

Product Data Sheet

Product Name: (Gly¹⁴)-Humanin (human)

Cat. No.: GA20196

Chemical Properties

Cas. No. 330936-70-4

Formula C₁₁₈H₂₀₂N₃₄O₃₁S₂

M.Wt 2657.25

Solubility Soluble in DMSO

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines

Human umbilical vein endothelial cells (HUVECs)

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

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Preparation Method	HUVECs were cultured in DMEM medium, supplemented with 10% fetal bovine serum (FBS), and 1% penicillin/streptomycin at 37°C in an incubator with 5% CO ₂ . High glucose treatment was performed by treating HUVECs with 30mM glucose for 72h. Controls were performed in the presence of media with normal glucose alone (5.5mM). Cells were pretreated with (Gly14)-Humanin (1μM; 3h) before exposure to high glucose. Collect cells and analyze the levels of β-galactosidase and SIRT6.
Reaction Conditions	1μM; 3h
Applications	(Gly14)-Humanin pretreatment inhibited high-glucose induced β-galactosidase upregulation and SIRT6 downregulation in HUVECs.
Animal experiment [2]:	
Animal models	Female APPswe/PS1dE9 mice
Preparation Method	Female APPswe/PS1dE9 mice were housed under standard conditions: temperature (22-24°C) and humidity (40-60%), 12h light/dark cycle with ad libitum access to food and normal drinking water. Each mouse with (Gly14)-Humanin treatment received (Gly14)-Humanin dissolved in normal saline every other day by intraperitoneal injection (0.1μg/0.5ml in saline), while each mouse with vehicle treatment received an equal volume of saline injection (0.5ml) as the control. Treatment was started when the mice were 9 months old and was continued for 3 months. Mice were deeply anesthetized with sodium pentobarbital (100mg/kg; i.p.), and perfused transcardially with 100ml of cold normal saline. Brains were removed for analysis.
Dosage form	0.1μg; every other day; 3 months; i.p.

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Applications	(Gly14)-Humanin significantly reduced cerebral A β plaque deposition, insoluble A β levels, and neuroinflammatory responses in APPswe/PS1dE9 mice.
References: [1] Li M, Liu Z, Cao X, et al. [Gly14]-Humanin ameliorates high glucose-induced endothelial senescence via SIRT6[J]. Scientific Reports, 2024, 14(1): 30924. [2] Zhang W, Zhang W, Li Z, et al. S14G-humanin improves cognitive deficits and reduces amyloid pathology in the middle-aged APPswe/PS1dE9 mice[J]. Pharmacology Biochemistry and Behavior, 2012, 100(3): 361-369.	

Background

(Gly14)-Humanin (human) is a potent analogue of Humanin, with highly neuroprotective activity^[1]. (Gly14)-Humanin activates the Nrf2/GPX4 pathway, which reduces cellular oxidative stress and inhibits ferroptosis, thereby alleviating oligoasthenozoospermia in mice^[2]. (Gly14)-Humanin has been widely used in vascular endothelial research to prevent lipid aggregation and cell death^[3].

In vitro, (Gly14)-Humanin (0.1 μ M) was pre-treated for 6 hours, which protected PC12 cells from cell death induced by A β ₂₅₋₃₅, restored mitochondrial membrane potential and blocked the release of cytochrome c^[4]. 1 μ M of (Gly14)-Humanin pretreatment for 3 hours inhibited apoptosis in human umbilical vein endothelial cells (HUVECs) triggered by high glucose (50mM) and reduced ROS production and PARP expression^[5].

In vivo, (Gly14)-Humanin treatment via a single injection (i.c.v.) at a dose of 1000pmol (5 μ l) within 30 minutes improved scopolamine-caused learning and memory deficits in mice^[6]. Continuous intraperitoneal injection of (Gly14)-Humanin (10mg/kg/day) for 6 consecutive weeks improved ovarian function and body weight in a mouse model of primary ovarian insufficiency and alleviated ovarian oxidative stress^[7]. (Gly14)-Humanin (0.1 μ g) was administered (i.p.) every other day for 3

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months, which improved the cognitive deficits in the middle-aged APPswe/PS1dE9 mice and reduced A β plaque deposition and alleviated neuroinflammation^[8].

References:

- [1] Wang T, Zhang L, Zhang M, et al. [Gly14]-Humanin reduces histopathology and improves functional outcome after traumatic brain injury in mice[J]. Neuroscience, 2013, 231: 70-81.
- [2] Liu Y, Feng Q, Zou L, et al. Oligoasthenozoospermia is alleviated in a mouse model by [Gly14]-humanin-mediated attenuation of oxidative stress and ferroptosis[J]. Andrology, 2025, 13(6): 1541-1555.
- [3] Ding Y, Feng Y, Zhu W, et al. [Gly14]-Humanin Prevents Lipid Deposition and Endothelial Cell Apoptosis in a Lectin-like Oxidized Low-density Lipoprotein Receptor-1-Dependent Manner[J]. Lipids, 2019, 54(11-12): 697-705.
- [4] Jin H, Liu T, Wang W X, et al. Protective effects of [Gly14]-Humanin on β -amyloid-induced PC12 cell death by preventing mitochondrial dysfunction[J]. Neurochemistry international, 2010, 56(3): 417-423.
- [5] Xie Y, Liu Z, Li X, et al. Protection effect of [Gly14]-Humanin from apoptosis induced by high glucose in human umbilical vein endothelial cells[J]. Diabetes research and clinical practice, 2014, 106(3): 560-566.
- [6] Mamiya T, Ukai M. [Gly14]-Humanin improved the learning and memory impairment induced by scopolamine in vivo[J]. British journal of pharmacology, 2001, 134(8): 1597-1599.
- [7] Huang J, Feng Q, Zou L, et al. [Gly14]-humanin exerts a protective effect against D-galactose-induced primary ovarian insufficiency in mice[J]. Reproductive BioMedicine Online, 2024, 48(2): 103330.
- [8] Zhang W, Zhang W, Li Z, et al. S14G-humanin improves cognitive deficits and reduces amyloid pathology in the middle-aged APPswe/PS1dE9 mice[J]. Pharmacology Biochemistry and Behavior, 2012, 100(3): 361-369.

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