

Small Molecules

LDN193189 (Hydrochloride)

BMP pathway inhibitor; Inhibits ALK1, ALK2, ALK3, and ALK6

Catalog # 72146
72148

1 mg
10 mg



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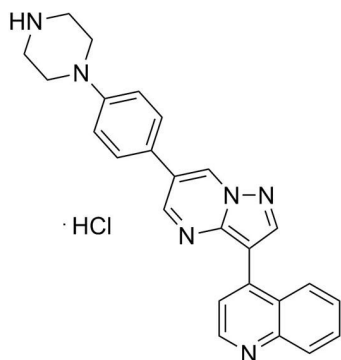
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Product Description

LDN193189 is a potent inhibitor of the bone morphogenetic (BMP) pathway, inhibiting ALK1, ALK2, ALK3, and ALK6 (IC_{50} = 0.8, 0.8, 5.3, and 16.7 nM respectively; Sanvitale et al.). It is a derivative of Dorsomorphin (Catalog #72102) that is typically used at approximately 100-fold lower concentrations (Sanvitale et al.; Vogt et al.). This product is supplied as the hydrochloride salt of the molecule. It is more soluble than the non-hydrochloride salt form.

Molecular Name: LDN193189 (Hydrochloride)
Alternative Names: DM-3189
CAS Number: 1062368-62-0
Chemical Formula: $C_{25}H_{22}N_6 \cdot HCl$
Molecular Weight: 443.0 g/mol
Purity: $\geq 98\%$
Chemical Name: 4-[6-[4-(1-piperazinyl)phenyl]pyrazolo[1,5-a]pyrimidin-3-yl]-quinoline, monohydrochloride
Structure:



Properties

Physical Appearance: A crystalline solid
Storage: Product stable at $-20^{\circ}C$ as supplied. Protect from prolonged exposure to light. For long-term storage store with a desiccant.
Stable as supplied for 12 months from date of receipt.

Solubility: $\cdot$ DMSO ≤ 2.3 mM
For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.26 mL of 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 $-20^{\circ}C$. 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.).

CANCER RESEARCH

- Inhibits prostate and breast cancer tumor growth (Balboni et al.; Lee et al.).
- Prevents ovarian cancer cell proliferation (Tsai et al.).

References

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- Tsai C-L et al. (2012) Secreted stress-induced phosphoprotein 1 activates the ALK2-SMAD signaling pathways and promotes cell proliferation of ovarian cancer cells. *Cell Rep* 2(2): 283–93.
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