

Product Data Sheet

Product Name: Cyclic ADP-ribose ammonium

Cat. No.: GC61792

Chemical Properties

Cas. No.

SMILES O[C@H]([C@@H]1O)[C@](O[C@]1([H])COP(O)(OP(O)(OC2=O)=O)([H])N3C(N=CN([C@]4([H])O[C@@]2([H])[C@@H](O)[C@H]4O)C5=N)=C5N=C3.N.[F,Cl,Br,I])

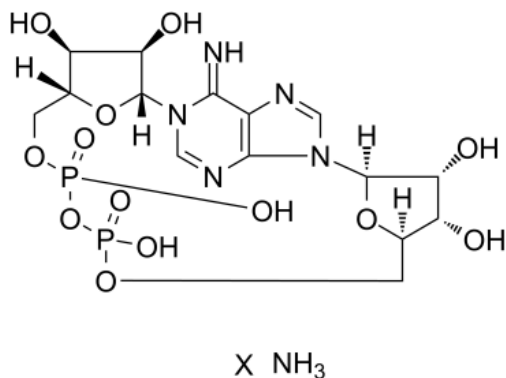
Formula $C_{15}H_{21}N_5O_{13}P_2 \cdot X(NH_3)$ M.Wt

Solubility Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

Cyclic ADP-ribose ammonium (cADPR ammonium) is a potent second messenger for calcium mobilization that is synthesized from NAD⁺ by an ADP-ribosyl cyclase. Cyclic ADP-ribose ammonium 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].

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

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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 °C) stimulates oxytocin OT release from the isolated hypothalami of male mice in culture[5].

cADPR (100 μM ; push-pull type of brain microperfusion) elevates OT concentrations in ordinate or subordinate mice[5].

[1]. Galione A, et, al. Ca^{2+} -induced Ca^{2+} release in sea urchin egg homogenates: modulation by cyclic ADP-ribose. *Science*. 1991 Sep 6;253(5024):1143-6. [2]. Lee HC, et, al. Structural determination of a cyclic metabolite of NAD^{+} with intracellular Ca^{2+} -mobilizing activity. *J Biol Chem*. 1989 Jan 25;264(3):1608-15. [3]. Ribeiro JM, et, al. Specific cyclic ADP-ribose phosphohydrolase obtained by mutagenic engineering of Mn^{2+} -dependent ADP-ribose/CDP-alcohol diphosphatase. *Sci Rep*. 2018 Jan 18;8(1):1036. [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.

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