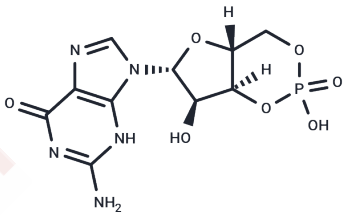
# Data Sheet (Cat.No.TN9056)

TargetMol

## Cyclic GMP

### Chemical Properties



CAS No. : 7665-99-8

Formula: C10H12N5O7P

Molecular Weight: 345.21

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 GMP (cGMP) belongs to the class of endogenous metabolites and is a pivotal intracellular second messenger that mediates extracellular signals such as nitric oxide (NO) and natriuretic peptides (NPs). The effects of Cyclic GMP are primarily executed through three main target groups: cGMP-dependent protein kinases (PKGs), cGMP-gated cation channels, and phosphodiesterases (PDEs). Cyclic GMP is capable of inhibiting platelet adhesion and aggregation and participates in enhancing antiviral immune responses. |
| Targets(IC50) | Endogenous Metabolite |
| In vitro | In vitro studies on cardiac cells show that Cyclic GMP (1 microM) accumulation stimulated by ACh acts synergistically with Isoprenaline to activate cGMP-stimulated phosphodiesterases. This process inhibits cAMP-induced inward calcium current (ICa) and shortens action potentials. Additionally, its conjugate cGAMP induces IRF3 phosphorylation and nuclear translocation[1]. |
| In vivo | In anesthetized rat models, Cyclic GMP has been demonstrated to effectively prevent renal platelet accumulation following ischemia-reperfusion, a protective effect not shared by cAMP, indicating its specificity in maintaining microcirculatory stability[1]. |

### Solubility Information

| | |
|---|---|
| Solubility | H2O: 4.00 mg/mL (11.59 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 2.8968 mL | 14.4839 mL | 28.9679 mL |
| 5 mM | 0.5794 mL | 2.8968 mL | 5.7936 mL |
| 10 mM | 0.2897 mL | 1.4484 mL | 2.8968 mL |
| 50 mM | 0.0579 mL | 0.2897 mL | 0.5794 mL |

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Francis SH, et al. cGMP-dependent protein kinases and cGMP phosphodiesterases in nitric oxide and cGMP action. Pharmacol Rev. 2010 Sep;62(3):525-63.
Friebe A, et al. cGMP: a unique 2nd messenger molecule - recent developments in cGMP research and development. Naunyn Schmiedebergs Arch Pharmacol. 2020 Feb;393(2):287-302.
Hartzell HC, et al. Opposite effects of cyclic GMP and cyclic AMP on Ca2+ current in single heart cells. Nature. 1986 Sep 18-24;323(6085):273-5.
Chintala MS, et al. Cyclic GMP but not cyclic AMP prevents renal platelet accumulation after ischemia-reperfusion in anesthetized rats. J Pharmacol Exp Ther. 1994 Dec;271(3):1203-8.



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