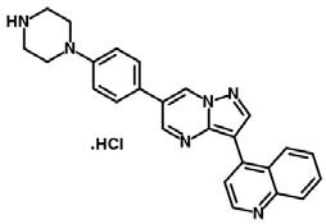
PRODUCT SPECIFICATION SHEET

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 is a hydrochloride salt.
Catalog Number	AMS.04-0074-10
Size	10 mg
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
Formulation	Yellow Powder
Solubility	LDN-193189 is soluble in DMSO at 10 mM.
Reconstitution	For a 10 mM concentrated stock solution of LDN-193189, reconstitute the compound by adding 2.26 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, 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 µM low-protein binding filter.
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

1. Yu, P.B., Deng, D.Y., Lai, C.S., Hong, C.C., Cuny, G.D., Bouxsein, M.L., Hong, D.W., McManus, P.M., Katagiri, T., Sachidanandan, C., Kamiya, N., Fukuda, T., Mishina, Y., Peterson, R.T., and Bloch, K.D. (2008) BMP type I receptor inhibition reduces heterotopic [corrected] ossification. Nat Med 14: 1363-1369.
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.