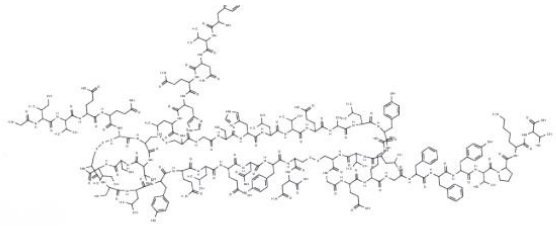
Insulin (human) [11061-68-0]

#Cat: NB-64-43947-5mg **Size: 5mg**
#Cat: NB-64-43947-10mg **Size: 10mg**
#Cat: NB-64-43947-25mg **Size: 25mg**
#Cat: NB-64-43947-50mg **Size: 50mg**
#Cat: NB-64-43947-100mg **Size: 100mg**
#Cat: NB-64-43947-500mg **Size: 500mg**
#Cat: NB-64-43947-200mg **Size: 200mg**

Chemical Properties



Cas No: 11061-68-0
Formula: $C_{257}H_{383}N_{65}O_{77}S_6$
Molecular weight: 5807.57
Appearance: no data available
Storage: store at low temperature, keep away from moisture Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Insulin (human) is a peptide hormone that promotes glycogen synthesis and regulates glucose levels in the blood. Insulin (human) has hypoglycemic activity and is used clinically to treat hyperglycemia in diabetic patients.
Targets(IC_{50})	IGF-1R
In vitro	**Methods:** Neonatal rat cardiomyocyte NRCMs were incubated with Insulin (100 nM) for 48 h, and the expression levels of target proteins were detected using Western Blot. **Results:** PE+Insulin treatment resulted in a slight decrease in relative hypertrophic protein levels compared with the PE group. TAC+GAS+Insulin induced a decrease in hypertrophy-associated proteins compared with the TAC+GAS group, and Insulin enhanced the protective effect of GAS against cardiac hypertrophy. [1] **Methods:** Bovine aortic endothelial cells bAECs were incubated with Insulin (100 nM) for 10-50 min, and the expression levels of target proteins were detected using the Immunoprecipitation method. **Results:** Insulin stimulated IRβ Tyr phosphorylation within 10 min and reached a maximum at 30 min, after which it decreased. [2] **Methods:** Vascular smooth muscle cells CVSMCs were treated with Insulin (1-100 nM) for 48 h. The expression of RANKL was detected by qRT-PCR. **Results:** 1 nM Insulin had no effect on the expression of RANKL mRNA. 5 nM Insulin stimulation significantly increased the level of RANKL mRNA, and 10 nM Insulin had the greatest effect on the expression level of RANKL mRNA. At significantly supraphysiologic insulin concentrations, RANKL mRNA levels decreased slightly compared to the maximal effect of Insulin. [3]
In vivo	**Methods:** To test the antitumor activity in vivo, Insulin (0.035 mg per mouse) and antiPD1 (0.25 mg per mouse) were intraperitoneally injected into C57BL/6 mice bearing mouse colorectal carcinoma tumor MC38 every two days for five administrations. **Results:** anti-PD1 significantly inhibited the growth of MC38 tumors, while Insulin promoted the growth of MC38 tumors. The therapeutic effect of the combination of Insulin and anti-PD1 on MC38 tumor suppression was attenuated compared to anti-

	PD1 treatment alone. anti-PD1 significantly increased the number of infiltrating CD8+ T cells, whereas Insulin significantly decreased the number of tumor-infiltrating CD8+ T cells. [4] **Methods:** To study virus-induced insulin-dependent diabetes mellitus (IDDM), Insulin (1mg) was administered orally to RIP-LCMV tg mice twice a week for two months. **Results:** Insulin treatment was effective in preventing the progression of islet infiltration to overt IDDM in pre-diabetic tg mice. Oral administration of Insulin did not affect the production of LCMV-NP-specific anti auto-cytotoxic T lymphocytes or the infiltration of lymphocytes into the pancreas. [5]

Solubility Information

Solubility	H_2O: 16.6 mg/mL (2.86 mM), when pH is adjusted to 3 with 0.01M HCl. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.1722 mL	0.8609 mL	1.7219 mL
5 mM	0.0344 mL	0.1722 mL	0.3444 mL
10 mM	0.0172 mL	0.0861 mL	0.1722 mL
50 mM	0.0034 mL	0.0172 mL	0.0344 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Zhang M, et al. GLUT4 mediates the protective function of gastrodin against pressure overload-induced cardiac hypertrophy. Biomed Pharmacother. 2023 May;161:114324.

Zhang M, Tan Y, Song Y, et al.GLUT4 mediates the protective function of gastrodin against pressure overloadinduced cardiac hypertrophy.Biomedicine & Pharmacotherapy.2023, 161: 114324.

Li G, et al. Insulin at physiological concentrations selectively activates insulin but not insulin-like growth factor I (IGF-I) or insulin/IGF-I hybrid receptors in endothelial cells. Endocrinology. 2005 Nov;146(11):4690-6.

Chen S, Zhou X, Li W, et al.Development of a novel peptide targeting GPR81 to suppress adipocyte-mediated tumor progression.Biochemical Pharmacology.2023: 115800.

Zhou J, Shi Y, Yang C, et al.γ-glutamylcysteine alleviates insulin resistance and hepatic steatosis by regulating adenylate cyclase and IGF-1R/IRS1/PI3K/Akt signaling pathways.The Journal of Nutritional Biochemistry.2023: 109404.

Yuan LQ, et al. RANKL is a downstream mediator for insulin-induced osteoblastic differentiation of vascular smooth muscle cells. PLoS One. 2011;6(12):e29037.

Zhan ZT, et al. The Effects of 6 Common Antidiabetic Drugs on Anti-PD1 Immune Checkpoint Inhibitor in Tumor Treatment. J Immunol Res. 2022 Aug 18;2022:2651790.

Liu Y, Li Y, Liang J, et al. The Mechanism of Leptin on Inhibiting Fibrosis and Promoting Browning of White Fat by Reducing ITGA5 in Mice. International Journal of Molecular Sciences. 2021, 22(22): 12353.

Zhan Z T, Liu L, Cheng M Z, et al. The Effects of 6 Common Antidiabetic Drugs on Anti-PD1 Immune Checkpoint Inhibitor in Tumor Treatment. Journal of Immunology Research. 2022

von Herrath MG, et al. Oral insulin treatment suppresses virus-induced antigen-specific destruction of beta cells and prevents autoimmune diabetes in transgenic mice. J Clin Invest. 1996 Sep 15;98(6):1324-31.

Zhang D, Ma B, Liu D, et al.Discovery of a peptide proteolysis-targeting chimera (PROTAC) drug of p300 for prostate cancer therapy.EBioMedicine.2024, 105.

Zhang Y, Pu Y, Deng Y, et al.Therapeutic of a white adipose tissue-specific bivalent aptamer in obesity. Biochemical Pharmacology.2024: 116452