

Angiotensin (1-7)

Chemical Properties

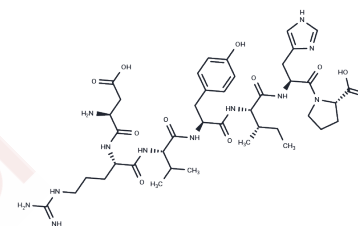
CAS No. : 51833-78-4

Formula: C41H62N12O11

Molecular Weight: 899

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 (1-7) (ASP-ARG-VAL-TYR-ILE-HIS-PRO) is a synthetic heptapeptide identical to endogenous angiotensin-(1-7), inhibits purified canine ACE activity (IC ₅₀ =0.65 μM) with vasodilator and antiproliferative activities.
Targets(IC ₅₀)	RAAS, Endogenous Metabolite, Angiotensin-converting Enzyme (ACE)
In vitro	ANG-(1-7) significantly attenuated ANG II-induced cardiac hypertrophy and perivascular fibrosis in these rats. These effects of ANG-(1-7) were confirmed in cultured cardiomyocytes, in which ANG-(1-7) significantly attenuated ANG II-induced increases in cell size[1].
In vivo	Ang-(1-7) treatment attenuated the shortening of the atrial effective refractory period and the increase in the atrial fibrillation inducibility level. Immunohistochemistry and Western blotting showed sympathetic nerve hyperinnervation in the pacing group, while Ang-(1-7) attenuated sympathetic nerve proliferation. Ang-(1-7) alleviated the pacing-induced increases in tyrosine hydroxylase and nerve growth factor mRNA expression levels[2].
Cell Research	Cultured cardiomyocytes were treated with PBS (control), ANG II (100 nM), ANG-(1-7) (100 nM), ANG II + ANG-(1-7), ANG II + ANG-(1-7) + A779 (10 μM), ANG II + ANG-(1-7) + Sirt3 short hairpin (sh)RNA, lentiviral particles (1 × 10 ⁶ TU) containing a Sirt3 shRNA viral vector, or ANG II + Mito-TEMPO (0.1 μM) for 24 h. Each treatment was performed in triplicate wells. Monoclonal anti-α-sarcomeric actin antibody was used for identification and measurement of cardiomyocytes via immunofluorescence staining. Cells were fixed in methanol at ?10°C and washed with fresh washing solution (0.1% Triton X-100 in PBS) three times. After preincubation with 3% BSA for 20 min, cells were incubated with primary antibody, which was diluted to 1:100 with PBS containing 3% BSA, overnight at 4°C. After three washings with the washing solution, cells were incubated with fluorescence-conjugated anti-mouse IgG (1:500 diluted in PBS) for 1 h at room temperature. Photographic images of cardiomyocytes were taken with a fluorescence microscope. Image-analysis software was used to measure the cell surface area of cardiomyocytes that were positively stained for sarcomeric actin. Variations in cell size were expressed as relative cell surface area versus the control. At least 50 cells in each dish were randomly selected for surface area analysis[1].

A DRUG SCREENING EXPERT

Animal Research	Eighteen dogs were randomly assigned to sham group, pacing group and Ang-(1-7) group. Rapid atrial pacing was maintained for 14 days in the pacing and Ang-(1-7) groups. Ang-(1-7) was administered intravenously in the Ang-(1-7) group. The atrial effective refractory period and atrial fibrillation inducibility level were measured at baseline and under sympathetic nerve stimulation after 14 days of measurement. The atrial sympathetic nerves labeled with tyrosine hydroxylase were detected using immunohistochemistry and Western blotting, and tyrosine hydroxylase and nerve growth factor mRNA levels were measured by reverse transcription polymerase chain reaction[2].
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Solubility Information

Solubility	H2O: 8.99 mg/mL (10 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.1123 mL	5.5617 mL	11.1235 mL
5 mM	0.2225 mL	1.1123 mL	2.2247 mL
10 mM	0.1112 mL	0.5562 mL	1.1123 mL
50 mM	0.0222 mL	0.1112 mL	0.2225 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

Guo L , Yin A , Zhang Q , et al. Angiotensin (1-7) Attenuates Angiotensin II-induced Cardiac Hypertrophy via a Sirt3-Dependent Mechanism[J]. American Journal of Physiology - Heart and Circulatory Physiology, 2017:ajpheart.00768.2016.

Shangguan W , Shi W , Li G , et al. Angiotensin-(1-7) attenuates atrial tachycardia-induced sympathetic nerve remodeling[J]. Journal of the Renin-Angiotensin-Aldosterone System, 2017, 18(3):147032031772928.

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