Cyclic ADP-ribose

Cat. No.: HY-N7395

CAS No.: 119340-53-3

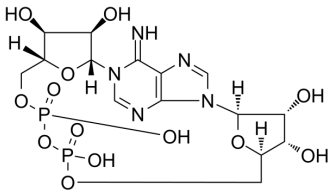
Molecular Formula: $C_{15}H_{21}N_5O_{13}P_2$

Molecular Weight: 541.3

Target: Calcium Channel; TRP Channel; Endogenous Metabolite

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease

Storage: -80°C



SOLVENT & SOLUBILITY

In Vitro

H_2O : 5 mg/mL (9.24 mM; Need ultrasonic and warming)

Preparing Stock Solutions	Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
	1 mM	1.8474 mL	9.2370 mL	18.4740 mL
	5 mM	0.3695 mL	1.8474 mL	3.6948 mL
	10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description

Cyclic ADP-ribose (cADPR) is a potent second messenger for calcium mobilization that is synthesized from NAD^+ by an ADP-ribosyl cyclase. Cyclic ADP-ribose increases cytosolic calcium mainly by Ryanodine receptor-mediated release from endoplasmic reticulum and also by extracellular influx through the opening of TRPM2 channels[1][2][3].

IC_{50} & Target

Calcium mobilization[1]
TRPM2 channels[3]
Endogenous metabolite[1]

In Vitro

cADPR (20 nM) elicits a large rapid Ca^{2+} release in sea urchin eggs homogenates[1].
cADPR (100 μM; 10 min) induces a sustained elevation of intracellular calcium concentration in a subset (64%) of cultured astrocytes[4].
cADPR (100 μM) and heat (35-38.5 ⊠) stimulates oxytocin OT release from the isolated hypothalami of male mice in culture[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

cADPR (100 μM; push-pull type of brain microperfusion) elevats OT concentrations in ordinate or subordinate mice[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Ribeiro JM, et al. Specific cyclic ADP-ribose phosphohydrolase obtained by mutagenic engineering of Mn2+-dependent ADP-ribose/CDP-alcohol diphosphatase. Sci Rep. 2018 Jan 18;8(1):1036.

[2]. Galione A, et, al. Ca(2+)-induced Ca2+ release in sea urchin egg homogenates: modulation by cyclic ADP-ribose. Science. 1991 Sep 6;253(5024):1143-6.

[3]. Lee HC, et, al. Structural determination of a cyclic metabolite of NAD+ with intracellular Ca2+-mobilizing activity. J Biol Chem. 1989 Jan 25;264(3):1608-15.

[4]. Verderio C, et, al. Evidence of a role for cyclic ADP-ribose in calcium signalling and neurotransmitter release in cultured astrocytes. J Neurochem. 2001 Aug;78(3):646-57.

[5]. Zhong J, et, al. Cyclic ADP-Ribose and Heat Regulate Oxytocin Release via CD38 and TRPM2 in the Hypothalamus during Social or Psychological Stress in Mice. Front Neurosci. 2016 Jul 22;10:304.

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