

Certificate of Analysis

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Product Name: Harmine

CAS Number: 442-51-3

IUPAC Name: 7-Methoxy-1-methyl-9*H*-pyrido[3,4-*b*]indole

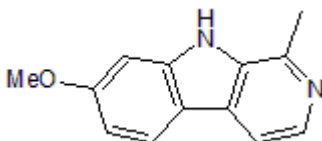
Catalog No.: 5075

Batch No.: 2

EC Number: 207-131-4

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₃H₁₂N₂O
Batch Molecular Weight: 212.25
Physical Appearance: White solid
Solubility: DMSO to 100 mM
ethanol to 5 mM with gentle warming
Storage: Store at RT
Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.9% purity
¹H NMR: Consistent with structure
Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	73.56	5.7	13.2
Found	73.75	5.67	13.18

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Potent and selective inhibitor of DYRK1A (IC₅₀ values are 80, 800 and 900 nM for DYRK1A, DYRK3 and DYRK2 respectively). Inhibits DYRK1A-mediated tau phosphorylation and regulates PPAR_γ expression. Also induces pancreatic beta cell proliferation. Exhibits antidiabetic activity. Orally bioavailable.

Physical and Chemical Properties:

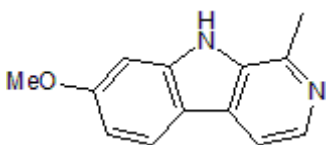
Batch Molecular Formula: C₁₃H₁₂N₂O

Batch Molecular Weight: 212.25

Physical Appearance: White solid

Minimum Purity: >98%

Batch Molecular Structure:



References:

Bain *et al* (2007) The selectivity of protein kinase inhibitors: a further update. *Biochem.J.* **408** 297. PMID: 17850214.

Waki *et al* (2007) The small molecule harmine is an antidiabetic cell-type-specific regulator of PPAR_γ expression. *Cell Metab.* **5** 357. PMID: 17488638.

Smith *et al* (2012) Recent advances in the design, synthesis, and biological evaluation of selective DYRK1A inhibitors: a new avenue for a disease modifying treatment of Alzheimer's? *ACS Chem.Neurosci.* **3** 857. PMID: 23173067.

Wang *et al* (2015) A high-throughput chemical screen reveals that harmine-mediated inhibition of DYRK1A increases human pancreatic beta cell replication. *Nat.Med.* **21** 383. PMID: 25751815.

Storage: Store at RT

Solubility & Usage Info:

DMSO to 100 mM

ethanol to 5 mM with gentle warming

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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