

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: C₂₇H₄₁NO₂

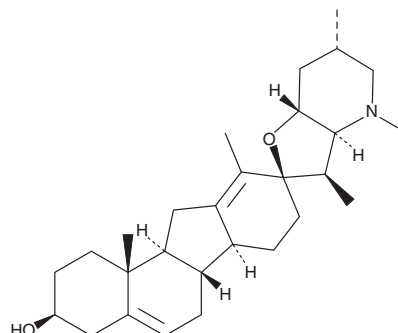
FW: 411.6

Purity: ≥95%

Supplied as: A crystalline solid

Storage: -20°C

Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly



Laboratory Procedures

Cyclopamine is supplied as a crystalline solid. A stock solution may be made by dissolving the cyclopamine in the solvent of choice. Cyclopamine is soluble in organic solvents such as ethanol and dimethyl formamide (DMF), which should be purged with an inert gas. 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.^{1,2} By altering gene expression in this signaling sequence, cyclopamine induces defects in morphogenesis, first observed in chicks and sheep as cyclopia.¹ As a readout of action, cyclopamine inhibits hedgehog-dependent expression of Pax7 with an IC₅₀ value of 24 nM.¹ Although teratogenic during development, cyclopamine has potential applications in the treatment of cancer.³⁻⁵

References

1. Incardona, J.P., Gaffield, W., Kapur, R.P., *et al.* The teratogenic Veratrum alkaloid cyclopamine inhibits Sonic hedgehog signal transduction. *Development* **125**, 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**, 119-124 (2009).
4. Heretsch, P., Tzagkaroulaki, L., and Giannis, A. Cyclopamine and hedgehog signaling: Chemistry, biology, medical perspectives. *Angew. Chem. Int. Ed.* **49**, 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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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM