AVE 0991 sodium salt

Cat. No.: HY-15778A

CAS No.: 306288-04-0

Molecular Formula: $C_{29}H_{31}N_4NaO_5S_2$

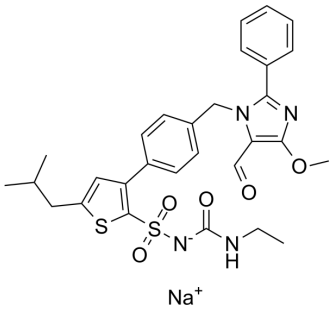
Molecular Weight: 602.7

Target: Angiotensin Receptor

Pathway: GPCR/G Protein

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 55 mg/mL (91.26 mM)

H_2O : 50 mg/mL (82.96 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	1.6592 mL	8.2960 mL	16.5920 mL
	5 mM	0.3318 mL	1.6592 mL	3.3184 mL
	10 mM	0.1659 mL	0.8296 mL	1.6592 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (3.45 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (3.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AVE 0991 sodium salt is a nonpeptide and orally active Ang-(1-7) receptor Mas agonist. AVE 0991 competes for high-affinity binding of [^{125}I]-Ang-(1-7) to bovine aortic endothelial cell membranes with IC_{50} of 21 nM[1].

IC_{50} & Target

IC50: 21±35 nM (Ang-(1-7) receptor)[1]

In Vitro

AVE 0991 is a nonpeptide compound that evokes effects similar to Ang-(1-7) on the endothelium. AVE 0991 and unlabeled Ang-(1-7) compete for high-affinity binding of [^{125}I]-Ang-(1-7) to bovine aortic endothelial cell membranes with IC_{50}s of

	21±35 and 220±280 nM, respectively. Peak concentrations of NO and O_2^- release by AVE 0991 sodium salt and Ang-(1-7) (both 10 μM) are not significantly different (NO: 295±20 and 270±25 nM; O_2^-: 18±2 and 20±4 nM). However, the released amount of bioactive NO is ≈5 times higher for AVE 0991 in comparison to Ang-(1-7)[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	AVE 0991 (0.58 nmol/g) produces a significant decrease of water diuresis in WT mice compared with vehicle-treated animals (0.06±0.03 mL versus 0.27±0.05; n=9 for each group; P<0.01). The antidiuretic effect of AVE 0991 (AVE) is associated with an increase in urine osmolality (1669±231.0 mOsm/KgH_2O versus 681.1±165.8 mOsm/KgH_2O in vehicle-treated mice; P<0.01). The genetic deletion of Mas abolishes the antidiuretic effect of AVE 0991 during water loading (0.37±0.10 mL [n=9] versus 0.27±0.03 mL [n=11] in AVE 0991-treated mice). As observed with C57BL/6 mice, administration of AVE 0991 (0.58 nmol/g) in water-loaded Swiss mice also produces a significant decrease of the urinary volume compared with vehicle-treated animals (0.13±0.05 mL [n=16] versus 0.51±0.04 mL [n=40]; P<0.01)[2]. One week of treatment with AVE-0991 produces a significant decrease in perfusion pressure (56.55±0.86 vs. 68.73±0.69 mmHg in vehicle-treated rats) and an increase in systolic tension (11.40±0.05 vs. 9.84±0.15 g in vehicle-treated rats), rate of tension rise (+dT/dt; 184.30±0.50 vs. 155.20±1.97 g/s in vehicle-treated rats), rate of tension fall (−dT/dt; 179.60±1.39 vs. 150.80±2.42 g/s in vehicle-treated rats). A slight increase in heart rate (HR) is also observed (220.40±0.71 vs. 214.20±0.74 beats/min in vehicle-treated rats[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [2][3]	Mice[2] Swiss male mice, Mas-KO ($Mas^{-/-}$) male mice on the pure genetic background C57BL/6, and WT C57BL/6 control mice ($Mas^{+/+}$) are used. Water diuresis is induced by intraperitoneal water injection (0.05 mL/g of body weight [BW]) in conscious mice. Drugs are administered in the same injection with water load at prefixed volumes (0.01 mL/g BW). In the first set of experiments, WT mice (C57BL/6, control group) or Mas-KO mice are treated with: (1) 0.58 nmol/g AVE 0991 (n=9, control; n=11, Mas-KO mice); or (2) vehicle for AVE 0991 (10 μM KOH, 0.01 mL/g; n=9, control; n=9, Mas-KO). In the second set, Swiss mice are treated with: (1) vehicle (n=36); (2) 0.58 nmol/g AVE 0991 (n=16); (3) 46 pmol/g Ang-(1-7) antagonist A-779 (n=4); (4) 2 nmol/g DuP-753 or CGP 48933 (n=5); (5) 2 nmol/g AT_2 receptor antagonists PD123319 or PD123177 (n=9); (6) AVE 0991 combined with A-779; (7) AVE 0991 combined with DuP-753 or CGP 48933 (n=4 for each); (8) or AVE 0991combined with PD123319 (n=5) or PD123177 (n=4). The urinary volume is measured for 60 minutes after water loading, and urine samples are obtained to determine the osmolality. The dose of AVE 0991is based in preliminary experiments performed in Swiss mice. Rats[3] Male Wistar rats weighting 250-300 g are used. Rats are treated either with AVE-0991 (1 mg/kg, n=9) or vehicle (0.9% NaCl, n=11) administered orally by gavage. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Hepatol. 2022 Nov 9;S0168-8278(22)03285-8.
- Blood. 2015 Jan 22;125(4):710-9.
- Redox Biol. 2019 Jan;20:75-86.
- Diabetes. 2017 Aug;66(8):2201-2212.
- J Inflamm Res. 2021 Dec 18;14:7007-7019.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Wiemer G, et al. AVE 0991, a nonpeptide mimic of the effects of angiotensin-(1-7) on the endothelium. Hypertension. 2002 Dec;40(6):847-52.

[2]. Pinheiro SV, et al. Nonpeptide AVE 0991 is an angiotensin-(1-7) receptor Mas agonist in the mouse kidney. Hypertension. 2004 Oct;44(4):490-6.

[3]. Ferreira AJ, et al. The nonpeptide angiotensin-(1-7) receptor Mas agonist AVE-0991 attenuates heart failure induced by myocardial infarction. Am J Physiol Heart Circ Physiol. 2007 Feb;292(2):H1113-9.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA