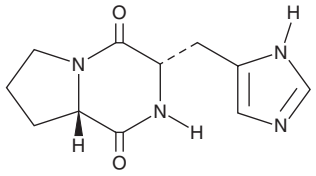
PRODUCT INFORMATION

Cyclo(L-His-L-Pro)

Item No. 31172

CAS Registry No.: 53109-32-3
Formal Name: (3S,8aS)-hexahydro-3-(1H-imidazol-4-ylmethyl)-pyrrolo[1,2-a]pyrazine-1,4-dione
Synonyms: Cyclo(His-Pro), Cyclo(histidyl-proline), Histidylproline diketopiperazine, Histidylproline dioxopiperazine
MF: $C_{11}H_{14}N_4O_2$
FW: 234.3
Purity: ≥95%
Supplied as: A neat oil
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Cyclo(L-His-L-Pro) is supplied as a neat oil. A stock solution may be made by dissolving the cyclo(L-His-L-Pro) in the solvent of choice, which should be purged with an inert gas. Cyclo(L-His-L-Pro) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of cyclo(L-His-L-Pro) in these solvents is approximately 1 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of cyclo(L-His-L-Pro) can be prepared by directly dissolving the neat oil in aqueous buffers. The solubility of cyclo(L-His-L-Pro) in PBS, pH 7.2, is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Cyclo(L-His-L-Pro) is an endogenous cyclic neuropeptide and a metabolite of thyrotropin-releasing hormone (TRH).[1] It is formed in the hypothalamus *via* the hydrolytic removal of pyroglutamic acid from TRH followed by non-enzymatic cyclization but is also synthesized *de novo*.[2] It is ubiquitously expressed in the CNS, but is also found in the gastrointestinal tract and blood. Cyclo(L-His-L-Pro) (50 µM) reduces LPS-induced production of reactive oxygen species (ROS) and nitric oxide (NO), as well translocation of NF-κB in BV-2 microglia. Levels of cyclo(L-His-L-Pro) are increased in rat brain after six weeks of continuous ethanol consumption and cyclo(L-His-L-Pro) reduces ethanol-induced sleep time in rats when administered at a dose of 1 µmol/kg.[1,3] Cyclo(L-His-L-Pro) induces analgesia in the hot-plate test and reduces acetic acid-induced writhing in mice, effects that can be partially reversed by the opioid antagonist naloxone.[1]

References

1. Prasad, C. Neurobiology of cyclo(His-Pro). *Ann. N.Y. Acad. Sci.* **553(1)**, 232-251 (1989).
2. Grottelli, S., Ferrari, I., Pietrini, G., *et al.* The role of cyclo(His-Pro) in neurodegeneration. *Int. J. Mol. Sci.* **17(8)**, 1332 (2016).
3. Prasad, C., Matsui, T., and Peterkofsky, A. Antagonism of ethanol narcosis by histidyl-proline diketopiperazine. *Nature* **268(5616)**, 142-144 (1977).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM