ANH Application Catalog

Small Molecules

Small Molecules
Stemgent™ Stemolecule™ by REPROCELL®

A small molecule is a low molecular weight (≤ 1000 daltons) organic compound that may regulate a biological process.

hES Cell Cloning & Recovery Supplement (01-0014-500)	Doxycycline hyclate (04-0016)	Sodium Butyrate (04-0005)
A83-01 (04-0014)	ec23 (SRP002)	Thiazovivin (04-0017)
ALK5 Inhibitor (RepSox) (04-0015)	Forskolin (04-0025)	Valproic Acid (04-0007)
All-Trans Retinoic Acid (04-0021)	KAAD-Cyclopamine (04-0028)	Wnt Inhibitor IWP-2 (04-0034)
CHIR99021 (04-0004)	LDN-193189 (04-0074)	Wnt Inhibitor IWP-3 (04-0035)
Cyclopamine (04-0022)	PD0325901 (04-0006)	Wnt Inhibitor IWP-4 (04-0036)
DAPT (04-0041)	Purmorphamine (04-0009)	XAV939 (04-0046)
Dorsomorphin (04-0024)	SB431542 (04-0010)	Y27632 (04-0012)

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Cat. No	Product Name	Description	Pack size
01-0014-500	hES Cell Cloning & Recovery Supplement	Stemgent hES Cell Cloning & Recover Supplement is a 1000× concentrate of Thiazovivin (2mM). In culture media it significantly improves the likelihood of primaryful sub-cloning from single cells, and increases attachment after passaging. This supplement is a ROCK inhibitor	5 × 100 µL
04-0014	A83-01	A83-01 is a selective inhibitor of the transforming growth factor-beta (TGF-β) type I receptor ALK5, the Activin/Nodal receptor ALK4, and the nodal receptor ALK71.	2 mg
04-0014-10	A83-01		10 mg
04-0015	ALK5 Inhibitor	ALK5 Inhibitor (also known as RepSox, E 616452, and SJN 2511) is a selective and ATP-competitive inhibitor of the TGF-β family type I receptor of activin receptor-like kinase (ALK5).	1 mg
04-0021	All-Trans Retinoic Acid	All-Trans Retinoic Acid (ATRA) is the oxidized form of Vitamin A, functioning as a signaling molecule for various developmental pathways that control differentiation and proliferation.	100 mg
04-0004	CHIR99021	CHIR99021 is a highly potent, specific and effective inhibitor of glycogen synthase kinase 3 beta (GSK-3β).	2 mg
04-0004-10	CHIR99021		10 mg
04-0004-02	CHIR99021		2 mg in solution (10 mM)
04-0022	Cyclopamine	Cyclopamine is a steroid alkaloid isolated from the corn lily (Veratrum californicum) that is a Smoothened antagonist involved in both embryogenesis and cancer progression.	2 mg

04-0041	DAPT	DAPT (a.k.a. GSI-IX or LY-374973) is a cell-permeable dipeptide that inhibits γ-secretase and indirectly inhibits Notch, a γ-secretase substrate	5 mg
04-0024	Dorsomorphin	Dorsomorphin dihydrochloride (a.k.a. Compound C) is a potent inhibitor of AMP-activated protein kinase (AMPK) and bone morphogenic protein (BMP) signaling.	2 mg
04-0016	Doxycycline hyclate	Doxycycline hyclate (dox) is a broad spectrum antibiotic derivative of tetracycline and an inhibitor of matrix metalloproteinases.	10 mg
SRP002	ec23	A light-stable pan-RAR receptor agonist that maintains the same biological activity as ATRA (all-trans retinoic acid).	5 mg
SRP002-2	ec23		2 × 5 mg
04-0025	Forskolin	Forskolin is a natural product of adenylate cyclase activator that increases cyclic AMP levels.	2 mg
04-0028	KAAD-Cyclopamine	KAAD-cyclopamine is a sonic hedgehog antagonist that targets Smoothened, a 7-transmembrane receptor of the hedgehog signaling pathway.	20 µg
04-0074	LDN-193189	LDN193189 is a cell permeable, small molecule inhibitor of bone morphogenetic protein (BMP) type I receptors ALK2 and ALK3.	2 mg
04-0074-10	LDN-193189		10 mg
04-0074-02	LDN-193189		2 mg in solution (10 mM)
04-0006	PD0325901	PD03225901 inhibits mitogen-activated protein kinase (MAPK/ERK kinase or MEK) and demonstrates potential antineoplastic activity.	2 mg
04-0006-10	PD0325901		10 mg

04-0006-02	PD0325901		2 mg in solution (10 mM)
04-0009	Purmorphamine	Purmorphamine is a Smoothened agonist that promotes the differentiation of human and murine mesenchymal progenitor cells into osteoblasts.	5 mg
04-0010	SB431542	SB421542 is an inhibitor of the transforming growth factor-beta 1 (TGF-β1) activin receptor-like kinases (ALKs)	5 mg
04-0010-05	SB431542		5 mg in solution (10 mM)
04-0010-10	SB431542		10 mg
04-0005	Sodium Butyrate	Sodium butyrate (butyric acid sodium salt) has been shown to direct the differentiation of mouse ESCs cells into hepatocytes.	500 mg
04-0017	Thiazovivin	Thiazovivin is a Rho-associated kinase (ROCK) inhibitor that protects human ESCs in the absence of ECM by regulating E-cadherin mediated cell-cell interaction.	1 mg
04-0007	Valproic Acid	Valproic acid is a histone deacetylase (HDAC) inhibitor which improves reprogramming efficiency by at least 100 fold, and it is reported to regulate the differentiation and proliferation of various cell types.	5 g
04-0034	Wnt Inhibitor IWP-2	Wnt Inhibitor IWP-2 prevents palmitylation of Wnt proteins by Porcupine (Porcn), a membrane-bound O-acyltransferase, thereby blocking Wnt secretion and activity. It also blocks phosphorylation of the Lrp6 receptor and accumulation of both Dvl2 and β-catenin.	2 mg

04-0035	Wnt Inhibitor IWP-3	Wnt Inhibitor IWP-3 prevents palmitylation of Wnt proteins by Porcupine (Porcn), a membrane-bound O-acyltransferase, thereby blocking Wnt secretion and activity.	2 mg
04-0036	Wnt Inhibitor IWP-4	Wnt Inhbitor IWP-4 prevents palmitylation of Wnt proteins by Porcupine (Porcn), a membrane-bound O-acyltransferase, thereby blocking Wnt secretion and activity.	2 mg
04-0036-50	Wnt Inhibitor IWP-4		50 mg
04-0046	XAV939	XAV939 is an inhibitor of the Wnt / β-catenin pathway which modulates a number of stem cell behaviors.	2 mg
04-0012	Y27632	Y27632 is an inhibitor of Rho-associated kinase (ROCK) which is widely used to enhance survival of dissociated PSCs. It is common to supplement cell culture medium with 10 µM of ROCK Inhibitor during cell passage or while establishment of spheroids during the first 24 hours.	2 mg
04-0012-10	Y27632		10 mg
04-0012-02	Y27632		2 mg (10 mM)

1. Stemolecule™ hES Cell Cloning & Recovery Supplement

01-0014-500

Brand: Stemgent™

Stemgent hES Cell Cloning & Recover Supplement is a 1000× concentrate of Thiazovivin (2mM). In culture media it significantly improves the likelihood of primaryful sub-cloning from single cells, and increases attachment after passaging. This supplement is a ROCK inhibitor (see Thiazovivin, cat. # 04-0017 for more information).

The hES Cell Cloning and Recovery Supplement is a 1000X concentrate supplement that contains Thiazovivin at 2mM concentration. The hES Cell Cloning and Recovery Supplement can be used in several areas of cell culture to enhance productivity and efficiency. The addition of the hES Cell Cloning and Recovery Supplement to cell culture media significantly improves the likelihood of successful sub-cloning from single cells 1,2. This supplement was validated at a working concentration of 2 uM, however optimal conditions can vary and should be determined by the user.When added during a thaw, this supplement boosts recovery and thawing efficiency. The use of the hES Cell Cloning and Recovery Supplement also increases attachment after passaging. The hES Cell Cloning and Recovery Supplement is a valuable tool for escalating efficiency when working with human embryonic stem (hES) and human induced pluripotent stem (hiPS) cells under stressful conditions.

Specifications

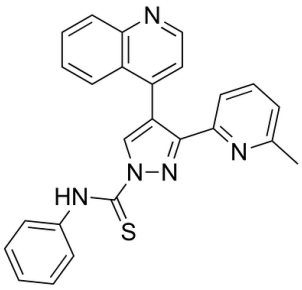
Product Name: hES Cell Cloning and Recovery Supplement
Catalog Number: 01-0014-500
Size: 5 × 100 µL
Storage and Stability: Store vials at 4 °C. Supplement is stable for a minimum of 3 months when stored as directed.

Quality Control: Human Pluripotent Stem (hPS) cells were trypsinized and plated with or without the hES Cell Cloning and Recovery Supplement. hES cells cultured with the hES Cell Cloning and Recovery Supplement were shown to have more AP positive colonies than cells cultured without the supplement.

2. Stemolecule™ A83-01

04-0014 / 04-0014-10

Brand: Stemgent™



A83-01 is a selective inhibitor of the transforming growth factor-β (TGFβ) type I receptor ALK5, the Activin/Nodal receptor ALK4, and the nodal receptor ALK71. This molecule is more potent than SB431542 in its inhibition of ALK4, 5, and 7, and only weakly inhibits ALK1, 2, 3, and 6. A83-01 inhibits the TGFβ-induced epithelial-to-mesenchymal transition (EMT) via the inhibition of Smad2 phosphorylation.

Specifications

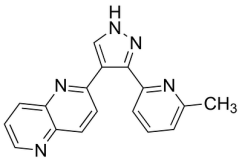
Product Name: Stemolecule A83-01
Catalog Number: 04-0014
Pack Size: 2 mg (Cat. No. 04-0014)
10 mg (Cat. No. 04-0014-10)

Chemical Formula: $C_{25}H_{19}N_5S$
Molecular Weight: 421.52
Purity: Greater than 98% by HPLC analysis
Formulation: Pale yellow solid
Solubility: A83-01 is soluble in DMSO at 50 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solutions be freshly made and stored in aliquots at −20 °C. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of A83-01 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. No acute cytotoxicity was observed in mouse embryonic stem cells following a 6 hour exposure to 1 nM - 100 µM A83-01.

3. Stemolecule™ ALK5 Inhibitor
04-0015
Brand: Stemgent™



Stemolecule ALK5 Inhibitor, also known as RepSox, E 616452, and SJN 2511, is a selective and ATP-competitive inhibitor of the TGFβ family type I receptor activin receptor-like kinase (ALK5). The ALK5 Inhibitor works by preventing autophosphorylation of ALK5. It has also been shown that ALK5 can replace Sox2 when reprogramming cells to induce pluripotent stem (iPS) cells. Through inhibition of the TGFβ pathway, ALK5 works to reprogram cells that have been transduced with Oct4, Klf4, and c-Myc. ALK5 Inhibitor promotes the differentiation of MYH11-positive cells by modulating NOTCH signaling.

Specifications
Product Name: Stemolecule ALK5 Inhibitor (RepSox)
Catalog Number: 04-0015
Size: 1 mg
Alternate Name(s): RepSox, E 616452, SJN 2511,
2-(3-(6-methylpyridine-2-yl)-1*H*-pyrazol-4-yl)-1,5-naphthyridine
Chemical Formula: $C_{17}H_{13}N_5$
Molecular Weight: 287.32
CAS Number: 446859-33-2
Purity: Greater than 99% by HPLC analysis
Formulation: Yellow solid

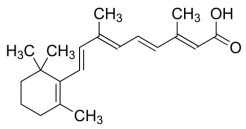
Solubility: For a 10 mM concentrated stock solution of ALK5 Inhibitor, reconstitute the compound by adding 348 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 100 mM and methanol at 17 mM.

Storage and Stability: Store powder at 4 °C or lower, protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solutions be freshly made and stored in aliquots at −20 °C. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of ALK5 Inhibitor was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of ALK5 Inhibitor was tested on HeLa and HEK293 cells.

4. Stemolecule™ All-Trans Retinoic Acid

04-0021
Brand: Stemgent™



Stemolecule All-Trans Retinoic Acid is the oxidized form of Vitamin A and functions as a signaling molecule for various developmental pathways that control differentiation and proliferation. It acts by binding to heterodimers of the retinoic acid receptor (RAR) and the retinoid × receptor (RXR), which then bind to retinoic acid response elements (RAREs) in the regulatory regions activating gene transcription. All-Trans Retinoic Acid has been implicated in specification of the embryonic anterior/posterior axis through Hox gene regulation. It has been used in various differentiation protocols, including B-cells, T-cells and neurons and applied clinically to treat cancer as a form of differentiation-induction therapy.

Specifications

Product Name: Stemolecule All-Trans Retinoic Acid
Catalog Number: 04-0021
Size: 100 mg
Alternate Name(s):ATRA,
(2*E*,4*E*,6*E*,8*E*)-3,7-dimethyl-9-(2,6,6-trimethylcyclohexen-1-yl)nona-2,4,6,8-tetraenoic acid
Chemical Formula: $C_{20}H_{28}O_2$
Molecular Weight: 300.44
CAS Number: 302-79-4
Purity: Greater than 98% by HPLC analysis
Formulation: Yellow to light orange crystalline powder

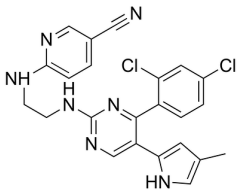
Solubility: For a 10 mM concentrated stock solution of All-Trans Retinoic Acid, add 1.66 mL of DMSO to 5mg of the compound. If a precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 100 mM and 95 % ethanol at 9 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solutions be freshly made and stored in aliquots at −20 °C. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of All-Trans Retinoic Acid was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of All-Trans Retinoic Acid was tested on mouse embryonic stem cells.

5. Stemolecule™ CHIR99021

04-0004 / 04-0004-10 / 04-0004-02
Brand: Stemgent™



The aminopyrimidine CHIR99021 is the most selective inhibitor of glycogen synthase kinase 3 β (GSK-3β) reported to date. Unlike other potent inhibitors of GSK-3, CHIR99201 does not exhibit cross-reactivity against cyclin-dependent kinases (CDKs) and shows a 350-fold selectivity toward GSK-3β compared to CDKs. Along with the elimination of differentiation-inducing signaling from mitogen-activated protein kinases, using CHIR99021 to block the activity of GSK-3β enables the self-renewal of embryonic stem cells.

Specifications

Product Name: Stemolecule CHIR99021
Catalog Number: 04-0004
Size: 2 mg (Cat. No. 04-0004)
10 mg (Cat. No. 04-0004-10)
2 mg in 10 mM DMSO solution (Cat. No. 04-0004-02)
Alternate Name(s): 6-[[2-[[4-(2,4-dichlorophenyl)-5-(5-methyl-1*H*-imidazol-2-yl)-2 pyrimidinyl]amino]ethyl]amino]-3-pyridinecarbonitrile
Chemical Formula: $C_{22}H_{18}Cl_2N_8$
Molecular Weight: 465.34
CAS Number: 252917-06-9
Purity: Greater than 95 % by HPLC analysis
Formulation: Off-white solid

Solubility: Reconstitute in DMSO to the desired concentration. For reconstitution instructions please reference the product specifications sheet.

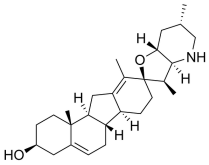
Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solutions be freshly made and stored in aliquots at −20 °C. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of CHIR99021 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of CHIR99021 was tested on mouse embryonic stem cells.

6. Stemolecule™ Cyclopamine

04-0022

Brand: Stemgent™



Stemolecule Cyclopamine is a steroid alkaloid isolated from the corn lily (*Veratrum californicum*) and originally identified as a teratogenic agent. Cyclopamine has since been identified as a specific inhibitor of hedgehog signaling by direct binding to the heptahelical bundle of Smoothened. Hedgehog signaling is involved in embryogenesis as well as cancer progression. Cycoplamine has been utilized as a small molecule inducer of stem cell differentiation towards definitive endoderm pancreatic islet cells, as a modulator of cell proliferation, and as an anticancer drug.

Specifications

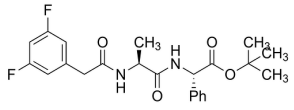
Product Name: Stemolecule Cyclopamine
Catalog Number: 04-0022
Size: 2 mg
Alternate Name(s): (3*S*,3'*R*,3'a*S*,6'*S*,6a*S*,6b*S*,7'a*R*,9*R*,11a*S*,11b*R*)-3',6',10,11b tetramethylspiro[2,3,4,6,6a,6b,7,8,11,11a-decahydro-1*H*-benzo[*a*]fluorene-9,2'-3a,4,5,6,7,7a-hexahydro-3*H*-furo[3,2-b]pyridine]-3-ol
Chemical Formula: $C_{27}H_{41}NO_2$
Molecular Weight: 411.62
CAS Number: 4449-51-8
Purity: Greater than 99% by TLC analysis
Formulation: White crystalline solid or clear solid film at bottom of vial

Solubility: For a 10 mM concentrated stock solution of Cyclopamine, reconstitute the compound by adding 485.9 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is reported to be soluble in DMSO at 100 mM, ethanol at 49 mM, and methanol at 17 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solutions be freshly made and stored in aliquots at −20 °C. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Cyclopamine was determined by TLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Cyclopamine was tested on mouse embryonic stem cells.

7. Stemolecule™ DAPT
04-0041
Brand: Stemgent™



Stemolecule DAPT (also known as GSI-IX or LY-374973), a cell-permeable dipeptide, inhibits γ-secretase and indirectly inhibits Notch, a γ-secretase substrate. Since the Notch pathway is involved in the development of both the nervous system and pancreas, DAPT may be useful in modulating Notch activity in embryonic stem cell differentiation studies. DAPT has been shown to dose-dependently decrease amyloidβ levels via inhibition of γ-secretase in both plasma and cerebrospinal fluid. Since amyloid β containing senile plaques are characteristic in Alzheimer's disease, DAPT may be useful in studies evaluating potential treatments for that disease.

Specifications

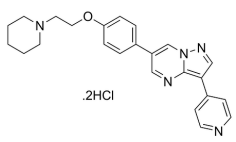
Product Name: Stemolecule DAPT
Catalog Number: 04-0041
Size: 5 mg
Alternate Name(s): GSI-IX, LY-374973,
N-[(3,5-Difluorophenyl)acetyl]-L-alanyl-2-phenylglycine-1,1-dimethylethyl ester
Chemical Formula: $C_{23}H_{26}F_2N_2O_4$
Molecular Weight: 432.46
CAS Number: 208255-80-5
Purity: Greater than 99% by HPLC analysis
Formulation: White Powder

Solubility: For a 10 mM concentrated stock solution of DAPT, reconstitute the compound by adding 1.16 mL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 100 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solutions be freshly made and stored in aliquots at −20 °C. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of DAPT was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of DAPT was tested on mouse embryonic stem cells.

8. Stemolecule™ Dorsomorphin
04-0024
Brand: Stemgent™



Stemolecule Dorsomorphin dihydrochloride (also known as Compound C) is a potent inhibitor of AMP-activated protein kinase (AMPK) (Ki=109nM) and bone morphogenic protein (BMP) signaling. It was identified in a screen for compounds that perturb dorsoventral axis formation in zebrafish. Dorsomorphin functions through inhibition of BMP type I receptors ALK2, ALK3 and ALK6 and thus blocks BMP-mediated SMAD1/5/8 phosphorylation. BMP signaling coordinates developmental patterning and has essential physiological roles in mature organisms. Dorsomorphin has been used to probe BMP signaling in iron-hepcidin homeostasis, cardiomyogenesis and osteogenesis.

Specifications

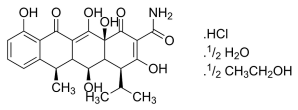
Product Name: Stemolecule Dorsomorphin
Catalog Number: 04-0024
Size: 2 mg
Alternate Name(s): Compound C,
6-[4-(2-piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-*a*]pyrimidine
Chemical Formula: $C_{24}H_{25}N_5O._2 \cdot HCl \cdot H_2O$
Molecular Weight: 490.43
CAS Number: 866405-64-3
Purity: Greater than 99% by HPLC analysis
Formulation: Yellow solid

Solubility: For a 10 mM concentrated stock solution of Dorsomorphin, reconstitute the compound by adding 407.8 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 20 mM and water at 100 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Dorsomorphin was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Dorsomorphin was tested on mouse embryonic stem cells.

9. Stemolecule™ Doxycycline hyclate
04-0016
Brand: Stemgent™



Stemolecule Doxycycline hyclate (dox) is a broad spectrum antibiotic derivative of tetracycline and an inhibitor of matrix metalloproteinases. Tetracycline-controlled transcriptional activation is a method of inducible expression whereby transcription is reversibly turned on or off in the presence of tetracycline or one of its derivatives such as dox. For this type of reprogramming method, dox-inducible lentiviral reagents are used to induce the expression of virally transduced genes and generate induced pluripotent stem (iPS) cells from somatic cells.

This product is intended for Research Use Only.

Specifications

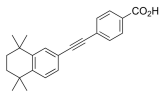
Product Name: Stemolecule Doxycycline Hyclate
Catalog Number: 04-0016
Size: 10 mg
Alternate Name(s):
(2*Z*,4*S*,5*S*,6*R*,12a*S*)-2-[amino(hydroxy)methylidene]-4-(dimethylamino)-5,10,11,12a-tetrahydroxy-6-methyl-4a,5,5a,6-tetrahydro-4H-tetracene-1,3,12-trione; ethanol; hydrochloride
Chemical Formula: $C_{22}H_{24}N_2O_8 \cdot HCl \cdot ½(H2O) \cdot ½(C_2H_6O)$
Molecular Weight: 512.94
CAS Number: 24390-14-5
Purity: Greater than 98% by TLC analysis
Formulation: Yellow to yellow with a green cast powder

Solubility: For a 10 mM stock solution of doxycycline hyclate, reconstitute the compound by adding 1.95 mL of water to the entire contents of the vial.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of doxycycline hyclate was determined by TLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of doxycycline hyclate was tested on mouse embryonic stem cells.

10. Stemolecule™ ec23
SRP002 / SRP002-2
Brand: Stemgent™



ec23 is a pan-RAR receptor agonist that is stable and maintains the same biological activity as ATRA (all trans retinoic acid). ATRA is well known for its ability to regulate cell differentiation. However, retinoids such as ATRA are excellent chromophores and efficiently absorb light and isomerise. This is not a desirable property for cell culture reagents where consistency and reliability of a molecule is important for robust, reproducible results.

Specifications

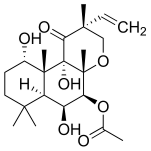
Product Name: Stemolecule ec23
Catalog Number: SRP002
Size: 2 × 5 mg (SRP002-2)
5 mg (SRP002)
Alternate Name(s): 4-(5,5,8,8-Tetramethyl-5,6,7,8-tetrahydronaphthalen-2-ylethynyl) benzoic acid
Chemical Formula: $C_{23}H_{24}O_2$
Molecular Weight: 332 g/mol
CAS Number: 104561-41-3
Purity: Greater than 99% by HPLC analysis
Formulation: Off-white solid

Solubility: Reconstitute in DMSO to the desired concentration. For reconstitution instructions please reference the product specifications sheet.

Storage and Stability: Store powder at ≤20 °C. Following reconstitution, store in aliquots at −20 °C. Stock solutions are stable for 6 months when stored as directed.

Quality Control: The purity of ec23 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry.

11. Stemolecule™ Forskolin
04-0025
Brand: Stemgent™



Stemolecule Forskolin is a natural compound produced by the Indian Coleus plant (*Coleus forskohlii*). It is used in several differentiation protocols for its ability to potentiate neuron differentiation. Forskolin is able to stimulate adenylate cyclase activity and increases cyclic AMP. Cyclic AMP is a signaling molecule and key regulator of critical enzymes in cellular processes5. For example, cAMP can bind to protein kinase A (PKA) regulatory subunit and activate PKA which acts as a negative regulator of the hedgehog signaling pathway.

Specifications

Product Name: Stemolecule Forskolin
Catalog Number: 04-0025
Size: 10 mg
Alternate Name(s):
[(3*R*,4a*R*,5*S*,6*S*,6a*S*,10*S*,10a*R*,10b*S*)-3-ethenyl-6,10,10b-trihydroxy-3,4a,7,7,10a-pentamethyl-1-oxo-5,6,6a,8,9,10-hexahydro-2*H*-benzo[*f*]chromen-5-yl]acetate
Chemical Formula: $C_{22}H_{34}O_7$
Molecular Weight: 410.50
CAS Number: 66428-89-5
Purity: Greater than 97% by HPLC analysis
Formulation: White crystalline powder

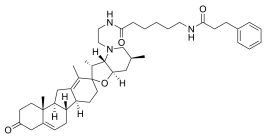
Solubility: For a 10 mM concentrated stock solution of Forskolin, reconstitute the compound by adding 2.44 mL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 100 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Forskolin was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Forskolin was tested on mouse embryonic stem cells.

12. Stemolecule™ KAAD-Cyclopamine

04-0028
Brand: Stemgent™



Stemolecule KAAD-Cyclopamine is a sonic hedgehog antagonist known to target Smoothened. Hedgehog signaling is involved in embryogenesis as well as cancer progression. KAAD-Cyclopamine has been utilized to halt the migration or proliferation of a variety of cancer cells (e.g., esophageal, gastrointestinal, hepatic and pancreatic cancer).

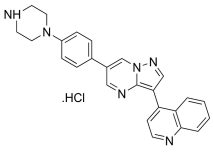
Specifications
Product Name: Stemolecule KAAD-Cyclopamine
Catalog Number: 04-0028
Size: 100 µg
Alternate Name(s): *N*-[2-[(3'*R*,7'a*R*)-3',6',10,11b-tetramethyl-3-oxospiro[1,2,4,6,6a,6b,7,8,11,11a-decahydrobenzo[*a*]fluorene-9,2'-3,3a,5,6,7,7a-hexahydrofuro[3,2-*b*]pyridine]-4'-yl]ethyl]-6-(3-phenylpropanoylamino)hexanamide
Chemical Formula: $C_{44}H_{63}N_3O_4$
Molecular Weight: 697.99
CAS Number: 306387-90-6
Purity: Greater than 95% by TLC analysis
Formulation: Pale yellow solid

Solubility: For a 10 mM concentrated stock solution of KAAD-Cyclopamine, reconstitute the compound by adding 14.3 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%. This molecule is soluble in DMSO at 10 mM, ethanol at 1.4 mM, and methanol at 1.4 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of KAAD-Cyclopamine was determined by TLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of KAAD-Cyclopamine was tested on mouse embryonic stem cells.

13. Stemolecule™ LDN-193189
04-0074 / 04-0074-10 / 04-0074-02
Brand: Stemgent™



LDN-193189 is a cell permeable small molecule inhibitor of bone morphogenetic protein (BMP) type I receptors ALK2 and ALK3 (IC50 = 5nM and 30nM respectively). LDN-193189 was derived from structure-activity relationship studies of dorsomorphin and functions primarily through prevention of Smad1, Smad5, and Smad8 phosphorylation. LDN-193189 only weakly inhibits ALK4, ALK5, and ALK7. BMP signaling coordinates developmental patterning and has essential physiological roles in mature organisms. LDN-193189has been used to reduce ectopic ossification in a mouse model of *fibrodysplasia ossificans progressiva*1. Stemolecule LDN-193189 is a hydrochloride salt.

Specifications

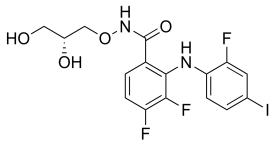
Product Name: Stemolecule LDN-193189
Catalog Number: 04-0074
Size: 2 mg (Cat. No. 04-0074)
10 mg (Cat. No. 04-0074-10)
2 mg as a 10 mM Stock Solution in DMSO (Cat. No. 04-0074-02)
Alternate Name(s): LDN193189,
4-(6-(4-(piperazin-1-yl)phenyl)pyrazolo[1,5-*a*]pyrimidin-3-yl)quinoline hydrochloride
Chemical Formula: $C_{25}H_{22}N_6 \cdot HCl$
Molecular Weight: 442.94
CAS Number: 1062368-24-4
Purity: Greater than 96 % by HPLC analysis
Formulation: Yellow powder

Solubility: Reconstitute in DMSO to the desired concentration. For reconstitution instructions please reference the product specifications sheet.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of LDN-193189 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. No acute cytotoxicity was observed in mouse embryonic stem cells following a 6 hour exposure to 1 nM — 1 µm of LDN-193189.

14. Stemolecule™ PD0325901
04-0006 / 04-0006-10 / 04-0006-02
Brand: Stemgent™



PD0325901 is a small molecule targeting mitogen-activated protein kinase (MAPK/ERK kinase or MEK) with potential antineoplastic activity. PD0325901, a derivative of MEK inhibitor CI-1040, selectively binds to and inhibits MEK, which may result in the inhibition of the phosphorylation and activation of MAPK/ERK and the inhibition of tumor cell proliferation. Along with the ALK5 inhibitor SB431542, PD0325901 has also been shown to increase the efficiency of reprogramming human primary fibroblasts into induced pluripotent stem (iPS) cells.

Specifications
Product Name: Stemolecule PD0325901
Catalog Number: 04-0006
Size: 2 mg (Cat. No. 04-0006)
10 mg (Cat. No. 04-0006-10)
2 mg in 10 mM DMSO (Cat. No. 04-0006-02)
Alternate Name(s):
N-[(2*R*)-2,3-dihydroxypropoxy]-3,4-difluoro-2-[(2-fluoro-4-iodophenyl)amino]-benzamide
Chemical Formula: $C_{16}H_{14}F_3IN_2O_4$
Molecular Weight: 482.19
CAS Number: 391210-10-9
Purity: Greater than 95 % by HPLC analysis
Formulation: Pale purple solid
Solubility: Reconstitute in DMSO to the desired concentration. For reconstitution instructions please reference the product specifications sheet.

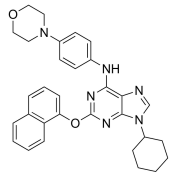
Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of PD0325901 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. No acute cytotoxicity was observed in mouse embryonic stem cells following a 6 hour exposure to 1 nM — 100µm of PD0325901.

Handling: Before opening, briefly centrifuge the vial to ensure full recovery of sample. Aliquoting the stock solution is recommended to avoid repetitive freeze-thaw cycles. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%.

15. Stemolecule™ Purmorphamine

04-0009
Brand: Stemgent™



Purmorphamine is a small molecule that promotes the differentiation of human and murine mesenchymal progenitor cells into osteoblasts. The mechanism of action study of Purmorphamine indicates that it is an agonist of Smoothened, a 7-transmembrane receptor of the hedgehog signaling pathway. Purmorphamine can also be used to replace sonic hedgehog for the generation of motor neurons from human embryonic stem cells.

Specifications

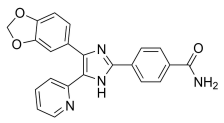
Product Name: Stemolecule Purmorphamine
Catalog Number: 04-0009
Size: 5 mg
Alternate Name(s): 2-(1-Naphthoxy)-6-(4-morpholinoanilino)- 9-cyclohexylpurine
Chemical Formula: $C_{31}H_{32}N_6O_2$
Molecular Weight: 520.6
CAS Number: 483367-10-8
Purity: Greater than 96 % by HPLC analysis
Formulation: Pale beige solid

Solubility: For a 10 mM concentrated stock solution of Purmorphamine, reconstitute the compound by adding 960.4 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For use in cell culture, warm the medium just prior to adding the reconstituted compound. Once the compound is added, mix and filter-sterilize the medium using a 0.2 uM low-protein binding filter. Purmorphamine is soluble in DMSO at 50 mM.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Purmorphamine was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. No acute cytotoxicity was observed in mouse embryonic stem cells following a 6 hour exposure to 1 nM — 100 uM of Purmorphamine.

16. Stemolecule™ SB431542
04-0010 / 04-0010-05 / 04-0010-10
Brand: Stemgent™



SB431542 is an inhibitor of the transforming growth factor-β 1 (TGFβ1) activin receptor-like kinases (ALKs). It is a selective and potent inhibitor of ALK-4, -5 and -7. SB431542 inhibits endogenous activin and TGFβ signaling without affecting more divergent BMP signaling utilizing ALK-1, -2, -3, and -61. SB431542 stimulates proliferation, differentiation, and sheet formation of endothelial cells derived from embryonic stem cells.

Specifications

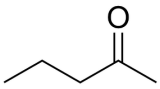
Product Name: Stemolecule SB431542
Catalog Number: 04-0010-base
Size: 10 mg (Cat. No. 04-0010-10)
5 mg (Cat. No. 04-0010)
5 mg at 10 mM in DMSO (04-0010-05)
Alternate Name(s): 4-[4-(1,3-benzodioxol-5-yl)-5-pyridin-2-yl-1*H*-imidazol-2-yl]benzamide
Chemical Formula: $C_{22}H_{16}N_4O_3$
Molecular Weight: 384.4
CAS Number: 301836-41-9 (anhydrous)
Purity: Greater than 98 % by HPLC analysis
Formulation: White solid

Solubility: Reconstitute in DMSO to the desired concentration. For reconstitution instructions please reference the product specifications sheet.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of SB431542 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of SB431542 was tested on mouse embryonic stem cells.

17. Stemolecule™ Sodium Butyrate
04-0005
Brand: Stemgent™



Sodium butyrate is the sodium salt of the short-chain fatty acid butyric acid. It is a metabolite of intestinal bacteria, a major energy source for gut epithelial cells, and is known to play a key role in the homeostasis of the gastrointestinal tract. Sodium butyrate is also a known inhibitor of histone deacetylases (HDACs). HDAC inhibitors are promising anti-tumour agents that work by inhibiting cell proliferation and survival. Along with the cytokines Activin A and acidic fibroblast growth factor (aFGF), sodium butyrate has been shown to direct the differentiation of mouse embryonic stem (ES) cells into hepatocytes. Sodium butyrate has also been reported to increase the efficiency of transfection and expression for both transient and stable transfections.

Specifications

Product Name: Stemolecule Sodium Butyrate
Catalog Number: 04-0005
Size: 500 mg
Alternate Name(s): Butyric acid sodium salt
Chemical Formula: $C_4H_7O_2 \cdot Na$
Molecular Weight: 111.1
CAS Number: 156-54-7
Purity: Greater than 98 % by acid base titration
Formulation: White solid

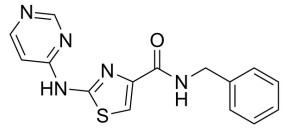
Solubility: This molecule is soluble in water at 900 mM.

Reconstitution: For a 100 mM stock solution of Sodium Butyrate, add 9 mL of water to 100 mg of the compound. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the medium should be prewarmed prior to adding sodium butyrate.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. For Sodium Butyrate, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Sodium Butyrate was determined by acid-base titration. The accurate mass was determined by mass spectrometry. Cellular toxicity of Sodium Butyrate was tested on HeLa and HEK293 cells.

18. Stemolecule™ Thiazovivin
04-0017
Brand: Stemgent™



Thiazovivin is a selective, cell permeable small molecule that directly targets Rho-associated kinase (ROCK). In addition, Thiazovivin protects human embryonic stem cells (hESCs) in the absence of ECM by regulating E-cadherin mediated cell-cell interaction. This observation suggests that Thiazovivin promotes cell survival. In other studies Thiazovivin, in combination with inhibitors of the TGFβ receptor and MEK pathway, has shown to improve reprogramming efficiency by more than 200-fold.

Specifications

Product Name: Stemolecule Thiazovivin
Catalog Number: 04-0017
Size: 1 mg
Chemical Name: *N*-benzyl-2-(pyrimidin-4-ylamino)thiazole-4-carboxamide
Chemical Formula: $C_{15}H_{13}N_5OS$
Molecular Weight: 311.36
CAS Number: 1226056-71-8
Purity: Greater than 98 % by HPLC analysis
Formulation: Light brown powder
Solubility: Thiazovivin is soluble in DMSO at 100 mM.

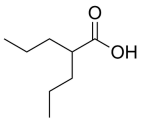
Reconstitution: For a 10 mM concentrated stock solution of Thiazovivin, reconstitute the compound by adding 321.2 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For use in cell culture, warm the media prior to adding thiazovivin. As a general rule, cells in culture are sensitive to DMSO in the medium at 0.5% or less.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Thiazovivin was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. No acute cytotoxicity was observed in mouse embryonic stem cells following a 6 hour exposure to 1 nM — 100 µM of Thiazovivin.

19. Stemolecule™ Valproic Acid

04-0007
Brand: Stemgent™



Stemolecule Valproic Acid (VPA) is a cell-permeable, small molecule that has been shown to affect several pathways. VPA is a histone deacetylase (HDAC) inhibitor which improves reprogramming efficiency by at least 100 fold. VPA also has been found to affect both the Extracellular Signal-Regulated Kinase (ERK), Protein Kinase C (PKC), and the Wnt/β-Catenin pathways. VPA has been reported to regulate the differentiation and proliferation of various cells, including mesenchymal and hematopoietic stem cells, neuroblastoma cells, primary neurons and neural progenitor cells (NPCs). In the case of hepatic differentiation of mouse embryonic stem cells, Valproic Acid in combination with cytokines differentiate cells into a uniform and homogeneous cell population of hepatic progenitor cells followed by maturation into functional hepatocytes.

Specifications

Product Name: Stemolecule Valproic Acid
Catalog Number: 04-0007
Size: 5 g
AlternateName(s): sodium 2-propylpentanoate, sodium valproate
Chemical Formula: $C_8H_{15}O_2 \cdot Na$
Molecular Weight: 166.2
CAS Number: 1069-66-5
Purity: Greater than 98 % by gas chromatography
Formulation: White crystalline solid

Solubility: This molecule is reported to be soluble in DMSO at 100 mM and water at 300 mM.

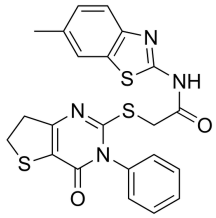
Reconstitution: For a 10 mM stock solution of Valproic Acid, add 3.01 mL DMSO to 5 mg of the compound. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding VPA.

Storage and Stability: Store powder at 4 °C protected from light. Following reconstitution, store aliquots at −20 °C. Stock solutions are stable for 6 months when stored as directed.

Quality Control: The purity of VPA was determined by gas chromatography. The accurate mass was determined by mass spectrometry. Cellular toxicity of VPA was tested on mouse embryonic stem cells.

20. Stemolecule™ Wnt Inhibitor IWP-2

04-0034
Brand: Stemgent™



Stemolecule Wnt Inhibitor IWP-2 was identified in a high throughput screen for antagonists of the Wnt/β-catenin pathway. Wnt Inhibitor IWP-2 prevents palmitylation of Wnt proteins by Porcupine (Porcn), a membrane-bound O-acyltransferase, thereby blocking Wnt secretion and activity. It also blocks phosphorylation of the Lrp6 receptor and accumulation of both Dvl2 and β-catenin1.

Specifications

Product Name: Stemolecule Wnt Inhibitor IWP-2
Catalog Number: 04-0034
Size: 2 mg
Alternate Name(s):
N-(6-Methyl-2-benzothiazolyl)-2-[(3,4,6,7-tetrahydro-4-oxo-3-phenylthieno[3,2 *d*]pyrimidin-2-yl)thio]-acetamide
Chemical Formula: $C_{22}H_{18}N_4O_2S_3$
Molecular Weight: 466.6
CAS Number: 686770-61-6
Purity: Greater than 99 % by HPLC analysis
Formulation: White powder

Solubility: This molecule is reported to be soluble in DMSO at 5 mM.

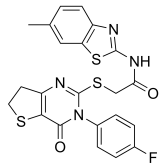
Reconstitution: For a 5 mM concentrated stock solution of Wnt Inhibitor IWP-2, reconstitute the compound by adding 857.3 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37°C for 2 to 5 minutes. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Wnt Inhibitor IWP-2 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Wnt Inhibitor IWP-2 was tested on mouse embryonic stem cells.

21. Stemolecule™ Wnt Inhibitor IWP-3

04-0035
Brand: Stemgent™



Stemolecule Wnt Inhibitor IWP-3 was identified in a high throughput screen for antagonists of the Wnt/β-catenin pathway. Wnt Inhibitor IWP-3 prevents palmitylation of Wnt proteins by Porcupine (Porcn), a membrane-bound O-acyltransferase, thereby blocking Wnt secretion and activity. It also blocks phosphorylation of the Lrp6 receptor and accumulation of both Dvl2 and β-catenin1. The inhibition of the Wnt pathway through the use of IWP-3 has also been shown to promote the formation of cardiomyocytes from human embryonic stem cell-derived mesoderm cells2.

Specifications

Product Name: Stemolecule Wnt Inhibitor IWP-3
Catalog Number: 04-0035
Size: 2 mg
Alternate Name(s):
2-(3-(4-fluorophenyl)-3,4,6,7-tetrahydro-4-oxothieno[3,2-*d*]pyrimidin-2-ylthio)-*N*-(6-methylbenzo[*d*]thiazol-2-yl)acetamide
Chemical Formula: $C_{22}H_{17}FN_4O_2S_3$
Molecular Weight: 484.59
CAS Number: 687561-60-0
Purity: Greater than 99 % by HPLC analysis
Formulation: Light yellow solid
Solubility: This molecule is soluble in DMSO at 100 mM.

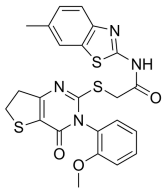
Reconstitution: For a 10 mM concentrated stock solution of Wnt Inhibitor IWP-3, reconstitute the compound by adding 412.7 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For cell culture, prewarm the medium prior to adding reconstituted compounds. Note: For most cell culture applications, the total DMSO concentration should be kept below 0.5%.

Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Wnt Inhibitor IWP-3 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Wnt Inhibitor IWP-3 was tested on mouse embryonic stem cells.

22. Stemolecule™ Wnt Inhibitor IWP-4

04-0036 / 04-0036-50
Brand: Stemgent™



Wnt Inhibitor IWP-4 was identified in a high throughput screen for antagonists of the Wnt / β-catenin pathway. Wnt Inhibitor IWP-4 prevents palmitylation of Wnt proteins by Porcupine (Porcn), a membrane-bound O-acyltransferase, thereby blocking Wnt secretion and activity. It also blocks phosphorylation of the Lrp6 receptor and accumulation of both Dvl2 and β-catenin.

Specifications

Product Name: Stemolecule Wnt Inhibitor IWP-4
Catalog Number: 04-0036
Size: 2 mg (Cat.no 04-0036)
50 mg (Cat.no 04-0036-50)
Alternate Name(s):
2-(3,4,6,7-tetrahydro-3-(2-methoxyphenyl)-4-oxothieno[3,2-*d*]pyrimidin-2-ylthio)-*N*-(6-methylbenzo[*d*]thiazol-2-yl)acetamide
Chemical Formula: $C_{23}H_20N_4O_3S_3$
Molecular Weight: 496.62
CAS Number: 686772-17-8
Purity: Greater than 96 % by HPLC analysis
Formulation: White solid
Solubility: This molecule is reported to be soluble in DMSO at 1.2 mM.

Reconstitution: For a 1.2 mM concentrated stock solution of Wnt Inhibitor IWP-4, reconstitute the compound by adding 3.36 mL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For use in cell culture, keep the total DMSO concentration less than 0.1%.

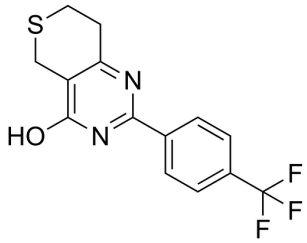
Storage and Stability: Store powder at 4 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at – 20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of Wnt Inhibitor IWP-4 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Wnt Inhibitor IWP-4 was tested on mouse embryonic stem cells.

23. Stemolecule™ XAV939

04-0046

Brand: Stemgent™



Stemolecule XAV939 is a cell-permeable small molecule inhibitor of the Wnt / β-catenin pathway. XAV939 inhibits tankyrase 1 and tankyrase 2, thus stabilizing axin and stimulating β-catenin degradation. Current research suggests that Wnt proteins act to maintain stem cells in an undifferentiated, self-renewing state. Wnt proteins act on a variety of stem cells that include neural, mammary and embryonic stem cells. In addition, XAV939 inhibits growth of DLD-1 cells, an APC-deficient colorectal cancer cell line.

Specifications

Product Name: Stemolecule XAV939
Catalog Number: 04-0046
Size: 2 mg
Alternate Name(s):
2-(4-(trifluoromethyl)phenyl)-7,8-dihydro-5*H*-thiopyrano[4,3-*d*]pyrimidin-4-ol
Chemical Formula: $C_{14}H_{11}F_3N_2OS$
Molecular Weight: 312.31
CAS Number: 284028-89-3
Purity: Greater than 95 % by HPLC analysis
Formulation: White powder

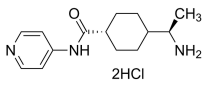
Solubility: XAV939 is reported to be soluble in DMSO at 100 mM.

Reconstitution: For a 10 mM concentrated stock solution of XAV939, reconstitute the compound by adding 640.4 µL of DMSO to the entire contents of the vial. If precipitate is observed, warm the solution to 37 °C for 2 to 5 minutes. For use in cell culture, warm the media prior to adding reconstituted compounds. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%.

Storage and Stability: Store powder at −20 °C protected from light. Information about the stability of Stemolecules in solution is largely not available. As a general guideline, we recommend that stock solution be freshly made and stored in aliquots at −20 °C, protected from light. The effect of storage of stock solutions should be verified for each application.

Quality Control: The purity of XAV939 is determined by HPLC analysis. The molecular weight is determined by mass spectrometry. No acute cytotoxicity is observed in mouse embryonic stem cells following a 6 hour exposure to 1 nM — 100 uM of XAV939.

24. Stemolecule™ Y27632
04-0012 / 04-0012-10 / 04-0012-02
Brand: Stemgent™



Y27632 is a cell-permeable small molecule Rho-associated kinase (ROCK) inhibitor. Y27632 has been found to prevent apoptosis as well as enhance the survival and cloning efficiency of dissociated human embryonic stem (ES) cells without affecting their self-renewal properties or pluripotency. This molecule has also been shown to enhance survival during the transplantation of ES cell-derived neural precursors. Y27632 in combination with Pifithrin-u significantly improves cell recovery after cryopreservation.Stemolecule Y27632 is also available as a 10 mM DMSO Stock Solution (Cat. No. 04-0012-02).
Y27632 is widely used in naive stem cell protocols5, such as the 5i/L/A/ protocol.

Specifications

Product Name: Stemolecule Y27632
Catalog Number: 04-0012
Size: 2 mg (Cat. No. 04-0012)
10 mg (Cat. No. 04-0012-10)
2 mg in 10 mM DMSO (Cat. No. 04-0012-02)
Alternate Name(s): Y-27632,
(1*R*,4*R*)-4-((*R*)-1-aminoethyl)-*N*-(pyridine-4-yl)cyclohexanecarboxamide dihydrochloride
Chemical Formula: $C_{14}H_{21}N_3O \cdot {}_2HCl$
Molecular Weight: 320.3
CAS Number: 146986-50-7
Purity: Greater than 97 % by HPLC analysis
Formulation: White solid

Solubility: Reconstitute in DMSO to the desired concentration. For reconstitution instructions please reference the product specifications sheet.

Storage and Stability: Store powder at 4 °C protected from light. Following reconstitution, store aliquots at −20 °C. Stock solutions are stable for 6 months when stored as directed.

Quality Control: The purity of Y27632 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of Y27632 was tested on mouse embryonic stem cells.