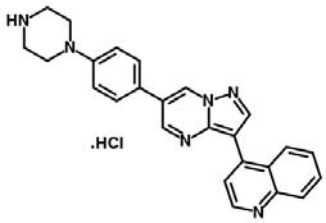
PRODUCT SPECIFICATION SHEET

Product Name	Stemolecule™ LDN-193189
Description	LDN-193189 is a cell permeable small molecule inhibitor of bone morphogenetic protein (BMP) type I receptors ALK2 and ALK3 (IC_{50} = 5 nM and 30 nM respectively)[1]. LDN-193189 was derived from structure-activity relationship studies of Dorsomorphin and functions primarily through prevention of Smad1, Smad5, and Smad8 phosphorylation[1-3]. LDN-193189 only weakly inhibits ALK4, ALK5, and ALK7[1]. BMP signaling coordinates developmental patterning and has essential physiological roles in mature organisms[4,5]. LDN-193189 has been used to reduce ectopic ossification in a mouse model of *fibrodysplasia ossificans progressiva*[1]. Stemolecule LDN-193189 in Solution is a ready to use 10 mM stock solution for stem cell culture.
Catalog Number	AMS.04-0074-02
Size	2 mg
Concentration	10 mM in DMSO
Formulation	10 mM solution of LDN-193189 in DMSO (2 mg in 451.5 µl)
Alternate Name	4-(6-(4-(piperazin-1-yl)phenyl)pyrazolo[1,5-a]pyrimidin-3-yl)quinoline hydrochloride
Chemical Name	$C_{25}H_{22}N_6 \cdot HCl$
Structure	
Molecular Weight	442.94
CAS Number	1062368-24-4
Purity	Greater than 96% by HPLC analysis
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 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.

References

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2. 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.
3. Cuny, G.D., Yu, P.B., Laha, J.K., Xing, X., Liu, J.F., Lai, C.S., Deng, D.Y., Sachidanandan, C., Bloch, K.D., and Peterson, R.T. (2008) Structure-activity relationship study of bone morphogenetic protein (BMP) signaling inhibitors. Bioorg Med Chem Lett 18: 4388-4392.
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.

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