC(P), IP     | MABF222  |
| Anti-IL1RL1, clone RMST-2, azide-free                  | Rat              | Ms                 | FC, AA             | MABF231  |
| Anti-IL27RA                                            | Rabbit           | Hu                 | WB, IHC, IF        | ABF295   |
| Anti-IL-34                                             | Rabbit           | Hu                 | WB                 | ABF294   |
| Anti-IL-6 (human), FITC, clone MQ2-13A5                | Rat              | Hu                 | FC                 | MABF342  |
| Anti-IL9                                               | Rabbit           | Hu                 | WB                 | ABF240   |
| Anti-IL-9 (human), PE, clone MH9A4                     | Mouse            | Hu                 | FC, ELISA          | MABF344  |
| Anti-Interleukin-7/IL-7, clone 7B1.1                   | Mouse            | Hu                 | WB, FC             | MABF301  |
| Anti-IRF4, clone 3E4                                   | Rat              | Hu                 | WB, IHC, FC        | 04-142   |
| Anti-IRF7                                              | Rabbit           | Hu, Ms             | WB, IHC, IF        | ABF202   |
| Anti-LAP (TGF- $\beta$ 1) (mouse), APC, clone TW7-16B4 | Mouse            | Ms                 | FC, WB, IP, Neut   | MABF345  |
| Anti-MIF                                               | Rabbit           | Hu                 | WB                 | ABF227   |
| Anti-MIF, clone M1, preservative free                  | Mouse            | Hu                 | FC, Neut, WB       | MABF111  |
| Anti-MRC1, clone 60143-1                               | Mouse            | Hu                 | WB                 | MABF209  |
| Anti-NLRC5, clone 3H8                                  | Rat              | Hu                 | WB, IP, FC         | MABF260  |
| Anti-NOD4                                              | Rabbit           | Hu, Ms             | WB, IC, IF         | ABF288   |
| Anti-PAFAH1B2                                          | Rabbit           | Hu                 | WB                 | ABF255   |
| Anti-PAR-1, clone ATAP2                                | Mouse            | Ms, Hu             | WB, FC, IC, IF     | MABF244  |
| Anti-Par-2, clone SAM11                                | Mouse            | Ms, Hu             | WB, IHC, FC        | MABF243  |
| Anti-PPAPDC2                                           | Rabbit           | Hu                 | WB                 | ABF289   |
| Anti-PRKCDBP                                           | Rabbit           | Hu, Ms             | WB, IHC, IF        | ABF256   |
| Anti-Sec23A                                            | Rabbit           | Ms, Rt             | WB                 | ABC424   |
| Anti-Sec23B                                            | Rabbit           | Ms                 | WB                 | ABC460   |

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# Metabolism

| Description                                             | Host   | Species Reactivity | Key Applications | Cat. No. |
|---------------------------------------------------------|--------|--------------------|------------------|----------|
| <b>Antibodies</b>                                       |        |                    |                  |          |
| Anti-CYP17A1                                            | Rabbit | Hu                 | WB, IHC, IF      | ABC392   |
| Anti-Mitochondrial dicarboxylate carrier, clone 1F5.1   | Mouse  | Ms, Rt             | WB, IHC          | MABN457  |
| Anti- $\alpha$ -ketoglutarate-dependent dioxygenase FTO | Rabbit | Hu                 | WB, IP           | ABE552   |

| Description                             | Details                                                                                                                                                                                                                                                                            | Cat. No.     |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors</b> |                                                                                                                                                                                                                                                                                    |              |
| Lactate Dehydrogenase A Inhibitor, FX11 | A cell permeable, gossypol analog that acts as a selective, reversible, and NADH competitive inhibitor of lactate dehydrogenase A (LDHA; $K_i = 8 \mu\text{M}$ for human liver LDHA).                                                                                              | 427218-10MG  |
| Mitochondrial Content Inducer, BRD6897  | A cell-permeable indolylphenylthienopyrimidinone compound that increases mitochondrial content without affecting the cell size ( $\sim 10 \mu\text{M}$ ). Reduces mitochondrial protein turnover without affecting any known transcriptional programs of mitochondrial biogenesis. | 5.05984.0001 |

# Neuroscience

| Description                                           | Host   | Species Reactivity | Key Applications | Cat. No. |
|-------------------------------------------------------|--------|--------------------|------------------|----------|
| <b>Antibodies</b>                                     |        |                    |                  |          |
| Anti-ACLY                                             | Rabbit | Hu                 | WB, IF           | ABN522   |
| Anti-AIM2                                             | Rabbit | Hu                 | WB               | ABN517   |
| Anti-Choline Transporter                              | Rabbit | Hu, Ms, Rt         | WB, IHC(P)       | ABN458   |
| Anti-COH1                                             | Rabbit | Hu                 | WB               | ABN649   |
| Anti-DENR, clone 10D9.1                               | Mouse  | Hu, Rt             | WB, IHC          | MABN226  |
| Anti-ENC-1, clone 1H8.1                               | Mouse  | Hu, Rt             | WB, IHC          | MABN448  |
| Anti-FAH                                              | Rabbit | Ms                 | WB               | ABN526   |
| Anti-FKBP4, clone 2H9.1                               | Mouse  | Hu                 | WB, IHC(P)       | MABN356  |
| Anti-GABA-B receptor 2, clone N81/37                  | Mouse  | Ms, Rt, Hu         | WB, IHC          | MABN740  |
| Anti-GLUT9                                            | Rabbit | Hu, Rt, Ms         | WB, IHC(P)       | ABN407   |
| Anti-Glypican-6, clone 6A7.1                          | Mouse  | Ms, Hu             | WB, IHC          | MABN531  |
| Anti-HAND2, Clone 7D4.1                               | Mouse  | Ms, Hu             | WB, IHC          | MABN355  |
| Anti-HDGF, clone 60064-1                              | Mouse  | Hu                 | WB, IHC, IF      | MABN1096 |
| Anti-IA-1                                             | Rabbit | Rt                 | WB               | ABN650   |
| Anti-Inducible NO synthase, clone 4E6.1               | Mouse  | Ms                 | WB               | MABN236  |
| Anti-KChIP2 potassium channel subunit, clone 60/73    | Mouse  | Ms, Rt, Hu         | WB, IHC          | MABN371  |
| Anti-Limk1, clone 6C3.1                               | Mouse  | Hu                 | WB, IHC          | MABN118  |
| Anti-LRRC4                                            | Rabbit | Hu, Ms, Rt         | WB, IHC          | ABN414   |
| Anti-LRRTM1                                           | Rabbit | Ms, Hu             | WB, IHC          | ABN642   |
| Anti-LRRTM2                                           | Rabbit | Hu                 | WB, IHC          | ABN643   |
| Anti-Mitochondrial dicarboxylate carrier, clone 1F5.1 | Mouse  | Ms, Rt             | WB, IHC          | MABN457  |
| Anti-MPRIP                                            | Rabbit | Hu, Rt             | WB, IHC          | ABN408   |
| Anti-MPRIP                                            | Rabbit | Hu                 | WB, IHC, IF      | ABN520   |
| Anti-MYBPC3                                           | Rabbit | Hu                 | WB               | ABN499   |
| Anti-MYH11                                            | Rabbit | Hu, Ms             | WB, IHC          | ABN498   |
| Anti-NAV1, clone 4A6.1                                | Mouse  | Hu                 | WB, IHC(P)       | MABN348  |
| Anti-NETO1                                            | Rabbit | Hu                 | WB               | ABN651   |
| Anti-Neuroleukin/GPI, clone 10C2.1                    | Mouse  | Hu                 | WB, IHC(P)       | MABN373  |
| Anti-OPA1, clone 10PA-1A8                             | Mouse  | Hu, Ms, Rt         | WB, IC, IP       | MABN737  |
| Anti-ORMDL3                                           | Rabbit | Hu                 | WB, IHC          | ABN417   |
| Anti-phospho eNOS (Ser1177)                           | Rabbit | Hu                 | WB               | 07-428-I |
| Anti-phospho-PTEN (Thr366)                            | Rabbit | Hu                 | WB, PIA          | ABN374   |



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## Neuroscience (continued)

| Description                                                       | Host   | Species Reactivity | Key Applications | Cat. No. |
|-------------------------------------------------------------------|--------|--------------------|------------------|----------|
| <b>Antibodies (continued)</b>                                     |        |                    |                  |          |
| Anti-PNMT                                                         | Rabbit | Hu                 | IHC, WB          | AB110-I  |
| Anti-Precerebellin                                                | Rabbit | Hu, Ms             | WB, IC           | ABN644   |
| Anti-Prospero homeobox protein 1/PROX1                            | Rabbit | Rt, Ms             | WB, IHC          | ABN278   |
| Anti-RAB27A, clone 16H2.1                                         | Mouse  | Hu                 | WB, IHC(P)       | MABN446  |
| Anti-Retinoic Acid Receptor $\gamma$                              | Rabbit | Hu, Ms             | WB, IHC          | ABN409   |
| Anti-RIM 2                                                        | Rabbit | Hu, Rt             | WB, IHC, IF      | ABN645   |
| Anti-RLBP1, clone 3C1.1                                           | Mouse  | Rt, Hu             | WB, IHC          | MABN296  |
| Anti-RPGR, clone 7H12.1                                           | Mouse  | Hu                 | WB, IHC(P)       | MABN294  |
| Anti-SCRAPPER                                                     | Rabbit | Hu                 | WB, IHC          | ABN646   |
| Anti-SEMA4D                                                       | Rabbit | Hu                 | WB, IHC(P)       | ABN369   |
| Anti-SNAP23, clone 4A1.1                                          | Mouse  | Hu                 | WB, IHC          | MABN362  |
| Anti-SRY                                                          | Rabbit | Hu                 | WB               | ABN496   |
| Anti-SSBP1                                                        | Rabbit | Hu, Ms, Rt         | WB, IHC          | ABN403   |
| Anti-SV2C                                                         | Rabbit | Ms                 | WB               | ABN509   |
| Anti-SV2C, clone 4C8.1                                            | Mouse  | Ms, Hu             | WB, IHC          | MABN367  |
| Anti-Syntaxin                                                     | Rabbit | Hu                 | WB, IHC, IF      | ABN647   |
| Anti-TDP-43, clone DB9                                            | Mouse  | Hu                 | WB, IHC          | MABN774  |
| Anti-TMEM106B                                                     | Rabbit | Hu                 | WB               | ABN653   |
| Anti-TMEM16B, clone 7H10                                          | Mouse  | Ms, Hu             | IHC, WB, IC      | MABN641  |
| Anti-Transmembrane Prostatic Acid Phosphatase/TMPAP, clone 3G10.1 | Mouse  | Hu                 | WB, IHC(P)       | MABN318  |
| Anti-TRESK                                                        | Rabbit | Rt                 | WB, IHC, IF      | ABN648   |
| Anti-TrpV3 cation channel, clone N15/4                            | Mouse  | Hu, Ms             | WB, IHC, IC      | MABN741  |
| Anti-VAPB                                                         | Rabbit | Hu                 | WB, IHC, IF      | ABN527   |
| Anti-VGF                                                          | Rabbit | Hu                 | WB, IHC, IF      | ABN652   |
| Anti-VSNL1, clone 2D11                                            | Mouse  | Ms, Rt, Hu, Bov    | WB, IHC          | MABN762  |

| Description                                                                                   | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Cat. No.     |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors</b>                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| (-)-Quinpirole Hydrochloride                                                                  | A potent, selective dopamine D2 receptor agonist with a $K_i$ value of 4.8 nM. Some D3( $K_i$ = 24 nM) and D4 ( $K_i$ = 30 nM) receptor agonistic action has also been reported.                                                                                                                                                                                                                                                                                  | 5.05982.0001 |
| (+)-Bicuculline                                                                               | A potent allosteric antagonist of vertebrate GABAA receptors. Blocks GABAA-induced chloride currents in cultured neurons ( $IC_{50}$ = 740 nM).                                                                                                                                                                                                                                                                                                                   | 5.05875.0001 |
| ( $\pm$ )-PD 128907 Hydrochloride                                                             | Selective dopamine D3 receptor agonist ( $K_i$ = 2.3 nM) with an 18-fold selectivity over long dopamine receptors (D2L) and exhibited only weak affinity for D4.2 receptors ( $K_i$ = 169 nM).                                                                                                                                                                                                                                                                    | 5.05897.0001 |
| (R)-(+)-SKF38393 Hydrochloride                                                                | A benzazepine derivative that acts as a selective Dopamine D1/D5 receptor partial agonist.                                                                                                                                                                                                                                                                                                                                                                        | 5.05881.0001 |
| (R)-Baclofen                                                                                  | A selective agonist of GABAB receptors that is shown to activate $K^+$ conductance in hippocampal neurons. Also acts as an antispastic agent and a skeletal muscle relaxant. It is also an experimental drug to treat autism.                                                                                                                                                                                                                                     | 5.05873.0001 |
| (S)-(-)-Raclopride                                                                            | D2-like dopamine receptor antagonist targeting D2R ( $pK_i$ = 8.0), D3R ( $pK_i$ = 7.9), and 5-HT1A R ( $pK_i$ = 5.2). Used to explore D2 like receptor mediated effects in neuropathic pain, and in antagonism studies of DA receptors during heroin usage and cocaine.                                                                                                                                                                                          | 5.05877.0001 |
| (S)-AMPA                                                                                      | Active enantiomer of AMPA that induces apoptotic cell death in cortical neurons. Does not exhibit any affinity for NMDA receptors.                                                                                                                                                                                                                                                                                                                                | 155305-5MG   |
| (S)-Sulpiride                                                                                 | Dopamine D2 receptor antagonist with good aqueous solubility. S-sulpiride (200 nm) was used to confirm that dopamine currents were mediated through the D2 receptor in whole animal rat brain preps.                                                                                                                                                                                                                                                              | 5.05626.0001 |
| (S)- $\alpha$ -Amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid ((S)-AMPA)   CAS 83643-88-3 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 155305-5MG   |
| $\mu$ -d Opioid Receptor Agonist, CYM51010                                                    | A cell-permeable, blood-brain barrier permeant, non-toxic phenethylpiperidine compound that binds reversibly and with high affinity to the mOR-dOR-heteromer. Exhibits a robust b-arrestin recruitment activity ( $EC_{50}$ = 8.3 $\mu$ M; $E_{max}$ = 1,197% over basal), which is at least two to three-fold higher than that obtained with mbgalOR ( $EC_{50}$ = 1.8 $\mu$ M; $E_{max}$ = 557%) or dbgalOR ( $EC_{50}$ = 2.7 $\mu$ M; $E_{max}$ = 423%) alone. | 5.06418.0001 |

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# Neuroscience (continued)

| Description                                         | Details                                                                                                                                                                                                                                                                                                                                                                                 | Cat. No.                                                                           |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Small Molecules &amp; Inhibitors (continued)</b> |                                                                                                                                                                                                                                                                                                                                                                                         |  |
| 4-DAMP                                              | An antagonist selective for mAChRs ( $K_i$ = 0.57, 7.3, 0.37, 0.72 and 0.55 nM at human M1, M2, M3, M4, and M5 receptors respectively). Used frequently in investigating the functional roles of M1 and M3 receptors in both central and peripheral nervous systems.                                                                                                                    | 5.05771.0001                                                                       |
| 5-BDBD                                              | A highly potent antagonist of purinergic P2X4 receptor. Shown to block P2X4-mediated currents in Chinese hamster ovary cells ( $IC_{50}$ = 500 nM).                                                                                                                                                                                                                                     | 5.05736.0001                                                                       |
| a-(Methylamino)isobutyric Acid                      | A glutamine transport inhibitor selective for Na <sup>+</sup> -dependent amino acid transport system A. Used in studying the functional roles of neurotransmissions mediated by amino acids.                                                                                                                                                                                            | 5.06129.0001                                                                       |
| A740003                                             | A highly potent, selective, competitive antagonist of P2X7 purinergic receptor ( $IC_{50}$ = 18 nM and 40 nM, respectively as measured by Bz-ATP-stimulated Ca <sup>2+</sup> flux).                                                                                                                                                                                                     | 5.08317.0001                                                                       |
| AF-DX 116                                           | Selective presynaptic muscarinic receptor M2 antagonist with cardioselectivity. Exhibits antiarrhythmic effects <i>in vivo</i> , also shown to reverse the memory impairment effect of insulin in a mouse model.                                                                                                                                                                        | 5.05821.0001                                                                       |
| Bethanechol Chloride                                | An agonist selective for Muscarinic Acetylcholine Receptors (mAChRs, $EC_{50}$ = 7, 14.5, 35 and 32 $\mu$ M for M4, M3, M1 and M5 respectively) with no effect on nicotinic receptors.                                                                                                                                                                                                  | 5.05773.0001                                                                       |
| Bupropion Hydrochloride                             | A non-selective inhibitor of dopamine and noradrenalin transporters ( $K_i$ = 1.4, 2.8 and 45 $\mu$ M for dopamine, noradrenalin, and serotonin transporters respectively). Also an antagonist for neuronal nicotinic acetylcholine receptors (nAChRs) ( $IC_{50}$ = 1.8 $\mu$ M at $\alpha 2b 2$ receptor).                                                                            | 5.06239.0001                                                                       |
| CGP 35348                                           | A selective antagonist of post-synaptic GABAB receptors ( $IC_{50}$ = 34 $\mu$ M) that can permeate the blood brain barrier. Exhibits about 10-fold lower affinity for pre-synaptic receptors.                                                                                                                                                                                          | 5.05895.0001                                                                       |
| CGP 7930                                            | A blood brain barrier permeable, positive allosteric modulator of the metabotropic GABAB receptor. Shown to modulate GABAB receptor in the high affinity state and thereby increases agonist affinity for the receptor.                                                                                                                                                                 | 5.05894.0001                                                                       |
| Citalopram Hydrobromide                             | A potent uptake inhibitor highly selective for 5-HT transporter without effect on noradrenalin or dopamine uptake ( $IC_{50}$ = 1.8, 8800 and 41000 nM for 5-HT, noradrenalin and dopamine, respectively). Clinically prescribed as an antidepressant drug.                                                                                                                             | 5.06238.0001                                                                       |
| CTAP                                                | A highly potent octapeptide that acts as a selective and brain penetrating bioavailable $\mu$ opioid receptor antagonist ( $IC_{50}$ = 3.5 nM). Used in studies of reward systems and additions.                                                                                                                                                                                        | 5.08316.0001                                                                       |
| CTOP                                                | A potent antagonist highly selective for $\mu$ opioid receptor ( $K_i$ = 0.96 nM for $\mu$ receptor and > 10,000 nM for $\delta$ receptors). Often used for studying the functional roles of $\mu$ opioid receptors in both central and peripheral nervous systems.                                                                                                                     | 5.08015.0001                                                                       |
| CX546                                               | A positive allosteric modulator selective for the AMPA receptors. Used in studies related to Schizophrenia, neuroplasticity, Autism and neuronal differentiation.                                                                                                                                                                                                                       | 5.05016.0001                                                                       |
| Cyclothiazide                                       | Selectively blocks AMPA receptor desensitization and potentiates AMPA and kainate-induced increases in intracellular calcium and norepinephrine release.                                                                                                                                                                                                                                | 5.05415.0001                                                                       |
| DPDPE                                               | A potent agonist selective for $\delta$ opioid receptor ( $EC_{50}$ = 5.2 nM). Exhibits anti-convulsant effects <i>in vivo</i> in rats, also used in nociceptive studies.                                                                                                                                                                                                               | 5.08160.0001                                                                       |
| Dynorphin A                                         | An endogenous agonist for $\kappa$ opioid receptors. Involved in several neurological disorders, including neuropathic pain, stress, depression, and Alzheimer's and Parkinson's diseases.                                                                                                                                                                                              | 5.08016.0001                                                                       |
| FFN511                                              | A fluorescent false neurotransmitter that acts as an optical tracer that inhibits serotonin binding to VMAT2-containing membranes ( $IC_{50}$ = 1 $\mu$ M).                                                                                                                                                                                                                             | 5.05483.0001                                                                       |
| Flumazenil                                          | A competitive blocker of benzodiazepine activation of inhibitory GABAergic synapses ( $ID_{50}$ = 200 $\mu$ g/kg/i.p).                                                                                                                                                                                                                                                                  | 5.05991.0001                                                                       |
| GIRK Activator, ML297                               | A blood-brain barrier-permeable, non-toxic phenyl-pyrazolylurea compound that acts as a direct, potent, fast, and reversible activator of GIRK1 (G-protein activated inward-rectifying K <sup>+</sup> channel containing subunit 1) containing channels ( $EC_{50}$ = 162, 914, and 887 nM in Thallium influx assay for GIRK1/2, GIRK1/3, and GIRK1/4 expressed in HEK-293 cell lines). | 5.05820.0001                                                                       |
| GR 127935 Hydrochloride                             | A selective 5-HT1B/1D receptor antagonist. Selectivity was found to be similar for B ( $p_{ki}$ = 9.2-9.8) and D ( $p_{ki}$ = 8.6-9.1) receptor types. GR 127935 works well <i>in vivo</i> and was shown to block (+)-MDMA-induced hyperactivity in rats.                                                                                                                               | 5.08014.0001                                                                       |
| GR113808                                            | A potent and selective antagonist of the serotonin 5-HT4 receptor ( $p_{ki}$ = 9.3-10.3). GR113808 is commonly used in brain and peripheral <i>in vitro</i> and <i>in vivo</i> in striatum studies (Guinea pig $IC_{50}$ = 113 nM, rat brain membrane $K_d$ = 0.4-1 nM) and in cAMP response in CHO and C6 glial cells ( $EC_{50}$ = 79-81 nM).                                         | 5.08120.0001                                                                       |



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## Neuroscience (continued)

| Description                                         | Details                                                                                                                                                                                                                                                                                                                                       | Cat. No.     |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors (continued)</b> |                                                                                                                                                                                                                                                                                                                                               |              |
| Herkinorin                                          | A potent agonist selective for $\mu$ opioid receptor ( $K_i = 45$ nM) over $\kappa$ opioid receptors ( $K_i = 184$ nM). Widely used for pain research.                                                                                                                                                                                        | 5.08018.0001 |
| ICI 118551 Hydrochloride                            | A highly selective antagonist for the $\beta_2$ adrenergic receptors. Binds to the $\beta_2$ subtype with at least 100 times greater affinity than $\beta_1$ or $\beta_3$ , the two other known subtypes of the $\beta$ adrenoceptor. ( $K_i$ values are 1.2, 120 and 257 nM for $\beta_2$ , $\beta_1$ and $\beta_3$ receptors respectively). | 5.05275.0001 |
| InSolution™ TNP-ATP                                 | A highly potent, non-competitive antagonist of purinergic P2X3 receptor ( $IC_{50} = 900$ $\mu$ M) and blocks $\alpha, \beta$ -MeATP evoked responses in rat mesenteric artery smooth muscle cells.                                                                                                                                           | 5.08319.0001 |
| Ketanserin Tartrate                                 | A selective 5-HT <sub>2A</sub> serotonin receptor antagonist with weak adrenergic receptor blocking properties. Strong affinity for 5-HT <sub>2AR</sub> ( $K_i = 1.49$ nM) relative to other family members like 5-HT <sub>2BR</sub> ( $K_i = 740$ nM) and 5-HT <sub>2CR</sub> ( $K_i = 59$ nM).                                              | 5.06271.0001 |
| L-(+)-2-Amino-4-phosphonobutyric Acid               | Phosphonic acid analog of L-glutamic acid. A selective group III metabotropic glutamate receptor agonist. Also a potent, pathway-specific synaptic depressant.                                                                                                                                                                                | 165300-1MG   |
| L-741,626                                           | Selective dopamine D <sub>2</sub> receptor antagonist that is shown to reversibly block agonist-induced activation of GIRK currents. Reported to have a 15-fold selectivity for D <sub>2R</sub> over D <sub>3R</sub> <i>in vitro</i> .                                                                                                        | 5.05879.0001 |
| L-745,870 Trihydrochloride                          | Selective D <sub>4</sub> receptor antagonist with excellent brain penetration. Displays an affinity ( $K_i$ ) of 0.4 nM for human D <sub>4</sub> receptors with >1000-fold binding selectivity over D <sub>2</sub> and D <sub>3</sub> receptors.                                                                                              | 5.05880.0001 |
| L-CCG-I                                             | A potent agonist for group II metabotropic glutamate receptors ( $EC_{50} = 0.49$ $\mu$ M and 0.44 $\mu$ M for mGlu <sub>2</sub> and mGlu <sub>3</sub> , respectively). Higher level of activity than glutamate or ( $\pm$ )-trans-ACPD. Widely used in studies related to neurotransmissions mediated via group II mGlu receptors.           | 5.04467.0001 |
| Loperamide Hydrochloride 1PC X 1GM                  | A very potent and highly selective peripheral restricted $\mu$ -opioid receptor agonist ( $K_i = 2$ nM). Often used as an antidiarrheal, antipruritic, and antihyperalgesic agent. In addition, shown to improve defective post-receptor insulin signaling in skeletal muscle cells and enhance insulin sensitivity in rats.                  | 5.08162.0001 |

## Signaling

| Description                               | Host   | Species Reactivity | Key Applications | Cat. No. |
|-------------------------------------------|--------|--------------------|------------------|----------|
| <b>Antibodies</b>                         |        |                    |                  |          |
| Anti-ACCS                                 | Rabbit | Hu                 | WB, IHC          | ABS592   |
| Anti-ACOT7                                | Rabbit | Hu, Ms, Rt         | WB               | ABS491   |
| Anti-AMH                                  | Rabbit | Hu, Ms             | WB, IHC          | ABS583   |
| Anti-C10A                                 | Rabbit | Hu                 | WB, IHC          | ABS519   |
| Anti-CCT4                                 | Rabbit | Hu                 | WB, IHC          | ABS602   |
| Anti-CDT2                                 | Rabbit | Hu, Ms, Rt         | WB               | ABS500   |
| Anti-CIKS                                 | Rabbit | Hu                 | WB, IHC          | ABS450   |
| Anti-DPAGT1                               | Rabbit | Ms                 | WB               | ABS763   |
| Anti-EphA2, clone SHM16                   | Mouse  | Hu                 | FC               | MABS412  |
| Anti-FABP2                                | Rabbit | Ms                 | WB               | ABS605   |
| Anti-Flotillin-2                          | Rabbit | Hu                 | WB               | ABS508   |
| Anti-FSTL1                                | Rabbit | Hu                 | WB, IHC          | ABS616   |
| Anti-GALE                                 | Rabbit | Hu                 | WB, IHC          | ABS591   |
| Anti-GBP5                                 | Rabbit | Hu                 | WB               | ABS381   |
| Anti-GPAT-1                               | Rabbit | Rt                 | WB, IHC, IF      | ABS764   |
| Anti-GPR30, clone 2F2                     | Mouse  | Hu                 | IHC, IP          | MABS279  |
| Anti-GRP78, clone C38                     | Mouse  | Hu                 | FC               | MABS443  |
| Anti-IA-2, clone 76F                      | Mouse  | Hu, Ms, Rt         | WB, IHC, IP      | MABS469  |
| Anti-ISCU                                 | Rabbit | Hu, Ms             | WB, IHC, IF      | ABS613   |
| Anti-KDR/Flk-1/VEGFR2                     | Rabbit | Ms, Hu             | WB               | 07-716-I |
| Anti-LAP (TGF- $\beta$ 1), clone TW4-6H10 | Mouse  | Hu                 | FC               | MABS477  |
| Anti-LASS5                                | Rabbit | Hu, Rt             | WB, IHC, IF      | ABS766   |
| Anti-Lipin-1                              | Rabbit | Hu, Ms             | IHC, WB, IP      | ABS523   |

# Signaling (continued)

| Description                               | Host   | Species Reactivity | Key Applications      | Cat. No.  |
|-------------------------------------------|--------|--------------------|-----------------------|-----------|
| <b>Antibodies (continued)</b>             |        |                    |                       |           |
| Anti-Lipin-2                              | Rabbit | Ms                 | WB, IHC, IP           | ABS524    |
| Anti-LNPEP                                | Rabbit | Hu                 | WB, IHC               | ABS600    |
| Anti-LRP2                                 | Rabbit | Hu                 | WB                    | ABS618    |
| Anti-LRP6, clone A59, Ectodomain          | Mouse  | Hu                 | FC, IP, IC            | MABS274   |
| Anti-MAGI1                                | Rabbit | Ms                 | WB                    | ABS467    |
| Anti-Myotubularin, clone 1G6              | Mouse  | Hu, Ms, Yeast      | WB, IC, IP            | MABS442   |
| Anti-MYPT1                                | Rabbit | Hu                 | WB, IP                | 07-672-I  |
| Anti-Nampt, clone 14A.5                   | Rat    | Ms, Hu             | WB, IHC, Inhib, ELISA | MABS465   |
| Anti-NAT1                                 | Rabbit | Hu                 | WB, IHC, IF           | ABS621    |
| Anti-NFATc1, clone 7A6                    | Mouse  | Hu, Ms             | WB, FC, IF            | MABS409   |
| Anti-NFS1                                 | Rabbit | Hu                 | WB, IHC, IF           | ABS588    |
| Anti-NOTUM                                | Rabbit | Hu, Ms             | WB, IHC, IF           | ABS762    |
| Anti-PHIP                                 | Rabbit | Hu                 | WB                    | ABS615    |
| Anti-phospho CDK7 (Thr170)                | Rabbit | Hu                 | WB, PIA               | ABS567    |
| Anti-phospho KDR/FLK-1/VEGFR2 (Tyr1059)   | Rabbit | Hu, Ms             | WB, PIA               | ABS553    |
| Anti-Phospholipase C $\beta$ 3            | Rabbit | Ms, Hu             | WB                    | ABS512    |
| Anti-PYCR2                                | Rabbit | Hu                 | WB                    | ABS474    |
| Anti-PYCR2                                | Rabbit | Hu                 | WB, IHC, IF           | ABS590    |
| Anti-RasGRP1, clone 10.1                  | Mouse  | Hu                 | WB                    | MABS146   |
| Anti-RBP4                                 | Rabbit | Hu                 | WB                    | ABS568    |
| Anti-RhoGAP1                              | Rabbit | Hu, Ms, Rt         | WB, IC                | ABS492    |
| Anti-SAE2                                 | Rabbit | Hu                 | WB, IC                | ABS768    |
| Anti-SCARB1                               | Rabbit | Hu                 | WB, IF                | ABS473    |
| Anti-Securin                              | Rabbit | Hu                 | WB, IHC               | ABS511    |
| Anti-SLC11A2                              | Rabbit | Hu                 | WB                    | ABS581    |
| Anti-SLC30A8                              | Rabbit | Hu, Rt             | WB, IHC, IF           | ABS767    |
| Anti-TPX2, clone 18D5                     | Mouse  | Hu                 | WB, IF, IHC           | MABS410   |
| Anti-Ubiquitin K11 linkage, clone 2A3/2E6 | Rabbit | Hu                 | WB, IC                | MABS107-I |
| Anti-VEGF165                              | Rabbit | Hu                 | WB, IHC(P)            | ABS282    |

## Kits & Assays

|                                                     |            |                                             |          |
|-----------------------------------------------------|------------|---------------------------------------------|----------|
| Rac1 Activation Magnetic Beads Pulldown Assay       | Hu, Ms, Rt | Affinity Binding Assay                      | 17-10393 |
| Rac1/cdc42 Activation Magnetic Beads Pulldown Assay | Hu, Ms, Rt | Affinity Binding Assay, G-Protein Assay, AA | 17-10394 |

| Description                             | Details                                                                                                                                                                                                                                                                                                                                                                                               | Cat. No.     |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors</b> |                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Akt/MEK Dual Pathway Inhibitor, TIC10   | A cell-permeable pyridopyrimidinone that effectively blocks the phosphorylation/activation of cellular Akt and MEK as well as their downstream signaling events both in cultures <i>in vitro</i> (2.5 to 10 $\mu$ M; HCT116 p53-/-) and in mice <i>in vivo</i> (25 mg/kg via i.v.; HCT116 p53-/- xenograft) without affecting Akt1/2/3 or Erk1/2 kinase activity even at concentrations > 10 $\mu$ M. | 5.04190.0001 |
| BMP Inhibitor III, LDN-212854           | A cell-permeable pyrazolopyrimidinylquinoline that is superior to Dorsomorphin (Cat. Nos. 171260 and 171261) and DMH1 (Cat. No. 203646) as an ATP-site-targeting, ALK1/2 inhibitor ( $IC_{50}$ = 2.40 and 1.30 nM, respectively; [ATP] = 6 $\mu$ M) with respect to both potency and selectivity over ALK3/4/5 ( $IC_{50}$ = 0.858, 2.133, and 9.276 $\mu$ M, respectively).                          | 5.05420.0001 |
| CFTR Activator, Cact-A1                 | A cell-permeable, non-toxic aminopyrazolocarboxonitrile compound that acts as a potent, selective, reversible and cAMP-independent activator of CFTR-dependent Cl <sup>-</sup> channel in airway epithelial cells ( $EC_{50}$ = 1.6 $\mu$ M in CFTR-expressing Fisher rat thyroid cells).                                                                                                             | 5.05985.0001 |
| Dkk Inhibitor II, IIC3a                 | An enhanced in solution stable galloylcyanine analog that directly and reversibly targets human LRP5/6 (low density lipoprotein-related protein 5/6), and disrupts its interaction with Dkk (Dickkopf) in a competitive manner.                                                                                                                                                                       | 317701-25MG  |

## PUBLICATION HIGHLIGHT ON SMALL MOLECULES:

### BMP Inhibitor III, LDN-212854

(Cat. No. 5.05420.0001)

Merck Millipore introduces a new cell-permeable, highly potent, reversible, and ATP competitive inhibitor of ALK1 and 2 ( $IC_{50}$  = 2.40 and 1.30 nM, respectively) that displays greater selectivity over ALK3, 4, and 5 ( $IC_{50}$  = 85.8 nM, 2.1  $\mu$ M, and 9.3  $\mu$ M, respectively).

Recently, Agustin H. Mohedas and colleagues from the Massachusetts Institute of Technology, Harvard Medical School, Cambridge, MA, and University of Oxford, UK have used this compound and have shown that it selectively blocks BMP7-induced/ALK-2-mediated SMAD1/5/8 activation in BMPR2-/- primary pulmonary artery smooth muscle cells. They report that this compound also inhibits BMP6-induced alkaline phosphatase expression ( $IC_{50}$  = 10 nM) and reduces heterotopic ossification in an inducible transgenic mutant ALK2 murine model of fibrodysplasia ossificans progressive.

Ref.: Mohendas, A.H., Xing, X., Armstrong, K.A., Bullock, A.N., Cuny, G.D., and Yu, P.B. (2013). Development of an ALK2-Biased BMP Type I Receptor Kinase Inhibitor. ACS Chem. Biol. 8, 1291-1302.

## LEGEND

**Species:** Hu=Human, Ms=Mouse, Rt=Rat, Bov=Bovine, Chk=Chicken

**Applications:** FC=Flow Cytometry, IC=Immunocytochemistry, IHC=Immunohistochemistry, IHC(P)=Immunohistochemistry (Paraffin), IF=Immunofluorescence, IP=Immunoprecipitation, WB=Western Blotting, ChIP=Chromatin IP, ELISA=Enzyme Immunoassay, DB=Dot Blot, PIA=Peptide Inhibition Assay, CC=Cell Culture, AA=Activity Assay, MPX=Multiplexing, RIA=Radioimmunoassay, GF=Growth Factors, CBA=Cell Based Assays, Inhib=Inhibition, AF=Affects Function, Neut=Neutralizing

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## Signaling (continued)

| Description                                             | Details                                                                                                                                                                                                                                                                                                                                                                                                           | Cat. No.     |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>Small Molecules &amp; Inhibitors (continued)</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                   |              |
| EBP1 Inhibitor, WS6                                     | A cell-permeable phenoxypyrimidin-cyclopropanecarboxamide compound that effectively stimulates the growth of primary b cells in cultured primary rat and human islets <i>in vitro</i> ( $EC_{50}$ in 4 d = 200 and 400 nM, respectively).                                                                                                                                                                         | 5.04540.0001 |
| GPR55 Receptor Antagonist, CID 16020046                 | A selective antagonist of G protein-coupled receptor 55 (GPR55) that blocks lipid L- $\alpha$ -lysophosphatidylinositol (LPI, Cat. No. 440153)-induced GPR55 activation ( $IC_{50}$ = 1 $\mu$ M) and downstream effects in HEK293 cells.                                                                                                                                                                          | 5.06045.0001 |
| GSK-3 $\beta$ Inhibitor XXVII, CESI                     | A cell-permeable, 3-hydroxychromone derived compound that acts as a selective and reversible inhibitor of GSK-3 $\beta$ ( $IC_{50}$ < 100 nM). Shown to increase phosphorylation at Ser9.                                                                                                                                                                                                                         | 5.05767.0001 |
| Indomethacin, 2'-Trifluoromethyl                        | A cell-permeable, bioavailable 2'-trifluoromethyl analog of Indomethacin (Cat. No. 405268) that acts as a highly potent, time-dependent inhibitor of cyclooxygenase -2 (COX-2; $IC_{50}$ = 267 and 388 nM for mouse and human COX-2, respectively) and its several mutant forms.                                                                                                                                  | 5.04924.0001 |
| InSolution™ Foxo1 Inhibitor, AS1842856                  | A cell-permeable oxodihydroquinoline that preferentially inhibits the transcription activity of Forkhead box O family member Foxo1 ( $IC_{50}$ = 33 nM) over that of the functionally related Foxo3a and Foxo4 (70%, 20%, and 3% inhibition, respectively, in HepG2-based reporter assays; [AS184256] = 100 nM) via direct binding of the active Foxo1, but not the Ser256-phosphorylated/inactive form of Foxo1. | 5.06081.0001 |
| InSolution™ IKK Inhibitor VII                           | A cell-permeable benzamido-pyrimidine compound that acts as a potent, selective, and ATP-competitive inhibitor of IKK ( $IC_{50}$ = 40, 70, and 200 nM for IKK-2, IKK complex, and IKK-1, respectively).                                                                                                                                                                                                          | 5.05378.0001 |
| InSolution™ KN-92                                       | Useful as a negative control for KN-93 (Cat. No. 422708), a $Ca^{2+}$ /CaM kinase II inhibitor.                                                                                                                                                                                                                                                                                                                   | 5.08314.0001 |
| InSolution™ KN-93 Phosphate in H2O                      | A water-soluble form of the CaM kinase II inhibitor KN-93.                                                                                                                                                                                                                                                                                                                                                        | 5.08315.0001 |
| InSolution™ MIF Antagonist, ISO-1                       | A cell-permeable isoxazoline compound that displays anti-inflammatory properties. Inhibits MIF dopachrome tautomerase activity by binding to its catalytic active site ( $IC_{50}$ = 7 $\mu$ M for D-dopachrome tautomerase) and suppresses the production of TNF $\alpha$ , PGE2 and COX-2 in human monocytes and arachidonic acid in RAW 264.7 macrophages.                                                     | 5.05225.0001 |
| InSolution™ TGF- $\beta$ RI Kinase Inhibitor II, RepSox | A cell-permeable naphthyridinyl pyrazolo compound that acts as a potent, selective, reversible, and ATP-competitive inhibitor of TGF- $\beta$ type I receptor (ALK5; $IC_{50}$ = 23 nM, 4 nM and 18 nM for ALK5 binding, ALK5 auto-phosphorylation and TGF- $\beta$ cellular assay in HepG2 cells, respectively).                                                                                                 | 5.08158.0001 |
| Mycobacterium Bactericide, TCA1                         | A cell-permeable, orally bioavailable benzothiazolylthiophene compound that exhibits potent bactericidal activity, specifically against Mycobacterium genus ( $MIC_{50}$ = 30, 40, and 10 ng/ml for M. smegmatis, M. bovis, and M. tuberculosis, respectively).                                                                                                                                                   | 5.05893.0001 |
| NOX Inhibitor VII, Thr101                               | A cell-permeable, selenium-to-sulfur substituted Ebselen (Cat. No. 324483) derivative that exhibits similar NOX2 inhibitory activity as Ebselen by blocking p22phox c-terminal PRD (proline-rich domain) and p47phox bis-SH3 interaction.                                                                                                                                                                         | 5.00526.0001 |
| PrCP Inhibitor                                          | A dichlorobenzimidazolopyrrolidinamide compound that acts as a highly potent PrCP-selective inhibitor ( $IC_{50}$ = 1 nM against human PrCP; $IC_{50}$ = 2 and 8 nM against mouse PrCP, respectively, in the absence or presence of 1% mouse serum albumin), presumably via non-covalent catalytic site interaction.                                                                                              | 5.04044.0001 |
| RSK2 Inhibitor, RMM-46                                  | A cell-permeable cyanoacrylamide compound that acts as a potent, reversible, and selective inhibitor of ribosomal S6 kinase 2 (RSK2; $IC_{50}$ = 12 and 2.5 nM for wild-type and T493M RSK2, respectively).                                                                                                                                                                                                       | 5.05300.0001 |
| RXFP1 Agonist                                           | A cell-permeable, orally available 2-acetamido-N-phenylbenzamide compound that directly interacts with the the human receptor region of transmembrane helix 5 to extracellular loop 3 (ECL3) and acts as a potent allosteric agonist of relaxin receptor (RXFP1).                                                                                                                                                 | 5.05876.0001 |
| SHIP2 Inhibitor II, CPDA                                | A cell-permeable aminopyridine acetamide based compound that acts as an inhibitor of SH2 domain-containing inositol 5'-phosphatase 2 (SHIP2) that can overcome insulin resistance in 3T3-L1 adipocytes.                                                                                                                                                                                                           | 5.08318.0001 |
| TGR5 Receptor Agonist, Cpd23g                           | A cell-permeable, orally available, phenoxypyrimidine carboxamide derivative that acts as a highly potent and selective agonist of Protein coupled receptor TGR5 ( $EC_{50}$ = 720 pM and 6.2 nM for human and mouse TGR5, respectively).                                                                                                                                                                         | 5.05854.0001 |
| TRPV4 Antagonist III, GSK205                            | A pyridinylthiazolamine compound that is shown to inhibit TRPV4-mediated $Ca^{2+}$ influx induced by 1 $\mu$ M 4a-PDD (Cat. No. 524394) or Hypo-osmotic stress in primary porcine articular chondrocytes (10 $\mu$ M GSK205 pretreatment).                                                                                                                                                                        | 616522-10MG  |

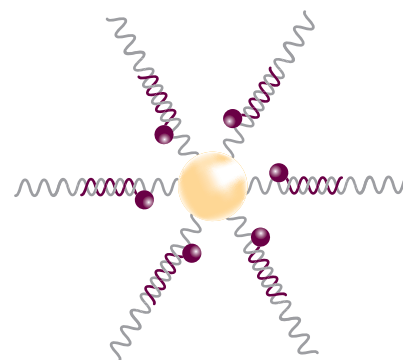


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| BCL6 Hu-Cy3 SmartFlare™ RNA Detection Probe    | SF-1329  | FANCD2 Hu-Cy3 SmartFlare™ RNA Detection Probe     | SF-2055  |
| BIRC2 Hu-Cy3 SmartFlare™ RNA Detection Probe   | SF-1333  | FLT1 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-2066  |
| BLIMP1 Hu-Cy3 SmartFlare™ RNA Detection Probe  | SF-2691  | FOXA1 Hu-Cy5 SmartFlare™ RNA Detection Probe      | SF-1732  |
| BLM Hu-Cy5 SmartFlare™ RNA Detection Probe     | SF-1338  | GAST Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-1743  |
| BRD3 Hu-Cy5 SmartFlare™ RNA Detection Probe    | SF-1340  | IGF2 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-1716  |
| BTK Hu-Cy5 SmartFlare™ RNA Detection Probe     | SF-1344  | IL10 Hu-Cy3 SmartFlare™ RNA Detection Probe       | SF-1634  |
| CASP1 Hu-Cy5 SmartFlare™ RNA Detection Probe   | SF-1570  | IL1B Hu-Cy3 SmartFlare™ RNA Detection Probe       | SF-1638  |
| CCR5 Hu-Cy3 SmartFlare™ RNA Detection Probe    | SF-1529  | Let-7c Hu-Cy3 SmartFlare™ RNA Detection Probe     | SF-1125  |
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| CD14 Hu-Cy5 SmartFlare™ RNA Detection Probe    | SF-1556  | MSH6 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-1811  |
| CD26 Hu-Cy3 SmartFlare™ RNA Detection Probe    | SF-1742  | MSR1 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-2584  |
| CDH2 Hu-Cy3 SmartFlare™ RNA Detection Probe    | SF-1367  | MSX1 Mouse, Cy3 SmartFlare™ RNA Detection Probe   | SF-1447  |
| CDK8 Hu-Cy3 SmartFlare™ RNA Detection Probe    | SF-1959  | MYOCD Hu-Cy3 SmartFlare™ RNA Detection Probe      | SF-1403  |
| CHOP Hu-Cy3 SmartFlare™ RNA Detection Probe    | SF-1376  | NKX2-1 Hu-Cy5 SmartFlare™ RNA Detection Probe     | SF-1864  |
| CLEC11A Hu-Cy5 SmartFlare™ RNA Detection Probe | SF-1819  | NOV Hu-Cy5 SmartFlare™ RNA Detection Probe        | SF-2688  |
| CXCR4 Hu-Cy3 SmartFlare™ RNA Detection Probe   | SF-1509  | PARK7 Rat, Cy5 SmartFlare™ RNA Detection Probe    | SF-1221  |
| DCX Rat, Cy5 SmartFlare™ RNA Detection Probe   | SF-1426  | PAX5 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-2252  |
| DEK Hu-Cy3 SmartFlare™ RNA Detection Probe     | SF-2003  | PAX7 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-2254  |
| DICER1 Hu-Cy3 SmartFlare™ RNA Detection Probe  | SF-1517  | PITX2 Hu-Cy5 SmartFlare™ RNA Detection Probe      | SF-1744  |
| EP400 Hu-Cy5 SmartFlare™ RNA Detection Probe   | SF-2014  | POP1 Hu-Cy5 SmartFlare™ RNA Detection Probe       | SF-2074  |
| EPHA3 Hu-Cy5 SmartFlare™ RNA Detection Probe   | SF-2016  | POP2 Hu-Cy3 SmartFlare™ RNA Detection Probe       | SF-1677  |
| ERBB3 Hu-Cy5 SmartFlare™ RNA Detection Probe   | SF-2026  | SMARCA4 Hu-Cy5 SmartFlare™ RNA Detection Probe    | SF-2362  |

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