
Product Data Sheet

Applications	MFG-E8 regulated OGD-induced microglial M1/M2 polarization by inhibiting p-STAT3 and SOCS3 expressions, which was reversed by STAT3 activator (Colivelin).
Animal experiment [2]:	
Animal models	Male C57BL/6 mice
Preparation Method	After a midline laparotomy, the cecum was exteriorized, ligated and punctured twice with a 23-G needle. The cecum was then returned into the peritoneal cavity and the abdominal incision was closed. After the procedure, mice were randomly assigned to three treatment groups: a vehicle-treated group received distilled water (200 ul/mouse) intraperitoneally (i.p.); a 100 ug colivelin-treated group received the colivelin at 100 ug/kg i.p., and a 200 ug colivelin-treated group received the colivelin at 200 ug/kg i.p. at 1 h after CLP.
Dosage form	100-200 ug/kg colivelin
Applications	Colivelin as a potent synthetic humanin derivative, is a potential therapeutic compound to restore endothelial stability and improve outcomes of sepsis.

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References:

- [1]. Fang YY, Zhang JH. MFG-E8 alleviates oxygen-glucose deprivation-induced neuronal cell apoptosis by STAT3 regulating the selective polarization of microglia. *Int J Neurosci*. 2021 Jan;131(1):15-24. doi: 10.1080/00207454.2020.1732971. Epub 2020 Mar 12. PMID: 32098538.
- [2]. Urban C, Hayes HV, et al. Colivelin, a synthetic derivative of humanin, ameliorates endothelial injury and glycocalyx shedding after sepsis in mice. *Front Immunol*. 2022 Sep 2;13:984298. doi: 10.3389/fimmu.2022.984298. PMID: 36119052; PMCID: PMC9478210.

Background

Colivelin (CLN) is A brain-permeable neuroprotective peptide that has effective long-term effects on A β deposition, neuronal apoptosis and synaptic plasticity defects in neurodegenerative diseases. Colivelin is a STAT3 activator.

MFG-E8 regulated OGD-induced microglial M1/M2 polarization by inhibiting p-STAT3 and SOCS3 expressions, which was reversed by STAT3 activator (Colivelin TFA)^[6]. The administration of the STAT3 activator colivelin could offset the inhibitory effect of RPN2 silencing on the survival and apoptosis of NPC cells^[9].

Colivelin as a potent synthetic humanin derivative, is a potential therapeutic compound

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to restore endothelial stability and improve outcomes of sepsis^[1]. In vivo animal studies have further indicated that intracerebroventricular administration of Colivelin not only completely suppresses impairment in spatial working memory induced by repetitive intracerebroventricular injection of Abeta25-35 or Abeta1-42, but also it antagonizes neuronal loss in the CA1 region of hippocampus induced by hippocampal injection of Abeta1-42^[2]. Histological analysis demonstrated increased motoneuronal survival in spinal cords of Colivelin-treated mice as compared with saline- or ADNF-treated mice, indicating that Colivelin is a promising neurotrophic peptide for treatment of ALS^[3]. Colivelin blocked the alcohol-induced decline in brain weight and prevented alcohol-induced: apoptosis, activation of caspase-3 and increases of cytosolic cytochrome c, and decreases of mitochondrial cytochrome c Analysis of proteins in the upstream signaling pathway revealed that CLN down-regulated the phosphorylation of the c-Jun N-terminal kinase^[4]. Colivelin administration decreased the neurological deficits and infarct lesion induced by brain ischemia. Colivelin inhibited axonal damage and neuronal death in brain tissue, which was associated with elevated anti-apoptotic gene expression in ischemic neurons as well as increased axonal growth up until two-weeks post-stroke^[5]. Colivelin has strong neuroprotective effects on learning and memory behaviors in APP/PS1 mice and that this behavioral improvement is closely associated with the reduction of A β deposition and alleviation of LTP suppression in the hippocampus, supporting the potential of CLN for the prevention and treatment of AD^[7]. Intrahippocampal injection of colivelin (0.2 nmol) effectively prevented A β 25-35 (4 nmol)-induced deficits in spatial learning and memory of rats in Morris water maze test; the suppression of in vivo hippocampal long term potentiation (LTP) by A β 25-35 was nearly completely prevented by CLN; in addition, CLN pretreatment also effectively inhibited A β 25-35-induced calcium overload in primary cultured hippocampal neurons^[8].

References:

- [1]. Urban C, Hayes HV, et,al. Colivelin, a synthetic derivative of humanin, ameliorates endothelial injury and glycocalyx shedding after sepsis in mice. *Front Immunol.* 2022 Sep 2;13:984298. doi: 10.3389/fimmu.2022.984298. PMID: 36119052; PMCID: PMC9478210.
- [2]. Chiba T, Yamada M, et,al. Development of a femtomolar-acting humanin derivative named colivelin by attaching activity-dependent neurotrophic factor to its N terminus:

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