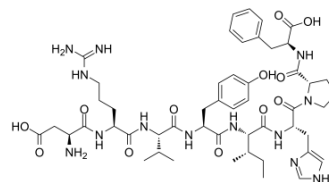


Angiotensin II human

Cat. No.:	HY-13948
CAS No.:	4474-91-3
Molecular Formula:	C ₅₀ H ₇₁ N ₁₃ O ₁₂
Molecular Weight:	1046.18
Sequence:	Asp-Arg-Val-Tyr-Ile-His-Pro-Phe
Sequence Shortening:	DRVYIHPF
Target:	Angiotensin Receptor; Apoptosis
Pathway:	GPCR/G Protein; Apoptosis
Storage:	Protect from light, stored under nitrogen
	Powder -80°C 2 years
	-20°C 1 year
	* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

H₂O : 50 mg/mL (47.79 mM; Need ultrasonic)
 DMSO : 16.67 mg/mL (15.93 mM; Need ultrasonic)

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	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

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 0.83 mg/mL (0.79 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 0.83 mg/mL (0.79 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 0.83 mg/mL (0.79 mM); Clear solution
- Add each solvent one by one: PBS
Solubility: 30 mg/mL (28.68 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Angiotensin II human (Angiotensin II) is a vasoconstrictor that mainly acts on the AT₁ receptor. Angiotensin II human

	stimulates sympathetic nervous stimulation, increases aldosterone biosynthesis and renal actions. Angiotensin II human induces growth of vascular smooth muscle cells, increases collagen type I and III synthesis in fibroblasts, leading to thickening of the vascular wall and myocardium, and fibrosis. Angiotensin II human also induces apoptosis ^{[1][2]} .
IC₅₀ & Target	Angiotensin receptor (AT receptor) ^[1]
In Vitro	Most of the known actions of Angiotensin II (Ang II) are mediated by AT ₁ receptors, the AT ₂ receptor contributes to the regulation of blood pressure and renal function ^[1] . Angiotensin II raises blood pressure (BP) by a number of actions, the most important ones being vasoconstriction, sympathetic nervous stimulation, increased aldosterone biosynthesis and renal actions. Other Angiotensin II actions include induction of growth, cell migration, and mitosis of vascular smooth muscle cells, increased synthesis of collagen type I and III in fibroblasts, leading to thickening of the vascular wall and myocardium, and fibrosis. These actions are mediated by type 1 Ang II receptors (AT ₁) ^[2] . At the cellular level, responsiveness to Angiotensin II is conferred by the expression of the two classes of angiotensin receptors (AT ₁ and AT ₂). The effects of Angiotensin II to increase blood pressure are mediated by AT ₁ receptors ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	To distinguish the AT ₁ receptor population that is critical for the pathogenesis of hypertension, osmotic minipumps are implanted s.c. into each animal to infuse Angiotensin II (1,000 ng/kg/min) continuously for 4 weeks. Angiotensin II causes hypertension by activating AT ₁ receptors in the kidney promoting sodium reabsorption ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration ^[3]

Mice^[3]
(129×C57BL/6) F₁ mice lacking AT_{1A} receptors for Angiotensin II are used. The mice are fed 10 gm/day gelled 0.25% NaCl diet that contains all nutrients and water. After 1 week of baseline collections, the animals are implanted with osmotic minipumps infusing Angiotensin II and are returned to the metabolic cage for 5 more days. Urinary sodium content is determined by using an IL943 Automatic Flame photometer. After 28 days of Angiotensin II infusion, hearts are harvested, weighed, fixed in formalin, sectioned, and stained with Masson trichrome. All of the tissues are examined by a pathologist (P.R.) without knowledge of genotypes.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Circ Res. 2020 Mar 13;126(6):e15-e29.
- JCI Insight. 2020 Jul 9;5(13):e138505.
- Pharmacol Res. 2020 Dec 19;164:105391.
- Oxid Med Cell Longev. 2019 Nov 23;2019:4025496.
- Acta Pharmacol Sin. 2020 Oct 28.

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REFERENCES

[1]. de Gasparo M, et al. International union of pharmacology. XXIII. The angiotensin II receptors. Pharmacol Rev. 2000 Sep;52(3):415-72.

[2]. Fyhrquist F, et al. Role of angiotensin II in blood pressure regulation and in the pathophysiology of cardiovascular disorders. J Hum Hypertens. 1995 Nov;9 Suppl 5:S19-24.

[3]. Crowley SD, et al. Angiotensin II causes hypertension and cardiac hypertrophy through its receptors in the kidney. Proc Natl Acad Sci U S A. 2006 Nov 21;103(47):17985-90.

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

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