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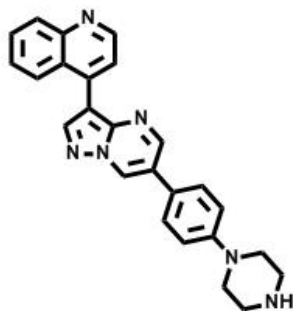
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BMP inhibitor LDN-193189

Chemical Name: 4-(6-(4-(piperazin-1-yl)phenyl)pyrazolo[1,5-a]pyrimidin-3-yl)quinoline



Molecular Weight:	406.48
Formula:	C ₂₅ H ₂₂ N ₆
Purity:	≥98%
CAS#:	1062368-24-4
Solubility:	DMSO up to 100 mM
Storage	Powder: 4°C 1 year DMSO: 4°C 3 month -20°C 1 year

Biological Activity:

LDN193189 is a cell-permeable, highly potent and selective BMP pathway inhibitor by inhibiting BMP type I receptors ALK2 (IC₅₀=5 nM) and ALK3 (IC₅₀=30 nM), but not ALK4, ALK5, and ALK7 (> 0.5 μM). It prevents Smad1, Smad5, and Smad8 phosphorylation. It is a useful tool compound to modulate stem cell differentiation (for example, neural differentiation of human ESC/iPSC in combination with SB431542). It was also used in animal models to treat FOP and ectopic ossification, as well as NSCLC lung cancer.

How to Use:

In vitro: LDN-193189 is typically used at 0.1 μM final concentration in stem cell differentiation conditions.

In vivo: Intraperitoneal (IP) administration of 3 mg/kg LDN-193189 was used once or twice daily.

Reference:

1. Cuny GD, et al. Structure-activity relationship study of bone morphogenetic protein (BMP) signaling inhibitors. (2008), *Bioorg Med Chem Lett.* 18(15):4388-92.
2. Paul B Yu, et al. BMP type I receptor inhibition reduces heterotopic ossification. (2008), *Nature Med.* 14: 1363-1369.
3. Yu PB, et al. Dorsomorphin inhibits BMP signals required for embryogenesis and iron metabolism. (2008), *Nature Chem Biol.* 4: 33-41.
4. Chambers SM, et al. Highly efficient neural conversion of human ES and iPS cells by dual inhibition of SMAD signaling. (2009), *Nature Biotechnology* 27, 275-280.
5. Boergemann JH, et al. Dorsomorphin and LDN-193189 inhibit BMP-mediated Smad, p38 and Akt signalling in C2C12 cells. (2010), *Int J Biochem Cell Biol.* 42(11):1802-7.
6. Lee YC, et al. BMP4 promotes prostate tumor growth in bone through osteogenesis. (2011), *Cancer Res* 71:5194-5203.
7. Najm FJ, et al. Rapid and robust generation of functional oligodendrocyte progenitor cells from epiblast stem cells. (2011) *Nature Methods* 8, 957-962

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