

# Product Information



## Purmorphamine

Item No. 10009634

**CAS Registry No.:** 483367-10-8

**Formal Name:** 9-cyclohexyl-N-[4-(morpholinyl)phenyl]-2-(1-naphthalenoxy)-9H-purin-6-amine

**MF:** C<sub>31</sub>H<sub>32</sub>N<sub>6</sub>O<sub>2</sub>

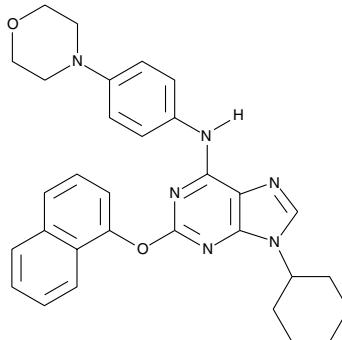
**FW:** 520.6

**Purity:** ≥98%

**Stability:** ≥2 years at -20°C

**Supplied as:** A crystalline solid

**UV/Vis.:** λ<sub>max</sub>: 221, 316 nm



### Laboratory Procedures

For long term storage, we suggest that purmorphamine be stored as supplied at -20°C. It should be stable for at least two years.

Purmorphamine is supplied as a crystalline solid. A stock solution may be made by dissolving the purmorphamine in an organic solvent purged with an inert gas. Purmorphamine is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of purmorphamine in these solvents is approximately 10 and 20 mg/ml, respectively.

Purmorphamine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, purmorphamine should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Purmorphamine has a solubility of approximately 0.25 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Small molecules that promote osteoblast differentiation might be useful as therapeutic agents for bone diseases such as osteoporosis. Purmorphamine is a 2,6,9-trisubstituted purine that promotes the differentiation of both human and mouse mesenchymal progenitor cells into osteoblasts.<sup>1,2</sup> The EC<sub>50</sub> value for differentiation of C3H10T1/2 cells based on alkaline phosphatase expression is 1 μM.<sup>1</sup> Investigation into purmorphamine's mechanism of action indicates that it directly binds to and activates the 7-transmembrane Smo receptor of the Hedgehog signaling pathway.<sup>3,4</sup>

### References

1. Wu, X., Ding, Q., Gray, N.S., *et al.* A small molecule with osteogenesis-inducing activity in multipotent mesenchymal progenitor cells. *J. Am. Chem. Soc.* **124**, 14520-14521 (2002).
2. Belotti, M.M., Bellesini, L.S., and Rosa, A.L. Purmorphamine enhances osteogenic activity of human osteoblasts derived from bone marrow mesenchymal cells. *Journal of Cell Biology International* **29**(7), 537-541 (2005).
3. Wu, X., Walker, J., Zhang, J., *et al.* Purmorphamine induces osteogenesis by activation of the hedgehog signaling pathway. *Chemistry & Biology* **11**, 1229-1238 (2004).
4. Sinha, S. and Chen, J.K. Purmorphamine activates the hedgehog pathway by targeting smoothened. *Nature Chemical Biology* **2**(1), 29-30 (2006).

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For a list of related products please visit: [www.caymanchem.com/catalog/10009634](http://www.caymanchem.com/catalog/10009634)

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**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

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This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Material Safety Data Sheet, which has been sent *via* email to your institution.

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