DMH1 (dorsomorphin homolog 1) is a selective inhibitor of activin receptor-like kinase 2 (ALK2; IC$_{50}$ = 13 - 108 nM), a type I bone morphogenic protein (BMP) receptor (Hao et al.; Mohedas et al.). DMH1 exhibits no detectable inhibition of ALK4, ALK5, AMPK, KDR (VEGFR2) or PDGFRβ, although it inhibits ALK1 and ALK3 at nanomolar concentrations (Hao et al.; Mohedas et al.).

**Product Description**

DMH1 (dorsomorphin homolog 1) is a selective inhibitor of activin receptor-like kinase 2 (ALK2; IC$_{50}$ = 13 - 108 nM), a type I bone morphogenic protein (BMP) receptor (Hao et al.; Mohedas et al.). DMH1 exhibits no detectable inhibition of ALK4, ALK5, AMPK, KDR (VEGFR2) or PDGFRβ, although it inhibits ALK1 and ALK3 at nanomolar concentrations (Hao et al.; Mohedas et al.).

**Molecular Name:** DMH1

**Alternative Names:** Dorsomorphin homolog 1

**CAS Number:** 1206711-16-1

**Chemical Formula:** C$_{24}$H$_{20}$N$_{4}$O

**Molecular Weight:** 380.4 g/mol

**Purity:** ≥ 98%

**Chemical Name:** 4-[6-(4-propan-2-yloxyphenyl)pyrazolo[1,5-a]pyrimidin-3-yl]quinoline

**Physical Appearance:** A crystalline solid

**Storage:** Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. For product expiry date, please contact techsupport@stemcell.com.

**Solubility:**
- DMSO ≤ 2.6 mM
- DMF ≤ 50 mM

For example, to prepare a 10 mM stock solution in DMF, resuspend 1 mg in 263 µL of DMF.

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
- Induces differentiation of mouse embryonic stem cells to cardiomyocyte progenitor cells (Ao et al.).
- Induces differentiation of human induced pluripotent stem cells to SOX1 and PAX6 expressing neural precursor cells (Neely et al.).
- Dorsalizes the embryonic axis without disrupting the angiogenic process in early zebrafish embryos (Hao et al. 2010).

CANCER RESEARCH
- Inhibits chemotherapeutic drug-induced autophagy response (Sheng et al.).

References

Ao A et al. (2012) DMH1, a novel BMP small molecule inhibitor, increases cardiomyocyte progenitors and promotes cardiac differentiation in mouse embryonic stem cells. PLoS One 7(7): e41627.

Related Small Molecules

For a complete list of small molecules available from STEMCELL Technologies, please visit our website at www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).