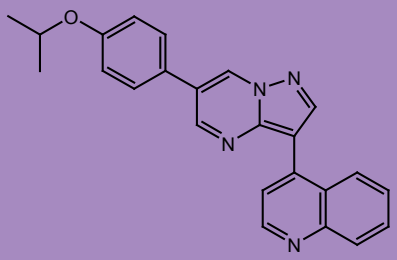
Stem Cells

TOCRIS bioscience

Stem cells are unspecialized cells that are capable of self-renewal through mitotic cell division, even after long periods of inactivity. Stem cells may be induced to form more specialized cells of a tissue or organ by a process termed cellular differentiation, which is defined by the potency of the cell. Below you will find a sample of Tocris products related to stem cells.

Promotes Neurogenesis in iPSCs

DMH-1 *Cat. No. 4126*

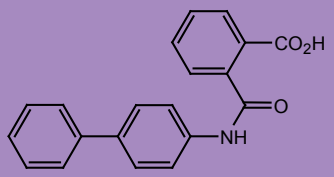


DMH-1 is a selective inhibitor of the bone morphogenic protein (BMP) ALK2 receptor (IC_{50} = 108 nM). The compound exhibits no detectable inhibition of AMPK, ALK5, KDR (VEGFR-2) or PDGFRβ receptors. DMH-1 blocks BMP4-induced phosphorylation of Smads 1, 5 and 8 in HEK293 cells and promotes neurogenesis in human induced pluripotent stem cells (iPSCs) when used in combination with SB 431542 (Cat. No. 1614).

Product Description	Size
Stem Cell Reprogramming	
L-Ascorbic acid (4055) Enhances the generation of iPSCs; improves reprogramming efficiency	50 mg
(±)-Bay K 8644 (1544) Generates iPSCs from mouse embyonic fibroblasts in combination with Cat. No. 3364	10 mg 50 mg
BIX 01294 (3364) GLP/G9a HMTase inhibitor; potentiates induction of pluripotent stem cells	10 mg 50 mg
CHIR 99021 (4423) GSK-3 inhibitor; enables reprogramming of mouse embryonic fibroblasts into iPS cells	10 mg 50 mg
Kenpaullone (1398) GSK-3 inhibitor; generates iPSCs in combination with reprogramming factors	10 mg
Pifithrin-μ (2653) Potentially increases reprogramming efficiency by silencing p53	10 mg 50 mg
RepSox (3742) Selective TGF-βRI inhibitor; enhances reprogramming efficiency	10 mg 50 mg
RG 108 (3295) Inhibits DNA methylation; enhances efficiency of iPSC generation	10 mg 50 mg
Thiazovivin (3845) Improves the efficiency of fibroblast reprogramming and induction of iPSCs	10 mg
Tranylcypromine hydrochloride (3852) Enables reprogramming of mouse embryonic fibroblasts using only Oct4 and Klf4	50 mg
Trichostatin A (1406) HDAC inhibitor; induces accelerated dedifferentiation of primordial germ cells	1 mg
Valproic acid, sodium salt (2815) HDAC inhibitor; enables induction of pluripotent stem cells from somatic cells	100 mg
Stem Cell Differentiation	
Cardiogenol C hydrochloride (3851) Induces cardiomyogenesis in ESCs	10 mg 50 mg
DAPT (2634) γ-secretase inhibitor; induces neuronal differentiation	10 mg 50 mg
Dexamethasone (1126) Anti-inflammatory glucocorticoid; induces differentiation of human MSCs	100 mg
DMH-1 (4126) BMP inhibitor; promotes neurogenesis in human iPSCs	10 mg 50 mg
Dorsomorphin dihydrochloride (3093) BMP type I receptor inhibitor. Promotes cardiomyogenesis in mouse ESCs	10 mg 50 mg
EC 23 (4011) Synthetic retinoid; induces neural differentiation of human ESCs	10 mg 50 mg
Forskolin (1099) Adenylyl cyclase activator; induces neuronal differentiation	10 mg 50 mg
IDE 1 (4015) Induces definitive endoderm formation in mouse and human ESCs	10 mg 50 mg
IDE 2 (4016) Induces definitive endoderm formation in mouse and human ESCs	10 mg 50 mg

Inducer of Chondrogenesis in MSCs

Kartogenin *Cat. No. 4513*



Kartogenin potently induces differentiation of human mesenchymal stem cells into chondrocytes (EC_{50} = 100 nM). The compound reduces disease severity in a mouse model of osteoarthritis and displays protective effects against osteoarthritic stimuli in mature chondrocytes *in vitro*.

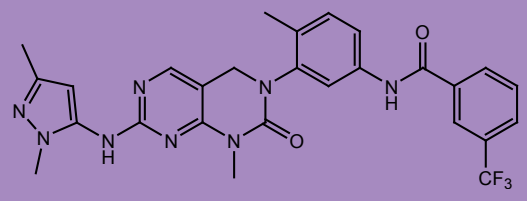
Product Description	Size
(-)-Indolactam V (3651) PKC activator; directs differentiation of hESCs into pancreatic progenitors	1 mg
ISX 9 (4439) Neurogenic agent; induces neuronal differentiation in progenitor cells	10 mg 50 mg
Kartogenin (4513) Potently induces chrondrogenesis in MSCs	10 mg 50 mg
1-Oleoyl lysophosphatidic acid (3854) LPA_1 and LPA_2 agonist. Inhibits differentiation of neural stem cells into neurons	1 mg
Neurodazine (3656) Induces neurogenesis in mature skeletal muscle cells	10 mg 50 mg
Retinoic acid (0695) Retinoic acid receptor agonist. Promotes ESC differentiation	50 mg
Sodium butyrate (3850) HDAC inhibitor; directs differentiation of mESCs into hepatocytes	50 mg
Stauprimide (3741) Inhibits NME2 nuclear translocation; primes ESCs for differentiation	100 µg
TCS 2210 (3877) Inducer of neuronal differentiation in MSCs	10 mg 50 mg
TWS 119 (3835) GSK-3β inhibitor; induces neuronal differentiation in ESCs	10 mg
XAV 939 (3748) Tankyrase inhibitor; promotes cardiomyogenesis	10 mg 50 mg
Stem Cell Self-renewal	
A-83-01 (2939) Maintains self-renewal of human iPSCs *in vitro*	10 mg 50 mg

Scan this QR code with your smartphone to view all products for stem cell research on the Tocris website.

Product Description	Size
Gatifloxacin (3849) Activates short-term renewal of ESCs	50 mg
ID 8 (3853) Sustains self-renewal and pluripotency of ESCs	10 mg 50 mg
IWP 2 (3533) Inhibitor of Wnt processing; suppresses self-renewal in R1 ESCs	10 mg 50 mg
Pluripotin (4433) Dual ERK1/RasGAP inhibitor; maintains ESC self-renewal	1 mg
SB 203580 (1202) Stimulates neural stem cell proliferation	1 mg 10 mg 50 mg
Sinomenine hydrochloride (3848) Stimulates short-term renewal of hESCs *in vitro*	50 mg
Theanine (3847) Promotes hESC self-renewal	50 mg
Other	
5-Azacytidine (3842) Improves reprogramming efficiency and induces cardiomyogenesis in MSCs	50 mg
AMD 3100 octahydrochloride (3299) CXCR4 antagonist; mobilizes hematopoietic stem cells *in vivo*	10 mg
BIO (3194) GSK-3 inhibitor; maintains self-renewal and pluripotency in ESCs	10 mg 50 mg
Niclosamide (4079) STAT3 inhibitor; antineoplastic against AML stem cells	50 mg
PD 173074 (3044) FGFR inhibitor. Also inhibits proliferation and differentiation of oligodendrocyte progenitors	10 mg 50 mg
SB 431542 (1614) ALK5 inhibitor; stimulates proliferation and differentiation of ESC-derived endothelial cells	1 mg 10 mg
Y-27632 dihydrochloride (1254) p160ROCK inhibitor. Increases survival rate of human ESCs undergoing cryopreservation	1 mg 10 mg 50 mg

Maintains ESC Self-Renewal

Pluripotin *Cat. No. 4433*



Pluripotin is a dual inhibitor of extracellular signal-regulated kinase 1 (ERK1, MAPK3) and RasGAP. The compound maintains embryonic stem cell (ESC) self-renewal. Pluripotin also enables propagation of undifferentiated murine ESCs in the absence of leukemia inhibitory factor (LIF).

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