Hypotaurine

Cat. No.: HY-100803

CAS No.: 300-84-5

Molecular Formula: $C_2H_7NO_2S$

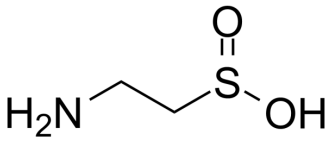
Molecular Weight: 109.15

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

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 : 125 mg/mL (1145.21 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	9.1617 mL	45.8085 mL	91.6170 mL
5 mM	1.8323 mL	9.1617 mL	18.3234 mL
10 mM	0.9162 mL	4.5809 mL	9.1617 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (916.17 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Hypotaurine (2-aminoethanesulfinic acid), an intermediate in taurine biosynthesis from cysteine in astrocytes, is an endogenous inhibitory amino acid of the glycine receptor. Antioxidant[1].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

Hypotaurine and taurine are found to reside within the cytosolic compartment of the cell. The ratio of taurine to hypotaurine is approx 50:1. The cytosolic concentration of taurine is approx. 50 mM. The concentration of hypotaurine decreases by 80% when resting neutrophils are converted into actively respiring cells by exposure to opsonized zymosan[1]. Hypotaurine activates hypoxia signaling through the competitive inhibition of prolyl hydroxylase domain-2. This leads to the activation of hypoxia signaling as well as to the enhancement of glioma cell proliferation and invasion[2].

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

In Vivo	Hypotaurine has antinociceptive effects on thermal, mechanical, and chemical nociception in the spinal cord. In CCI rats, hypotaurine alleviates mechanical allodynia and thermal hyperalgesia. Intrathecal hypotaurine suppresses acute, inflammatory, and neuropathic pain. Hypotaurine may regulate nociceptive transmission physiologically by activating glycinergic neurons in the spinal cord[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]	Rats: A radiant heat source is focused on the middle part of the rat's tail. The time interval from the onset of the stimulus until the tail flick response is measured using a tail flick unit. The intensity of the radiant heat is adjusted to give a tail flick latency of 4–5 s before the administration of hypotaurine or saline. In the absence of a response, the stimulus is terminated after 15 s (cutoff) to prevent tissue damage. The effects of hypotaurine (100, 200, 400, and 600 μg) on thermal nociception are assessed repeatedly for 120 min post-injection[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Front Cell Dev Biol. 2021 Apr 15;9:631163.

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REFERENCES

[1]. Green TR, et al. Antioxidant role and subcellular location of hypotaurine and taurine in human neutrophils. Biochim Biophys Acta. 1991 Jan 23;1073(1):91-7. https://www.ncbi.nlm.nih.gov/pubmed/1846756

[2]. Gao P, et al. Hypotaurine evokes a malignant phenotype in glioma through aberrant hypoxic signaling. Oncotarget. 2016 Mar 22;7(12):15200-14.

[3]. Hara K, et al. Antinociceptive effect of intrathecal administration of hypotaurine in rat models of inflammatory and neuropathic pain. Amino Acids. 2012 Jul;43(1):397-404. Hara K, et al. Antinociceptive effect of intrathecal administration of hypotaurine

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