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Lieferung & Zahlungsart

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Zuschläge

- Mindermengenzuschlag
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Colivelin

Cat. No.: HY-P1061

CAS No.: 867021-83-8

Molecular Formula: $C_{119}H_{206}N_{32}O_{35}$

Molecular Weight: 2645.1

SALLRSIPAPAGASRLLLLTGEIDLP

Sequence Shortening: SALLRSIPAPAGASRLLLLTGEIDLP

Target: STAT; Amyloid-β

Pathway: JAK/STAT Signaling; Stem Cell/Wnt; Neuronal Signaling

Storage: Sealed storage, away from moisture

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (37.81 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	0.3781 mL	1.8903 mL	3.7806 mL
	5 mM	0.0756 mL	0.3781 mL	0.7561 mL
	10 mM	0.0378 mL	0.1890 mL	0.3781 mL

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

BIOLOGICAL ACTIVITY

Description

Colivelin is a brain penetrant neuroprotective peptide and a potent activator of STAT3, suppresses neuronal death by activating STAT3 in vitro[1]. Colivelin exhibits long-term beneficial effects against neurotoxicity, Aβ deposition, neuronal apoptosis, and synaptic plasticity deficits in neurodegenerative disease[2]. Colivelin has the potential for the treatment of alzheimer's disease and ischemic brain injury[1]

IC_{50} & Target	STAT3	Amyloid-β

In Vitro

Colivelin completely suppresses death induced by overexpressed FAD-causative genes and Aβ1-43 at a concentration of 100 fm, and keep its neuroprotective action at or above the levels of 1 nm[1].

Colivelin-induced neuroprotection occurs via two neuroprotective pathways: one mediated by Ca^{2+}/calmodulin-dependent protein kinase IV, triggered by ADNF, and one mediated by signal transducer and activator of transcription 3, triggered by HN[1].

Colivelin reverses caspase3, Bax and Bcl-2 expressions in HT22 cells medaited by rmMFG-E8 in the co-cultured cells under OGD condition[4].

Colivelin (50 μg/mL, 4 hours) significantly increases the p-STAT3 protein levels in BV-2 cells[4].

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

Western Blot Analysis[4]

Cell Line:	BV-2 cells.
Concentration:	50 μg/mL.
Incubation Time:	4 hours.
Result:	Increased p-STAT3 levels.

Cell Viability Assay[5]

Cell Line:	KYSE70 and TE8 cells.
Concentration:	0.5 μM.
Incubation Time:	1 hour (followed by CYT-Rx20 treatment)
Result:	Sgnificantly suppressed the viability in KYSE70 and TE8 cells.

In Vivo

Colivelin (intracerebroventricular administration; 10 pmol/3 μl; 3 weeks) suppresses impairment in spatial working memory induced by repetitive intracerebroventricular injection of Aβ25-35 or Aβ1-42, in addition, it antagonizes neuronal loss in the CA1 region of hippocampus induced by hippocampal injection of Aβ1-42[1].

Colivelin (intraperitoneal administration; 1.4, 7, or 35 nM/0.21 mL; on the Y-maze testday) suppresses memory impairment caused by 3-quinuclidinyl benzilateand restricts functional memory deficit[1].

Colivelin (intraperitoneal injection; 1 mg/kg; 14 days) results in improved motor and cognitive function with time by performance of mNSS, rotarod, and corner turning test.It also reduces lesion volume and improves neurological deficits after MCAO[3].

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

Animal Model:	CD-1 mice[1]
Dosage:	10 pmol/3 μl
Administration:	Intracerebroventricular administration
Result:	Completely suppressed Aβ 25-35-mediated impairment in spatial working memory and increased the number of immunoreactive neurons.

Animal Model:	C57 mice[1]
Dosage:	1.4, 7, or 35 nM/0.21mL
Administration:	Intraperitoneal administration
Result:	Protected against cholinotoxin-induced amnesia in mice.

Animal Model:	Male C57BL/6 mice[3]
Dosage:	1 mg/kg
Administration:	Intraperitoneal administration

Result:	Protected against ischemic brain injury, and improves neurological outcomes

CUSTOMER VALIDATION

- Sci Transl Med. 2021 Oct 6;13(614):eabg6428.
- Nat Commun. 2021 Nov 25;12(1):6891.
- Redox Biol. 2023 Nov 7, 102956.
- Proc Natl Acad Sci U S A. 2022 Oct 11;119(41):e2122099119.
- Int J Biol Sci. 2023 Mar.

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REFERENCES

[1]. Chiba T, et al. Development of a femtomolar-acting humanin derivative named colivelin by attaching activity-dependent neurotrophic factor to its N terminus: characterization of colivelin-mediated neuroprotection against Alzheimer's disease-relevant insults in vitro and in vivo. J Neurosci. 2005 Nov 2;25(44):10252-61.

[2]. Pan Z, et al. Upregulation of HSP72 attenuates tendon adhesion by regulating fibroblast proliferation and collagen production via blockade of the STAT3 signaling pathway.Cell Signal. 2020 Mar 18:109606.

[3]. Zhao H, et al. Colivelin Rescues Ischemic Neuron and Axons Involving JAK/STAT3 Signaling Pathway.Neuroscience. 2019 Sep 15;416:198-206.

[4]. Fang YY, et al. MFG-E8 alleviates oxygen-glucose deprivation-induced neuronal cell apoptosis by STAT3 regulating the selective polarization of microglia. Int J Neurosci. 2020 Mar 12:1-10.

[5]. Chiu WC, et al. The Synthetic β-Nitrostyrene Derivative CYT-Rx20 Inhibits Esophageal Tumor Growth and Metastasis via PI3K/AKT and STAT3 Pathways. PLoS One. 2016 Nov 22;11(11):e0166453.

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