# Aldosterone

**Cat. No.:** HY-113313

**CAS No.:** 52-39-1

**Molecular Formula:** $C_{21}H_{28}O_5$

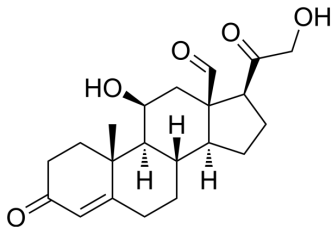
**Molecular Weight:** 360.44

**Target:** Endogenous Metabolite

**Pathway:** Metabolic Enzyme/Protease

**Storage:**

| | | |
|---|---|---|
| Powder | -20°C | 3 years |
| | 4°C | 2 years |
| In solvent | -80°C | 6 months |
| | -20°C | 1 month |




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : 100 mg/mL (277.44 mM; Need ultrasonic)
Ethanol : 33.33 mg/mL (92.47 mM; Need ultrasonic)

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 2.7744 mL | 13.8719 mL | 27.7439 mL |
| | 5 mM | 0.5549 mL | 2.7744 mL | 5.5488 mL |
| | 10 mM | 0.2774 mL | 1.3872 mL | 2.7744 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: ≥ 2.5 mg/mL (6.94 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.94 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.94 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.94 mM); Clear solution
5. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.94 mM); Clear solution
6. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.94 mM); Clear solution

## BIOLOGICAL ACTIVITY

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|---|---|
| **Description** | Aldosterone is the primary mineralocorticoid. Aldosterone is a steroid hormone, and it is synthesized and secreted in response to renin-angiotensin system activation (RAS) or high dietary potassium by the zona glomerulosa (ZG) of the adrenal cortex. Aldosterone activity is dependent by the binding and activation of the cytoplasmic/nuclear mineralocorticoid receptor (MR) at cellular level[1][2]. |
| **$IC_{50}$ & Target** | Human Endogenous Metabolite |
| **In Vitro** | Aldosterone (1-1000 nM; 24 hours) inhibits interleukin-1β-stimulated nitrite production by vascular smooth muscle cells in a dose-dependent manner[3].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | Aldosterone (1 mg/Kg+1% NaCl; i.h.; once daily for 3 weeks) significantly increases systolic blood pressure (SBP), diastolic blood pressure (DBP), left ventricular systolic pressure (LVSP) and left ventricular end-diastolic pressure (LVEDP)[4].<br>Aldosterone (0.72 mg/kg/day; 14 days) causes a small increase ( 14 mmHg) in blood pressure in male mice[5].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

| | |
|---|---|
| Animal Model: | Forty male Wistar rats[4] |
| Dosage: | 1 mg/Kg (+1% NaCl) |
| Administration: | i.h.; once daily for 3 weeks |
| Result: | Systolic blood pressure (SBP), diastolic blood pressure (DBP), left ventricular systolic pressure (LVSP) and left ventricular end-diastolic pressure (LVEDP) were significantly higher in aldosterone-salt-treated animals. |

## CUSTOMER VALIDATION

- Nat Chem Biol. 2022 Aug 18.
- Acta Pharmacol Sin. 2022 Sep;43(9):2429-2438.
- J Med Chem. 2022 Nov 18.
- Eur J Med Chem. 2022 Apr 20;237:114382.
- Int J Endocrinol. 2021 Jun 18;2021:5575927.

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## REFERENCES


[1]. Nanba K, et al. Aging and Adrenal Aldosterone Production. Hypertension. 2018 Feb;71(2):218-223.

[2]. Cannavo A, et al. Aldosterone and Mineralocorticoid Receptor System in Cardiovascular Physiology and Pathophysiology. Oxid Med Cell Longev. 2018 Sep 19;2018:1204598.

[3]. Ikeda U, et al. Aldosterone inhibits nitric oxide synthesis in rat vascular smooth muscle cells induced by interleukin-1 beta. Eur J Pharmacol. 1995 Jul 18;290(2):69-73.

[4]. Martín-Fernández B, et al. Beneficial effects of proanthocyanidins in the cardiac alterations induced by aldosterone in ratheart through mineralocorticoid receptor blockade. PLoS One. 2014 Oct 29;9(10):e111104.

[5]. Dinh QN, et al. Aldosterone-induced oxidative stress and inflammation in the brain are mediated by the endothelial cell mineralocorticoid receptor. Brain Res. 2016 Apr 15;1637:146-153.

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

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