L-(+)-Abrine

Cat. No.: HY-N1436

CAS No.: 526-31-8

Molecular Formula: $C_{12}H_{14}N_2O_2$

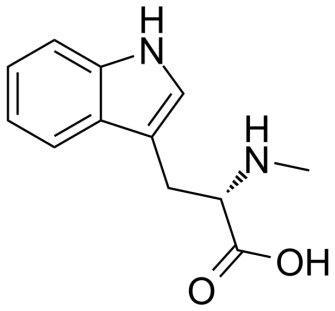
Molecular Weight: 218.25

Target: Others

Pathway: Others

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 2 mg/mL (9.16 mM; ultrasonic and adjust pH to 10 with NaOH)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	4.5819 mL	22.9095 mL	45.8190 mL
	5 mM	0.9164 mL	4.5819 mL	9.1638 mL
	10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

L-(+)-Abrine, a lethal albumin found in Abrus precatorius seeds, is an acute toxic alkaloid and chemical marker for abrin.

In Vitro

L-(+)-Abrine is a marker for abrin poisoning. A strong indication for abrin poisoning is the presence of the chemical maker L-(+)-Abrine, which can survive metabolism in significant amounts making it detectable in human urine[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Abrin is a toxic protein found in the jequirity seed. L-(+)-Abrine (L-Abrine) is also found in the jequirity seed and can be used as a biomarker for abrin exposure. An animal study is designed to monitor the excretion and recovery of L-(+)-Abrine in 20 rats. The animals are exposed to one of three concentrations of L-(+)-Abrine, a single high concentration of L-tryptophan, or no agent (control). The low L-(+)-Abrine dose corresponds to 0.63 LD_{50} i.p. abrin in mice, assuming a concentration ratio of 1:4 of abrin to L-(+)-Abrine and an LD_{50} for abrin of 20 μg/kg. The mid and high L-(+)-Abrine (250 and 400 μg/kg) doses are included to ensure that the target analyte can be detected and tracked over the course of the experiment[2].

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PROTOCOL

Animal Administration [2]

Rats[2]

Twenty male Wistar rats, approximately 6-7 weeks of age and weighing approximately 175-200 g upon receipt, are used. A total of 12 rats are dosed intramuscularly with L-(+)-Abrine at 0.63, 3.13, and 5 times the expected Abrin LD_{50} of 20 μg/kg. Although no toxin is used here, the concentration of the biomarker is increased by a factor of 4 to estimate an equivalent level of toxin, assuming that Labrine is present in rosary peas at a concentration four times greater that the toxin abrin. A total of 12 rats are dosed intramuscularly with L-(+)-Abrine: four at approximately 50 μg/kg body weight (bw), four at 250 μg/kg bw, and four at 400 μg/kg bw. Four control rats are dosed with water, which is the vehicle for all dosing experiments. Another four rats are dosed intraperitoneally with 20,000 μg/kg L-tryptophan to verify that endogenous L-tryptophan is not metabolized to L-(+)-Abrine[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Cho H, et al. A portable and chromogenic enzyme-based sensor for detection of abrin poisoning. Biosens Bioelectron. 2014 Apr 15;54:667-73.

[2]. Johnson RC, et al. Quantification of L-abrine in human and rat urine: a biomarker for the toxin abrin. J Anal Toxicol. 2009 Mar;33(2):77-84.

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