

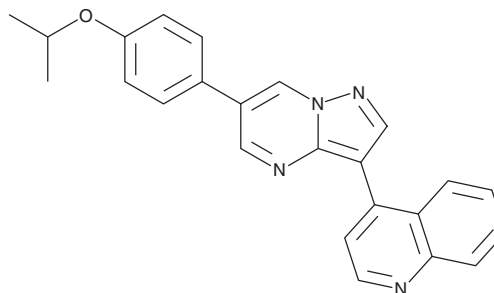
PRODUCT INFORMATION



DMH1

Item No. 16679

CAS Registry No.: 1206711-16-1
Formal Name: 4-[6-[4-(1-methylethoxy)phenyl]pyrazolo[1,5-a]pyrimidin-3-yl]-quinoline
Synonyms: BMP Inhibitor II, DorsoMorphin Homolog 1, VU036482
MF: C₂₄H₂₀N₄O
FW: 380.4
Purity: ≥98%
UV/Vis.: λ_{max}: 230, 279, 320 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

DMH1 is supplied as a crystalline solid. A stock solution may be made by dissolving the DMH1 in the solvent of choice, which should be purged with an inert gas. DMH1 is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of DMH1 in these solvents is approximately 1 and 20 mg/ml, respectively.

Description

Bone morphogenetic proteins (BMP) are secreted signaling proteins, many of which are involved in various developmental processes, in addition to bone formation.¹ DMH1 is an analog of the non-selective BMP receptor inhibitor dorsomorphin (Item No. 11967) that potently inhibits the kinase activity of activin receptor-like kinase 2 (ALK2; IC₅₀ = 13-108 nM).^{2,3} It is much less effective at ALK4, ALK5, AMPK, KDR (VEGFR2) or PDGFRβ, although it inhibits ALK1 and ALK3 at nanomolar concentrations.^{2,3} DMH1 is effective *in vivo*, as it disrupts dorsoventral development in zebrafish.² It also affects stem cell development, increasing cardiomyocyte progenitors and promoting neurogenesis.^{4,5} DMH1 inhibits the growth of lung cancer cells, reducing tumor growth in a xenograft mouse model.⁶

References

1. Sakata, T., and Chen, J.K. Chemical 'Jekyll and Hyde's: Small-molecule inhibitors of developmental signaling pathways. *Chem. Soc. Rev.* **40(8)**, 4318-4331 (2011).
2. Hao, J., Ho, J.N., Lewis, J.A., *et al.* *In vivo* structure activity relationship study of dorsomorphin analogs identifies selective VEGF and BMP inhibitors. *ACS Chem. Biol.* **5(2)**, 245-253 (2010).
3. Mohedas, A.H., Xing, X., Armstrong, K.A., *et al.* Development of an ALK2-biased BMP type I receptor kinase inhibitor. *ACS Chem. Biol.* **8(6)**, 1291-1302 (2013).
4. Ao, A., Hao, J., Hopkins, C.R., *et al.* DMH1, a novel BMP small molecule inhibitor, increases cardiomyocyte progenitors and promotes cardiac differentiation in mouse embryonic stem cells. *PLoS One* **7(7)**, e41627 (2012).
5. Neely, M.D., Litt, M.J., Tidball, A.M., *et al.* DMH1, a highly selective small molecule BMP inhibitor promotes neurogenesis of hiPSCs: Comparison of PAX6 and SOX1 expression during neural induction. *ACS Chem. Neurosci.* **3(6)**, 482-491 (2012).
6. Hao, J., Lee, R., Chang, A., *et al.* DMH1, a small molecule inhibitor of BMP type I receptors, suppresses growth and invasion of lung cancer. *PLoS One* **9(3)**, 1-6 (2014).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM