

# PRODUCT INFORMATION



## Cyclopamine

Item No. 11321

**CAS Registry No.:** 4449-51-8  
**Formal Name:** (2'R,3S,3'R,3'aS,6'S,6aS,6bS,7'aR,11aS,11bR)-1,2,3,3'a,4,4',5',6,6',6a,6b,7,7',7'a,8,11,11a,11b-octadecahydro-3',6',10,11b-tetramethyl-spiro[9H-benzo[a]fluorene-9,2'(3'H)-furo[3,2-b]pyridin]-3-ol

**Synonyms:** 11-Deoxojervine, Jervine

**MF:** C<sub>27</sub>H<sub>41</sub>NO<sub>2</sub>

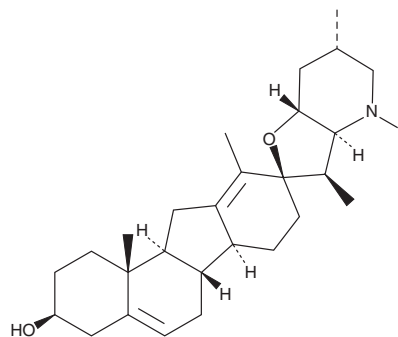
**FW:** 411.6

**Purity:** ≥95%

**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

Cyclopamine is supplied as a crystalline solid. A stock solution may be made by dissolving the cyclopamine in the solvent of choice, which should be purged with an inert gas. Cyclopamine is soluble in organic solvents such as ethanol and dimethyl formamide (DMF). The solubility of cyclopamine in ethanol is approximately 10 mg/ml and approximately 2 mg/ml in DMF.

Cyclopamine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, cyclopamine should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Cyclopamine has a solubility of approximately 0.25 mg/ml in a 1:3 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Cyclopamine is a natural steroidal alkaloid that inhibits signaling through the hedgehog pathway at the level of the pathway activator Smoothened.<sup>1,2</sup> By altering gene expression in this signaling sequence, cyclopamine induces defects in morphogenesis, first observed in chicks and sheep as cyclopia.<sup>1</sup> As a readout of action, cyclopamine inhibits hedgehog-dependent expression of Pax7 with an IC<sub>50</sub> value of 24 nM.<sup>1</sup> Although teratogenic during development, cyclopamine has potential applications in the treatment of cancer.<sup>3-5</sup>

### References

1. Incardona, J.P., Gaffield, W., Kapur, R.P., *et al.* The teratogenic Veratrum alkaloid cyclopamine inhibits Sonic hedgehog signal transduction. *Development* **125(18)**, 3553-3562 (1998).
2. Frank-Kamenetsky, M., Zhang, X.M., Bottega, S., *et al.* Small-molecule modulators of Hedgehog signaling: Identification and characterization of smoothened agonists and antagonists. *J. Biol.* **1(2)**, 1-19 (2002).
3. Xu, F.-G., Ma, Q.-Y., and Wang, Z. Blockade of hedgehog signaling pathway as a therapeutic strategy for pancreatic cancer. *Cancer Lett.* **283(2)**, 119-124 (2009).
4. Heretsch, P., Tzagkaroulaki, L., and Giannis, A. Cyclopamine and hedgehog signaling: Chemistry, biology, medical perspectives. *Angew. Chem. Int. Ed.* **49(20)**, 3418-3427 (2010).
5. Mahindroo, N., PUNCHIHewa, C., and Fujii, N. Hedgehog-Gli signaling pathway inhibitors as anticancer agents. *J. Med. Chem.* **52(13)**, 3829-3845 (2009).

#### 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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