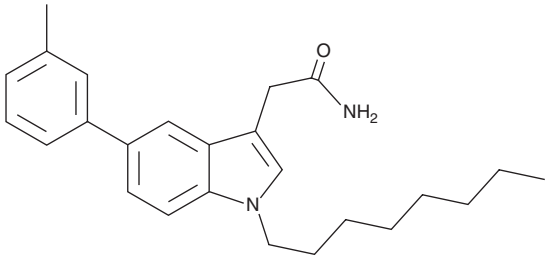
PRODUCT INFORMATION

Cysmethynil

Item No. 14745

CAS Registry No.: 851636-83-4
Formal Name: 5-(3-methylphenyl)-1-octyl-1H-indole-3-acetamide
Synonym: Icmt Inhibitor
MF: $C_{25}H_{32}N_2O$
FW: 376.5
Purity: ≥98%
UV/Vis.: λ_{max}: 257 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years
Special Conditions: Light sensitive



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Cysmethynil is supplied as a crystalline solid. A stock solution may be made by dissolving the cysmethynil in the solvent of choice, which should be purged with an inert gas. Cysmethynil is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of cysmethynil in these solvents is approximately 20, 5, and 3.3 mg/ml, respectively.

Description

Post-translational protein prenylation is a 3-step process that occurs at the C-terminus of a number of proteins involved in cell growth control and oncogenesis. Isoprenylcysteine carboxyl methyltransferase (Icmt) catalyzes the methylation of C-terminal prenylcysteine residues, the last step in this process. Cysmethynil is an indole-based, time-dependent inhibitor of Icmt (IC_{50} = <200 nM).[1] It acts as a competitive inhibitor with respect to the isoprenylated cysteine substrate and a noncompetitive inhibitor with respect to S-adenosylmethionine (K_i = 0.14 µM for the final complex).[2] It does not inhibit other enzymes in the prenylation pathway (farensyltransferase, geranylgeranyltransferase type I, and Rce1) at concentrations up to 50 µM, or related methyltransferases.[1] Treatment of cancer cells results in a dose-dependent decrease in Ras carboxylmethylation, mislocalization of Ras, and impaired signaling through Ras pathways.[1] Treatment of PC3 prostate cancer cells with 25 µM cysmethynil resulted in decreased mTOR signaling, accumulation of cells in the G_1 phase, and autophagy-mediated cell death.[3]

References

1. Winter-Vann, A.M., Baron, R.A., Wong, W., *et al.* A small-molecule inhibitor of isoprenylcysteine carboxyl methyltransferase with antitumor activity in cancer cells. *Proc. Natl. Acad. Sci. USA* **102(12)**, 4336-4341 (2005).
2. Baron, R.A., Peterson, Y.K., Otto, J.C., *et al.* Time-dependent inhibition of isoprenylcysteine carboxyl methyltransferase by indole-based small molecules. *Biochemistry* **46(2)**, 554-560 (2007).
3. Wang, M., Tan, W., Zhou, J., *et al.* A small molecule inhibitor of isoprenylcysteine carboxymethyltransferase induces autophagic cell death in PC3 prostate cancer cells. *J. Biol. Chem.* **283(27)**, 18678-18684 (2008).

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