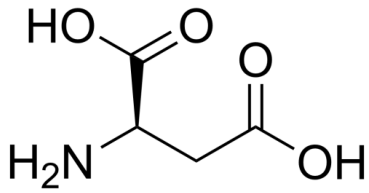
Data Sheet

Product Name:	(-)-Aspartic acid
Cat. No.:	CS-0020434
CAS No.:	1783-96-6
Molecular Formula:	$C_4H_7NO_4$
Molecular Weight:	133.10
Target:	Pyroptosis
Pathway:	Apoptosis; Immunology/Inflammation
Solubility:	H_2O : 7.69 mg/mL (ultrasonic);DMSO : < 1 mg/mL



BIOLOGICAL ACTIVITY:

(-)-Aspartic acid is a pyroptosis inhibitor. (-)-Aspartic acid acts as a neurotransmitter and neuromodulator, participates in hormone synthesis and regulation, and plays a role in nervous system development and endocrine system[5].

In Vitro: (-)-Aspartic acid (1, 10, 30 mM) inhibits HGF cell pyroptosis through the TLRs-NLRP3-caspase 1-GSDMD pathway to prevent gingival fibroblast inflammation[1].

(-)-Aspartic acid (0.1, 1, 10 nM, 48 h) stimulates steroid production in mammalian Leydig cell lines by regulating LH receptor (LHR) exposure on the cell membrane[2].

(-)-Aspartic acid acts as a neuropeptide co transmitter by releasing glutamate or GABA as its main neurotransmitter pathway [5].

(-)-Aspartic acidactivates cAMP dependent gene transcription, inhibits CREB function, reduces BDNF expression, and induces excitotoxic neuronal death[5].

In Vivo: (-)-Aspartic acid (0.5, 1, 2, 4 μmol/g; i.p.) participates in the synthesis of testosterone in rats[3].

(-)-Aspartic acid (2 μmol/g; i.p.) increases the secretion of gonadotropin-releasing hormone (GnRH), prolactin (PRL), luteinizing hormone (LH), and growth hormone (GH) in rats[4].

References:

[1]. Xuechun Du, et al. D-aspartic acid protects against gingival fbroblasts infammation by suppressing pyroptosis. Mol Biol Rep. 2022 Jul;49(7):5821-5829.

[2]. Di Nisio A, et al. D-Aspartic acid stimulates steroidogenesis through the delay of LH receptor internalization in a mammalian Leydig cell line. J Endocrinol Invest. 2016 Feb;39(2):207-213.

[3]. D'Aniello A, et al. Involvement of D-aspartic acid in the synthesis of testosterone in rat testes. Life Sci. 1996;59(2):97-104.

[4]. D'Aniello A, et al. Occurrence of D-aspartic acid and N-methyl-D-aspartic acid in rat neuroendocrine tissues and their role in the modulation of luteinizing hormone and growth hormone release. FASEB J. 2000 Apr;14(5):699-714.

[5]. D'Aniello A. D-Aspartic acid: an endogenous amino acid with an important neuroendocrine role. Brain Res Rev. 2007 Feb;53(2):215-34.

CAIndexNames:

D-Aspartic acid

SMILES:

N[C@@H](C(O)=O)CC(O)=O

Caution: Product has not been fully validated for medical applications. For research use only.

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