5'-N-Ethylcarboxamidoadenosine

Cat. No.: HY-103173

CAS No.: 35920-39-9

Molecular Formula: $C_{12}H_{16}N_6O_4$

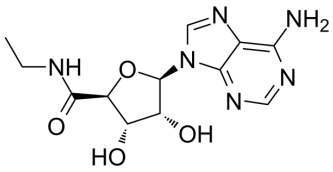
Molecular Weight: 308.29

Target: Adenosine Receptor

Pathway: GPCR/G Protein

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (202.73 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.2437 mL	16.2185 mL	32.4370 mL
5 mM	0.6487 mL	3.2437 mL	6.4874 mL
10 mM	0.3244 mL	1.6218 mL	3.2437 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 (8.11 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.11 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (8.11 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

5'-N-Ethylcarboxamidoadenosine (NECA) is a nonselective adenosine receptor agonist.

IC_{50} & Target

Adenosine receptor[1]

In Vivo

After the administration of 5'-N-Ethylcarboxamidoadenosine (NECA), the mean number of cocaine infusions obtained per session is decreased significantly in a dose-dependent manner [5'-N-Ethylcarboxamidoadenosine (NECA): F(4,12)=14.9;

P<0.001]. The administration of 5'-N-Ethylcarboxamidoadenosine (NECA) [F(4,12)=16.1; P<0.001] results in a significant increase in latencies above values obtained for vehicle treatment[1]. Daily i.p. injection of 5'-N-Ethylcarboxamidoadenosine (NECA) at 0.3 mg/kg/day for two weeks reduces malondialdehyde (MDA) levels in diabetic rats, but does not affect control rats. Daily treatment with NECA (0.3 mg/kg/day, i.p. for two weeks) reduces diabetes-induced gene expression of tumor necrosis factor (TNF)-α and interleukin (IL)-18 in diabetic rats, but does not affect control rats. Daily i.p. injection of 5'-N-Ethylcarboxamidoadenosine (NECA) at 0.3 mg/kg/day for two weeks also blocks the activation of JNK MAPK in diabetic rats, but does not affect control rats[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [1]

Male Wistar rats are used in this experiment. These animals range in weight between 350 and 425 g. They are housed individually in hanging wire cages under a 12-h light/dark cycle. The effects of 5'-N-Ethylcarboxamidoadenosine (NECA) are tested in four rats. In the experiment, either 5'-N-Ethylcarboxamidoadenosine (NECA) (5, 7.5, 10, 20 μg/kg) or vehicle (saline) is administered intraperitoneally 15 min prior to the start of test sessions. 5'-N-Ethylcarboxamidoadenosine (NECA) is administered following a random order crossover design. In most cases, animals are tested twice with the same dose[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Death Dis. 2020 Mar 23;11(3):202.
- J Med Chem. 2023 Mar 23.
- J Med Chem. 2022 Feb 25.
- Pharmaceutics. 2021, 13(8), 1152.
- Nanomaterials. 2021 Apr 24;11(5):1102.

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REFERENCES

[1]. Knapp CM, et al. Adenosine agonists CGS 21680 and NECA inhibit the initiation of cocaine self-administration. Pharmacol Biochem Behav. 2001 Apr;68(4):797-803.

[2]. Elsherbiny NM, et al. Reno-protective effect of NECA in diabetic nephropathy: implication of IL-18 and ICAM-1. Eur Cytokine Netw. 2012 Jul-Sep;23(3):78-86.

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