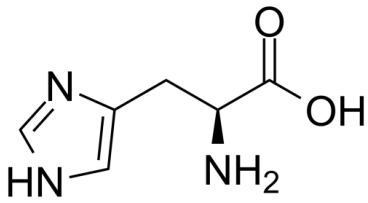
Data Sheet

Product Name:	L-Hisidine
Cat. No.:	CS-7781
CAS No.:	71-00-1
Molecular Formula:	C6H9N3O2
Molecular Weight:	155.15
Target:	Endogenous Metabolite; Mitochondrial Metabolism
Pathway:	Metabolic Enzyme/Protease
Solubility:	H2O : 30 mg/mL (193.36 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

L-Hisidine is an essential amino acid for infants. L-Hisidine is an inhibitor of **mitochondrial glutamine transport**. **In Vitro:** L-histidine completely inhibits growth and its effect on viability is inversely related to FLO11 expression. L-histidine does not affect the viability of the Δflo11 and S288c strains. L-histidine dramatically decreases air-liquid biofilm formation and adhesion to polystyrene of the flor yeasts with no effect on the transcription level of the FLO11 gene. Moreover, L-histidine modifies the chitin and glycans content on the cell-wall of flor yeasts[1]. **In Vivo:** L-histidine (100 mg/kg) completely inhibits the brain edema in thioacetamide-treated rats[2]. Histamine release stimulated by high K^+ from the hypothalamus in the L-histidine diet group is 60% of that in the control group. However, the concentrations of other monoamines and their metabolites are not changed by the L-histidine diet. The open-field tests show that the L-histidine diet group spends a shorter amount of time in the central zone, and the light/dark box tests demonstrate that the L-histidine diet group spends a shorter amount of time in the light box, suggesting that the L-histidine diet induced anxiety-like behaviors[3].

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: [2][3]Rats: TAA (300 mg/kg i.p) is given to animals daily for 3 days. L-histidine (100 mg/kg) is dissolved in saline and injected (i.p.) daily 2 hours before each TAA injection. To prevent hypoglycemia and dehydration, rats are given 12.5 ml/kg of fluid therapy (5% dextrose and 0.45% saline with 20 mEq/L of potassium chloride) every 12 hours, s.c. Normal controls receive saline (vehicle used for TAA), whereas another group of rats are given L-histidine alone (100 mg/kg) daily for 3 days. TAA-treated rats are clinically monitored, and stages of encephalopathy are graded[2].

Mice: The control group is fed with the AIN-93G purified diet that contains 5.08 g L-histidine/kg, whereas the L-histidine diet group is fed with AIN-93G that contains 1.28 g L-histidine/kg (25% of the histidine content in AIN-93G). To equalize the total amount of amino acids, glutamine is added to the L-histidine diet to counterbalance the changes in the histidine content (18.32 g L-glutamine/kg AIN-93G vs. 23.72 g L-glutamine/kg L-histidine diet). Both diets are isonitrogenous. At 8 wk of age, the mice are weighed and assigned to 2 different diets. The mice are allowed ad libitum access to water and their respective diets, and they are housed for at least 2 wk in the laboratory before starting the experiments[3].

References:

[1]. Bou Zeidan M, et al. L-histidine inhibits biofilm formation and FLO11-associated phenotypes in Saccharomyces cerevisiae flor yeasts. PLoS One. 2014 Nov 4;9(11):e112141.

[2]. Rama Rao KV, et al. Brain edema in acute liver failure: inhibition by L-histidine. Am J Pathol. 2010 Mar;176(3):1400-8.

[3]. Yoshikawa T, et al. Insufficient intake of L-histidine reduces brain histamine and causes anxiety-like behaviors in male mice. J Nutr. 2014 Oct;144(10):1637-41.

CAIndexNames:

L-Histidine

SMILES:

N[C@@H](CC1=CNC=N1)C(O)=O

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