

Small Molecules

Purmorphamine

Hedgehog pathway activator;
Activates Smoothened (SMO)

Catalog # 72202
72204

1 mg
5 mg



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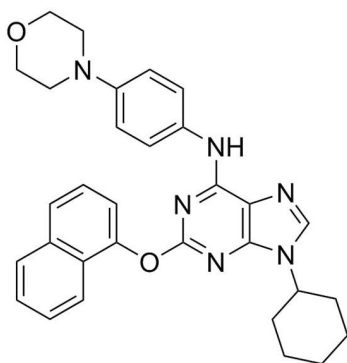
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Product Description

Purmorphamine is a tri-substituted purine derivative that activates the Hedgehog pathway by directly binding to and activating the Hedgehog receptor Smoothened ($EC_{50} = 1 \mu\text{M}$; Sinha and Chen).

Molecular Name:	Purmorphamine
Alternative Names:	Not applicable
CAS Number:	483367-10-8
Chemical Formula:	$\text{C}_{31}\text{H}_{32}\text{N}_6\text{O}_2$
Molecular Weight:	520.6 g/mol
Purity:	$\geq 98\%$
Chemical Name:	9-cyclohexyl-N-[4-(morpholinyl)phenyl]-2-(1-naphthalenyloxy)-9H-purin-6-amine
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:	· $\text{DMSO} \leq 20 \text{ mM}$ For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 192 μL of fresh 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°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 ventral spinal progenitor cells and motor neurons from human pluripotent stem cells (Hu & Zhang; Karumbayaram et al.; Li et al.).
- Promotes differentiation of osteoblasts from human and mouse mesenchymal cells (Beloti et al.; Wu et al. 2002; Wu et al. 2004).
- Inhibits differentiation and maturation of adipocytes from human mesenchymal cells (Fontaine et al.).

References

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- Hu BY & Zhang SC. (2009) Differentiation of spinal motor neurons from pluripotent human stem cells. *Nat Protoc* 4(9): 1295–304.
- Karumbayaram S et al. (2009) Directed differentiation of human-induced pluripotent stem cells generates active motor neurons. *Stem Cells* 27(4): 806–11.
- Li XJ et al. (2008) Directed differentiation of ventral spinal progenitors and motor neurons from human embryonic stem cells by small molecules. *Stem Cells* 26(4): 886–93.
- Sinha S & Chen JK. (2006) Purmorphamine activates the Hedgehog pathway by targeting Smoothened. *Nat Chem Biol* 2(1): 29–30.
- Wu X et al. (2002) A small molecule with osteogenesis-inducing activity in multipotent mesenchymal progenitor cells. *J Am Chem Soc* 124(49): 14520–1.
- Wu X et al. (2004) Purmorphamine induces osteogenesis by activation of the hedgehog signaling pathway. *Chem Biol* 11(9): 1229–38.

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