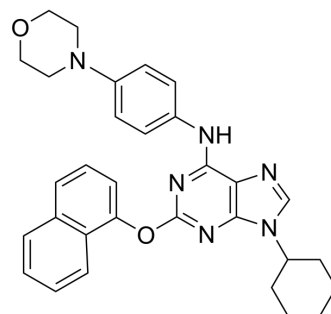


Purmorphamine

Cat. No.:	HY-15108		
CAS No.:	483367-10-8		
Molecular Formula:	C ₃₁ H ₃₂ N ₆ O ₂		
Molecular Weight:	520.62		
Target:	Smo; Autophagy; Organoid		
Pathway:	Stem Cell/Wnt; Autophagy		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 33.33 mg/mL (64.02 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.9208 mL	9.6039 mL	19.2079 mL
	5 mM	0.3842 mL	1.9208 mL	3.8416 mL
	10 mM	0.1921 mL	0.9604 mL	1.9208 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (4.80 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (4.80 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (4.80 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Purmorphamine is a smoothened/Smo receptor agonist with an EC₅₀ of 1 μM.

IC₅₀ & Target

IC₅₀: 1.5 μM (Smoothened)

In Vitro

Purmorphamine (10, 20 μM) in combination with sirolimus significantly decreases cell numbers according to the MTT assay. Purmorphamine induces up-regulation of alkaline phosphatase activity and expression of RUNX-2 at day 14. Up-regulation of osteocalcin is detected at the 3 and 5 μM doses of purmorphamine on day 14 post-induction. Matrix mineralization

remains unchanged in the presence or absence of purmorphamine^[1]. Purmorphamine induces STAT3 phosphorylation in mouse ES cell line ES14 and mesenchymal stem cell line C3H10T1/2^[2]. Purmorphamine up-regulates the expression of markers of the osteoblast phenotype-ALP activity and bone-like nodule formation in human bone marrow mesenchymal cells^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay ^[1]

To determine non-toxic doses of the small molecules, 5×10^5 passaged-3 human MSCs are seeded in each well of a six-well culture plate and incubated in expansion medium (as mentioned above) at 37°C and 5% CO₂. Two days later, the medium is exchanged with osteogenic medium (OM) that consisted of α -MEM supplemented with 10% FBS, 10 nM dexamethasone, 50 μ g/mL ascorbic acid 2-phosphate, and 10 mM beta-glycerol phosphate. This OM is supplemented with different concentrations of purmorphamine (1, 3, 5, 10, and 20 μ M) and sirolimus (0.1, 1, 10, 100, and 200 nM). The cultures are maintained for an additional two days and then assessed for the presence of viable cells with the MTT assay, by the addition of MTT solution (5 mg/mL in PBS) to the medium at a ratio of 1:5. Cells are then incubated at 37°C and 5% CO₂. Two hours later, the medium is removed and 500 μ L of DMSO is added to the treated cells in order to dissolve the formazone precipitate. The optical absorption rate is read at 570 nm. Cell viability is calculated as percent value relative to the control group which is only treated with OM.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mil Med Res. 2020 Nov 1;7(1):52.
- Mil Med Res. 2020 Sep 6;7(1):42.
- J Exp Clin Cancer Res. 2018 Nov 27;37(1):287.
- Pharmacol Res. 2021 Jan 26;105460.
- Life Sci. 2023 Jul 29;329:121990.

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REFERENCES

- [1]. Beloti MM, et al. Purmorphamine enhances osteogenic activity of human osteoblasts derived from bone marrow mesenchymal cells. Cell Biol Int. 2005 Jul;29(7):537-41. ...
- [2]. Gu D, et al. A role for transcription factor STAT3 signaling in oncogene smoothed-driven carcinogenesis. J Biol Chem. 2012 Nov 2;287(45):38356-66.
- [3]. Beloti MM, et al. Purmorphamine enhances osteogenic activity of human osteoblasts derived from bone marrow mesenchymal cells. Cell Biol Int. 2005 Jul;29(7):537-41.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA