Print Date: Apr 5th 2022

Certificate of Analysis

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Product Name: **Harmine** **Catalog No.: 5075** **Batch No.: 2**

CAS Number: 442-51-3 EC Number: 207-131-4

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

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{13}H_{12}N_2O$

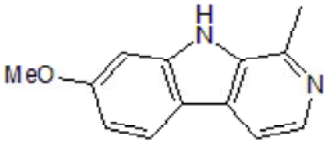
Batch Molecular Weight: 212.25

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

^{1}H 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

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Product Information

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

Description:

Harmine is a potent and selective inhibitor of DYRK1A (IC_{50} values are 80, 800 and 900 nM for DYRK1A, DYRK3 and DYRK2 respectively). Inhibits DYRK1A-mediated tau phosphorylation and regulates PPARγ expression. Harmine also induces pancreatic β cell proliferation and exhibits antidiabetic activity. Orally bioavailable. Harmine has high affinity (K_d = 100 nM) for the yjdF aptamer. The riboswitch function of yjdF motif RNAs is activated by Harmine and leads to robust reporter gene expressions in B. subtilis.

Physical and Chemical Properties:

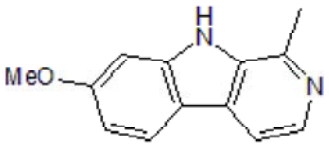
Batch Molecular Formula: $C_{13}H_{12}N_2O$

Batch Molecular Weight: 212.25

Physical Appearance: White solid

Minimum Purity: ≥98%

Batch Molecular Structure:



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.

References:

Li *et al* (2016) The yjdF riboswitch candidate regulates gene expression by binding diverse azaaromatic compounds. RNA ***22*** 530. PMID: 26843526.

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.

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.