

Small Molecules

Dorsomorphin

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

Catalog # 72102

10 mg



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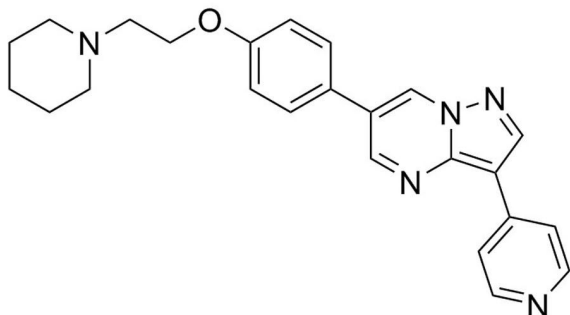
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Product Description

Dorsomorphin inhibits the bone morphogenetic protein (BMP) pathway by targeting the type I BMP receptors activin receptor-like kinase (ALK) 2, ALK3, and ALK6. It is also a potent inhibitor of AMP-activated protein kinase (AMPK, $K_i = 109$ nM) but does not significantly inhibit structurally related kinases such as ZAPK, SYK, PKC θ , PKA or JAK3 (Bain et al.; Yu et al.).

Molecular Name:	Dorsomorphin
Alternative Names:	Compound C
CAS Number:	866405-64-3
Chemical Formula:	C ₂₄ H ₂₅ N ₅ O
Molecular Weight:	399.5 g/mol
Purity:	≥ 98%
Chemical Name:	6-[4-[2-(1-piperidinyl)ethoxy]phenyl]-3-(4-pyridinyl)-pyrazolo[1,5-a]pyrimidine
Structure:	



Properties

Physical Appearance:	A 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:	<ul style="list-style-type: none">· Absolute ethanol ≤ 350 μM· Dimethylformamide (DMF) ≤ 6.2 mM For example, to prepare a 300 μM stock solution in absolute ethanol, resuspend 1 mg in 8.3 mL of absolute ethanol.

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 absolute ethanol 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 ethanol concentration above 0.1% due to potential cell toxicity.

Published Applications

DIFFERENTIATION

- Promotes differentiation of neural progenitor cells from human pluripotent stem cells (Morizane et al.; Zhou et al.).
- Promotes differentiation of cardiomyocytes from mouse and human pluripotent stem cells (Hao et al.; Kattman et al.).
- Promotes differentiation of adipocytes and suppresses osteogenic differentiation of osteoblasts from human mesenchymal cells (Kim et al.).

References

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- Morizane A et al. (2011) Small-molecule inhibitors of bone morphogenic protein and activin/nodal signals promote highly efficient neural induction from human pluripotent stem cells. *J Neurosci Res* 89(2): 117–126.
- Yu PB et al. (2008) Dorsomorphin inhibits BMP signals required for embryogenesis and iron metabolism. *Nat Chem Biol* 4(1): 33–41.
- Zhou J et al. (2010) High-efficiency induction of neural conversion in human ESCs and human induced pluripotent stem cells with a single chemical inhibitor of transforming growth factor beta superfamily receptors. *Stem Cells* 28(10): 1741–50.

Related Small Molecules

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