

Small Molecules

LDN193189

Activin/BMP/TGF β pathway inhibitor;
Inhibits ALK1, ALK2, ALK3, and ALK6

Catalog # 72142
72144

1 mg
10 mg



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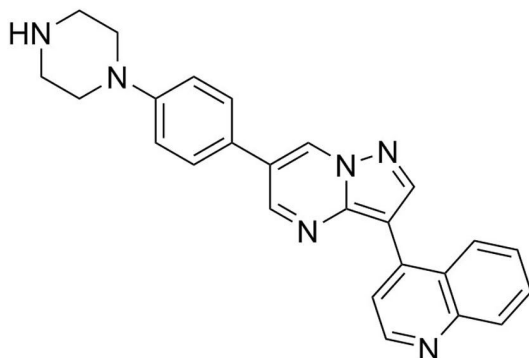
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Product Description

LDN193189 is a potent inhibitor of the bone morphogenetic protein (BMP) pathway, inhibiting ALK1, ALK2, ALK3, and ALK6 (IC_{50} = 0.8, 0.8, 5.3, and 16.7 nM respectively). It is a derivative of Dorsomorphin that is typically used at approximately 100-fold lower concentrations (Sanvitale et al.; Vogt et al.).

Molecular Name: LDN193189
Alternative Names: Not applicable
CAS Number: 1062368-24-4
Chemical Formula: $C_{25}H_{22}N_6$
Molecular Weight: 406.5 g/mol
Purity: $\geq 95\%$
Chemical Name: 4-[6-[4-(1-piperazinyl)phenyl]pyrazolo[1,5-a]pyrimidin-3-yl]-quinoline
Structure:



Properties

Physical Appearance: A yellow-orange crystalline solid
Storage: Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com.
Solubility:
· DMSO ≤ 2.5 mM
· Absolute ethanol ≤ 2.5 mM
For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.46 mL of fresh DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C . Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

DIFFERENTIATION

- Promotes differentiation of neural progenitor cells from human pluripotent stem cells (Chambers et al.; Kriks et al.).
- Promotes differentiation of neural crest cells from human pluripotent stem cells (Kreitzer et al.).
- Promotes differentiation of anterior foregut endoderm from human and mouse pluripotent stem cell-derived definitive endoderm (Kearns et al.).
- Promotes differentiation of sensory epithelial cells of the inner ear from mouse embryonic stem cells (Koehler et al.).

References

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- Koehler KR et al. (2013) Generation of inner ear sensory epithelia from pluripotent stem cells in 3D culture. *Nature* 500(7461): 217–21.
- Kreitzer FR et al. (2013) A robust method to derive functional neural crest cells from human pluripotent stem cells. *Am J Stem Cells* 2(2): 119–131.
- Kriks S et al. (2011) Dopamine neurons derived from human ES cells efficiently engraft in animal models of Parkinson's disease. *Nature* 480(7378): 547–551.
- Sanvitale CE et al. (2013) A new class of small molecule inhibitor of BMP signaling. *PLoS One* 8(4): e62721.
- Vogt J et al. (2011) The specificities of small molecule inhibitors of the TGF β and BMP pathways. *Cell Signal* 23(11): 1831–42.

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