

Cyclic ADP-ribose ammonium

Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.

Biological Description

Description	Cyclic ADP-ribose ammonium (cADPR ammonium) is a potent calcium mobilization second messenger synthesized from NAD ⁺ by ADP-ribosyl cyclase. It raises cytosolic calcium levels through Ryanodine receptor-mediated release from the endoplasmic reticulum and facilitates extracellular influx via TRPM2 channels [1][2][3].
Targets(IC50)	Others,Calcium Channel,Endogenous Metabolite,TRP/TRPV Channel
In vitro	cADPR (20 nM) prompts a significant, rapid Ca ²⁺ release in sea urchin egg homogenates [1]. cADPR (100 μM; 10 min) causes a sustained increase in intracellular calcium concentration in 64% of cultured astrocytes [4]. cADPR (100 μM) and heat (35-38.5 °C) stimulate oxytocin OT release from isolated hypothalami of male mice in culture [5].
In vivo	cADPR (100 μM; push-pull type of brain microperfusion) elevates OT concentrations in ordinate or subordinate mice[5].

Reference

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- 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.
- 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.
- 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.

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