

## Small Molecules, Cytokines and Growth Factors for Stem Cell Research

### Overview

Stemgent's extensive portfolio of small molecules, cytokines and growth factors target the major stem cell signaling pathways aiding stem cell researchers in regulating cellular reprogramming, self-renewal/maintenance and differentiation of pluripotent stem cells. The portfolio includes a proprietary synthetic retinoid for regulating neural differentiation. *Newly added* WH-4-023, SB590885 and IM-12 are three kinase inhibitors supporting derivation and maintenance of naïve human pluripotent stem cells as referenced in the October 2014 *Cell Stem Cell* paper by Jaenisch and coworkers titled "Systematic identification of culture conditions for induction and maintenance of naïve human pluripotency."

### Extensive Portfolio in Multiple Formats

Recognized worldwide, Stemgent's Stemolecule Portfolio, focuses on small molecules affecting cellular reprogramming of somatic cells to iPS cells, self-renewal/maintenance and differentiation of pluripotent stem cells. Stemgent's portfolio covers small molecules for regulating a number of signaling pathways including TGFβ/BMP, Wnt, Hedgehog, FGF/MAPK and Integrin. Many of the major small molecules including CHIR99021, PD0325901, SB431542 and LDN-193189 are available in multiple sizes and formats including powder and ready-to-use solutions and custom formats.

### Proprietary Technology for Regulating Stem Cell Differentiation

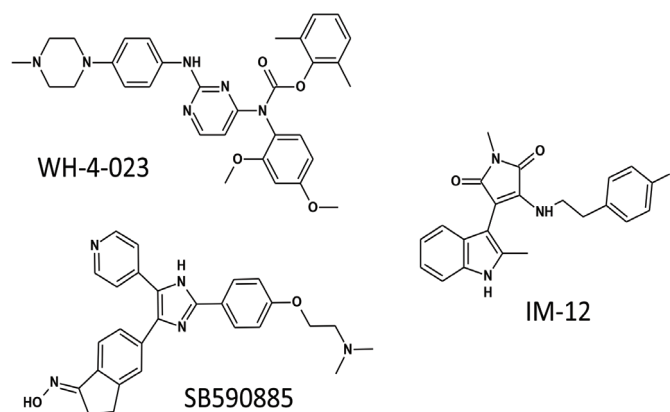
ReproCELL's Reinnervate ec23® synthetic retinoid is a heat and light-stable substitute for all-trans retinoic acid (ATRA), unlike other all-trans retinoic acids that are light and heat sensitive. The stability of ec23 enables reproducible neural differentiation from pluripotent stem cells.

### Features

- Modulate the major stem cell signaling pathways
- Tested negative for cytotoxicity

### Small Molecules Supporting Naïve Pluripotent Stem Cells

Stemgent's new addition of WH-4-023, SB590885 and IM-12 kinase inhibitor small molecules coupled with Stemgent's PD0325901 MEK inhibitor and Y27632 ROCK inhibitor small molecules, Stemfactor human LIF and Stemfactor Activin A cytokines make up the 5i/L/A media supplement described by Theunissen<sup>1</sup> for the self-renewal of naïve human stem cells necessary for ground state pluripotency.



**FIGURE 1. Structures of new compounds**

### Related Stem Cell Products and Services

- Antibodies
- RNA Reprogramming reagents and kits
- Culture media for hES/iPS cell culture and cellular reprogramming
- Services – Custom induced pluripotent (iPS) cell line generation
- Training – RNA Reprogramming

### References

1. Theunissen TW; Powell BE; Wang H; Mitalipova M; Faddah DA; Reddy J; Fan ZP; Maetzel D; Ganz K; Shi L; Lungjangwa T; Imsoonthomruska S; Stelzer T; Rangarajan S; D'Alessio A; Zhang J; Gao Q; Dawlaty MM; Young RA; Gray NS; Jaenisch R. "Systemic identification of culture conditions for induction and maintenance of naïve human pluripotency." *Cell Stem Cell* 15: 471 (2014).

ReproCELL brings together three trusted brands to create a beginning-to-end stem cell solution with convenient one stop shopping.



Stemgent Stemolecules™ Small Molecules

PRODUCT NAME	QUANTITY	CAT. NO
A769662	10 mg	04-0052
A83-01	2 mg	04-0014
A83-02	10 mg	04-0014-10
ALK5 Inhibitor	1 mg	04-0015
All-Trans Retinoic Acid	100 mg	04-0021
AM580	5 mg	04-0077
BI-D1870	10 mg	04-0051
BIO	2 mg	04-0003
BIX01294	5 mg	04-0002
CD437	5 mg	04-0078
CHIR99021	2 mg	04-0004
CHIR99021 in Solution	2 mg (10 mM)	04-0004-02
CHIR99021	10 mg	04-0004-10
Cyclopamine	2 mg	04-0022
DAPT	5 mg	04-0041
Dorsomorphin	2 mg	04-0024
Doxycycline hyclate	10 mg	04-0016
ec23 Synthetic Retinoic	5 mg	SR-P002
ec23 Synthetic Retinoic	2 x 5 mg	SR-P002-2
Forskolin	10 mg	04-0025
GDC-0941	5 mg	04-0047
GSK429286A	2 mg	04-0049
IDE-1	2 mg	04-0026
IDE-2	2 mg	04-0027
IM-12 (GSK-3β Inhibitor)	2 mg	04-0081
IPA-3	5 mg	04-0037
KAAD-Cyclopamine	100 µg	04-0028
KP372-1	5 mg	04-0044
Ku-0063794	2 mg	04-0050
LDN-193189	2 mg	04-0074
LDN-193189 in Solution	2 mg (10 mM)	04-0074-02
LDN-193189	10 mg	04-0074-10

Stemolecules (cont.)

PRODUCT NAME	QUANTITY	CAT. NO
LY411575	5 mg	04-0054
PD0325901	2 mg	04-0006
PD0325901 in Solution	2 mg (10 mM)	04-0006-02
PD0325901	10 mg	04-0006-10
PD173074	2 mg	04-0008
Pifithrin-µ	5 mg	04-0039
PS48	5 mg	04-0076
Purmorphamine	5 mg	04-0009
Pyrintegrin	1 mg	04-0072
R(+)-Bay K 8644	5 mg	04-0013
RG108	10 mg	04-0001
ROCK II Inhibitor	2 mg	04-0030
SB431542	5 mg	04-0010
SB431542 in Solution	5 mg (10 mM)	04-0010-05
SB431542	10 mg	04-0010-10
SB590885 (BRAF Inhibitor)	2 mg	04-0080
SC1 (Pluripotin)	1 mg	04-0011
SHH Antagonist	2 mg	04-0032
SMO Antagonist	2 mg	04-0031
Sodium Butyrate	500 mg	04-0005
Thiazovivin	1 mg	04-0017
Tranilcypromine hydrochloride	10 mg	04-0033
Valproic Acid	5 g	04-0007
WH-4-023 (SRC Inhibitor)	2 mg	04-0079
Wnt Inhibitor IWP-2	2 mg	04-0034
Wnt Inhibitor IWP-3	2 mg	04-0035
Wnt Inhibitor IWP-4	2 mg	04-0036
XAV939	2 mg	04-0046
Y27632	2 mg	04-0012
Y27632 in Solution	2 mg (10 mM)	04-0012-02
Y27632	10 mg	04-0012-10

Stemgent Stemfactor™ Cytokines & Proteins

PRODUCT NAME	QUANTITY	CAT. NO
Activin A, Human Recombinant	5 µg	03-0001
FGF-basic, Human Recombinant	50 µg	03-0002
TGF-β1, Human Recombinant	5 µg	03-0004
Noggin, Human Recombinant	10 µg	03-0006
BMP-4, Human Recombinant	10 µg	03-0007
Sonic Hedgehog, Human Recombinant	25 µg	03-0008
LIF, Mouse Recombinant	1 ml, 10 µg/mL	03-0011
LIF, Mouse Recombinant	1 ml, 100 µg/mL	03-0011-100
LIF, Human Recombinant	1 ml, 10 µg/mL	03-0016
LIF, Human Recombinant	1 ml, 100 µg/mL	03-0016-100
B18R Recombinant Protein, Carrier-free	50 µg	03-0017

5i/L/A Media Supplement

PRODUCT NAME	QUANTITY	CAT. NO
WH-4-023 SRC Inhibitor	2 mg	04-0079
SB590885 BRAF Inhibitor	2 mg	04-0080
IM-12 GSK-3β Inhibitor	2 mg	04-0081
PD0325901 MEK inhibitor	2 mg	04-0006
Y27632 ROCK inhibitor	2 mg	04-0012
LIF, Human Recombinant	1 mL, 10 µg/mL	03-0016
Activin A, Human Recombinant	5 µg	03-0001



**AMERICAS-HUMAN TISSUE**  
Tel: (301) 470-3362  
Email: [info@bioserve.com](mailto:info@bioserve.com)  
[www.bioserve.com](http://www.bioserve.com)

**AMERICAS-REAGENTS**  
Tel: (617) 245-0000  
Email: [info@stemgent.com](mailto:info@stemgent.com)  
[www.stemgent.com](http://www.stemgent.com)

**ASIA PACIFIC**  
Tel: +81 45 475 3887  
Email: [info\\_jp@reprocell.com](mailto:info_jp@reprocell.com)  
[www.reprocell.com/en](http://www.reprocell.com/en)

**EUROPE**  
Tel: +44 (0)1740 625 526  
Email: [info@reinnervate.com](mailto:info@reinnervate.com)  
[www.reinnervate.com](http://www.reinnervate.com)