# 2',5'-Dideoxyadenosine

**Cat. No.:** HY-135878

**CAS No.:** 6698-26-6

**Molecular Formula:** $C_{10}H_{13}N_5O_2$

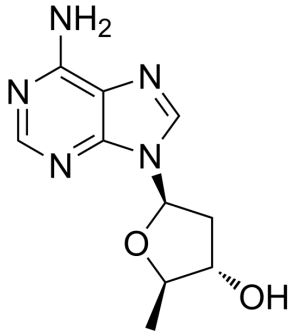
**Molecular Weight:** 235.24

**Target:** Adenylate Cyclase; Adrenergic Receptor

**Pathway:** GPCR/G Protein; Neuronal Signaling

**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 : 125 mg/mL (531.37 mM; Need ultrasonic)

| Preparing Stock Solutions | Mass / Solvent / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 4.2510 mL | 21.2549 mL | 42.5098 mL |
| | 5 mM | 0.8502 mL | 4.2510 mL | 8.5020 mL |
| | 10 mM | 0.4251 mL | 2.1255 mL | 4.2510 mL |

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

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (10.63 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (8.84 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (8.84 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

2',5'-Dideoxyadenosine is a potent and non-competitive adenylyl cyclase inhibitor via binding the P-site with an $IC_{50}$ of 3 μM . 2',5'-Dideoxyadenosine is a nucleoside analog and exerts a potent antiadrenergic action in heart[1][2].

**$IC_{50}$ & Target**

IC50: 3 μM (adenylyl cyclase)[1]

**In Vitro**

2',5'-Dideoxyadenosine (10 μM, 30 min) reduces cAMP production and blocks the phosphorylation of GluA1 at Ser845 induced by carbachol (CCh)[3].

?2',5'-Dideoxyadenosine (10 μM, 30 min) blocks CCh-induced increase of phosphorylation of Akt and attenuates CCh-induced phosphorylation of Ser2448[3].
?2',5'-Dideoxyadenosine (20-150 mM), like adenosine, dependently and reversibly inhibits the positive inotropic and chronotropic effect of beta-adrenergic stimulation with isoproterenol (8-54 pmol) up to 70% and 50%, respectively[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[3]

| | |
|---|---|
| Cell Line: | Primary hippocampal neurons |
| Concentration: | 10 μM |
| Incubation Time: | 30 min |
| Result: | Reduced cAMP production and blocked the phosphorylation of GluA1 at Ser845 induced by carbachol (CCh). |

**In Vivo**

2',5'-Dideoxyadenosine (0.1 mg/kg; IP; 15 min pre-treated) fully inhibits the diuretic, natriuretic and $K^+$ and $Cl^-$ sparing effect of Fr?EtOAc in rats[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | Male Wistar rats (3-4 months old)[3] |
| Dosage: | 0.1 mg/kg |
| Administration: | IP; 15 min pre-treated |
| Result: | Fully inhibited the diuretic, natriuretic and $K^+$ and $Cl^-$ sparing effect of Fr•EtOAc in rats. |

## REFERENCES


[1]. Bushfield M, et al. Tissue levels, source, and regulation of 3'-AMP: an intracellular inhibitor of adenylyl cyclases. Mol Pharmacol. 1990 Dec;38(6):848-53.

[2]. Hartmann M, et al. Isoproterenol antagonistic effect of 2',5'-dideoxyadenosine in the isolated perfused guinea-pig heart. J Mol Cell Cardiol. 1993 Mar;25(3):331-8.

[3]. Zhao LX, et al. M1 muscarinic receptors regulate the phosphorylation of AMPA receptor subunit GluA1 via a signaling pathway linking cAMP-PKA and PI3K-Akt. FASEB J. 2019 May;33(5):6622-6631.

[4]. Leme Tdos S, et al. Role of prostaglandin/cAMP pathway in the diuretic and hypotensive effects of purified fraction of Maytenus ilicifolia Mart ex Reissek (Celastraceae). J Ethnopharmacol. 2013 Oct 28;150(1):154-61.





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