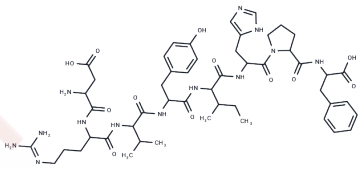
Data Sheet (Cat.No.T7040)

TargetMol

Angiotensin II human

Chemical Properties



CAS No. : 4474-91-3

Formula: C50H71N13O12

Molecular Weight: 1046.18

Storage: Keep away from moisture,Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Angiotensin II is a major biologically active vasoconstrictor peptide that regulates blood pressure by binding to AT1R and AT2R receptors. It stimulates the sympathetic nervous system, promotes aldosterone synthesis, and enhances renal function. Additionally, it induces vascular smooth muscle cell proliferation and increases collagen synthesis, leading to vascular and myocardial hypertrophy and fibrosis. It also promotes apoptosis and endothelial capillary formation. Angiotensin II is commonly used to induce hypertension and cardiac hypertrophy animal models.
Targets(IC50)	Apoptosis,RAAS
In vitro	**METHODS**: Human hepatocellular carcinoma cells (HCC) HepG-2, SMMC-7721, and MHCC97-H were treated with Angiotensin II (1-1000 nM) for 24-72 h. The cell viability was determined using MTT. **RESULTS**: Angiotensin II induced HCC cell lines to show higher growth in a time- and concentration-dependent manner. [1] **METHODS**: Neonatal rat cardiomyocytes were treated with Angiotensin II (1 μmol/L) for 5 min-48 h. HMGB1 and IL-6 expression levels were measured by ELISA and RT-qPCR. **RESULTS**: Angiotensin II enhanced the expression levels of HMGB1 and IL-6 in cardiomyocytes. [2]
In vivo	**METHODS**: To determine insulin action in a human hypertensive mouse model, Angiotensin II (1.1 mg/kg in 0.9% saline) was administered to C57Bl/6J mice using an osmotic minipump for two to four weeks. **RESULTS**: Blood pressure increased after Angiotensin II treatment. The increase in serum insulin was greater in Angiotensin II-treated mice after glucose administration. Long-term Angiotensin II treatment for four weeks enhanced glucose-stimulated insulin secretion in mice. [3] **METHODS**: To analyze genotoxic effects in vivo, Angiotensin II (60 ng/kg/min-1 μg/kg/min) was administered using an osmotic minipump to C57Bl/6J mice for four weeks. **RESULTS**: Angiotensin II increased SBP up to 38 mmHg over control and adversely affected renal function in mice. In the heart, a significant increase in reactive oxygen species formation and double-strand breaks were detected at the highest administered dose. In the kidney, a dose-dependent increase in superoxide formation, double-strand breaks and DNA base modification mutations were observed. [4]

Animal Research	(129×C57BL/6) F1 mice, which lack AT1A receptors Angiotensin II used, are fed 10 gm/day gelled 0.25% NaCl diet that contains all nutrients and water. After 28 days of Angiotensin II infusion, hearts are harvested, weighed fixed in formalin, sectioned, and stained with Masson trichrome.

Solubility Information

Solubility	H2O: 10.52 mg/mL (10.06 mM),Sonication is recommended. DMSO: < 1 mg/mL (insoluble) (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.9559 mL	4.7793 mL	9.5586 mL
5 mM	0.1912 mL	0.9559 mL	1.9117 mL
10 mM	0.0956 mL	0.4779 mL	0.9559 mL
50 mM	0.0191 mL	0.0956 mL	0.1912 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Ji Y, et al. Angiotensin II Enhances Proliferation and Inflammation through AT1/PKC/NF-κB Signaling Pathway in Hepatocellular Carcinoma Cells. Cell Physiol Biochem. 2016 Jul;39(1):13-32.
Zhang R Y, Wu C M, Hu X M, et al. LncRNA AC105942. 1 Downregulates hnRNPA2/B1 to Attenuate Vascular Smooth Muscle Cells Proliferation. DNA and Cell Biology. 2021
Zhang L, Zhang B, Yu Y, et al. Angiotensin II Increases HMGB1 Expression in the Myocardium Through AT1 and AT2 Receptors When Under Pressure Overload. International Heart Journal. 2021: 20-384
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Li J, Wei L, Hu K, et al.Deciphering m6A methylation in monocyte-mediated cardiac fibrosis and monocyte-hitchhiked erythrocyte microvesicle biohybrid therapy.Theranostics.2024, 14(9): 3486.
Brand S, et al. Angiotensin II-induced hypertension dose-dependently leads to oxidative stress and DNA damage in mouse kidneys and hearts. J Hypertens. 2013 Feb;31(2):333-44.
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