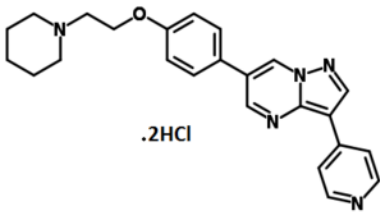


PRODUCT SPECIFICATIONS SHEET:

Stemolecule™ Dorsomorphin

Product Name	Stemolecule™ Dorsomorphin
Description	Stemolecule Dorsomorphin dihydrochloride is a potent inhibitor of AMP-activated protein kinase (AMPK) ($K_i=109$ nM) and bone morphogenic protein (BMP) signaling ^{1,2} . It was identified in a screen for compounds that perturb dorsoventral axis formation in zebrafish ³ . Dorsomorphin functions through inhibition of BMP type I receptors ALK2, ALK3 and ALK6 and thus blocks BMP-mediated SMAD1/5/8 phosphorylation ³ . BMP signaling coordinates developmental patterning and have essential physiological roles in mature organisms ^{4,5} . Dorsomorphin has been used to probe BMP signaling in iron-hepcidin homeostasis, cardiomyogenesis and osteogenesis ^{3,6,7} .
Catalog Number	04-0024
Size	2 mg
Alternate Names	6-[4-(2-piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5- <i>a</i>]pyrimidine
Chemical Formula	$C_{24}H_{25}N_5O \cdot 2HCl \cdot H_2O$
Structure	
Molecular Weight	490.43
CAS Number	866405-64-3
Purity	>99% pure by HPLC
Formulation	Yellow solid
Solubility	For a 10 mM concentrated stock solution of Dorsomorphin, reconstitute the compound by adding 407.8 μ L of DMSO to the entire contents of the vial. If precipitate is observed,



REPROCELL Inc (Japan)

KDX Shin-yokohama 381, Bldg.9F
3-8-11, Shin-yokohama,
Kohoku-ku, Yokohama,
Kanagawa 222-0033,
Japan

Tel: +81 45 475 3887
Email: info-asia@reprocell.com

REPROCELL USA Inc

9000 Virginia Manor Road
Suite 207
Beltsville, MD 20705
USA

Tel: +1 301.470.3362
Email: info-us@reprocell.com

REPROCELL Europe Ltd

Thomson Pavilion,
Todd Campus,
West of Scotland Science Park,
Acre Road,
Glasgow G20 0XA, UK

Tel: +44 (0)141 465 3460
Email: info-emea@reprocell.com

www.reprocell.com

warm the solution to 37 °C for 2-5 min. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance of DMSO is less than 0.5%. Dorsomorphin is reported to be soluble in DMSO at 100 mM and water at 100 mM.

Storage and Stability

Store powder at 4 °C or -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. 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. The structure was verified by NMR spectroscopy. Cellular toxicity was tested on mouse embryonic stem cells.

Regulatory Disclaimer

For research use only. Not for use in therapeutic or diagnostic procedures.

References

1. Gao, Y., Zhou, Y., Xu, A., and Wu, D. (2008) Effects of an AMP-activated protein kinase inhibitor, compound C, on adipogenic differentiation of 3T3- L1 cells. *Biol Pharm Bull* 31: 1716-1722.
2. Anderson, G.J., and Darshan, D. (2008) Small-molecule dissection of BMP signaling. *Nat Chem Biol* 4: 15-16.
3. Yu, P.B., Hong, C.C., Sachidanandan, C., Babitt, J.L., Deng, D.Y., Hoyng, S.A., Lin, H.Y., Bloch, K.D., and Peterson, R.T. (2008) Dorsomorphin inhibits BMP signals required for embryogenesis and iron metabolism. *Nat Chem Biol* 4: 33-41.
4. Heisenberg, C.P., and Solnica-Krezel, L. (2008) Back and forth between cell fate specification and movement during vertebrate gastrulation. *Curr Opin Genet Dev* 18: 311-316.
5. Cain, J.E., Hartwig, S., Bertram, J.F., and Rosenblum, N.D. (2008) Bone morphogenetic protein signaling in the developing kidney: present and future. *Differentiation* 76: 831-842.
6. Hao, J., Daleo, M.A., Murphy, C.K., Yu, P.B., Ho, J.N., Hu, J., Peterson, R.T., Hatzopoulos, A.K., and Hong, C.C. (2008) Dorsomorphin, a selective small molecule inhibitor of BMP signaling, promotes cardiomyogenesis in embryonic stem cells. *PLoS ONE* 3: e2904.
7. Seib, F.P., Franke, M., Jing, D., Werner, C., and Bornhauser, M. (2009) Endogenous bone morphogenetic proteins in human bone marrow-derived multipotent mesenchymal stromal cells. *Eur J Cell Biol* 88: 257-271.



REPROCELL Inc (Japan)

KDX Shin-yokohama 381, Bldg.9F
3-8-11, Shin-yokohama,
Kohoku-ku, Yokohama,
Kanagawa 222-0033,
Japan

Tel: +81 45 475 3887
Email: info-asia@reprocell.com

REPROCELL USA Inc

9000 Virginia Manor Road
Suite 207
Beltsville, MD 20705
USA

Tel: +1 301 470 3362
Email: info-us@reprocell.com

REPROCELL Europe Ltd

Thomson Pavilion,
Todd Campus,
West of Scotland Science Park,
Acre Road,
Glasgow G20 0XA, UK

Tel: +44 (0)141 465 3460
Email: info-emea@reprocell.com

www.reprocell.com

