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3050 Spruce Street, St. Louis, MO 63103 USA Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757 email: techservice@sial.com sigma-aldrich.com

# **Product Information**

## 69234 Mant-GTP triethylammonium salt solution

Molecular Formula: Molecular Weight: Form: Concentration: pH: Spectroscopic Properties:

Package quantity:

Unit Definition:

 $\begin{array}{l} C_{18}H_{23}N_6O_{15}P_3 \mbox{ (free acid)} \\ 656.33 \mbox{ g/mol (free acid)} \\ clear aqueous solution \\ 10 \mbox{ mM} \\ 7.5 \mbox{ +/-}0.5 \\ \lambda_{max} \mbox{ 252/355 nm}; \mbox{ } \lambda_{exc} \mbox{ 355 nm}; \mbox{ } \lambda_{em} \mbox{ 448 nm}; \\ \epsilon \mbox{ 22.6/5.7 L mmol}^{-1} \mbox{ cm}^{-1} \mbox{ (Tris-HCl pH 7.5)} \\ 150 \mbox{ Units} \\ 1 \mbox{ unit = 1 ul of a 10 mM solution} \end{array}$ 



Structural formula of Mant-GTP

### **Applications:**

Inhibition of AC-isoform<sup>[1]</sup> and GTPs<sup>[2]</sup>

Activity measurement: GC<sup>[3]</sup>

Specifity measurements with isoforms of ACs<sup>[4]</sup>

FRET: AC<sup>[5],</sup> edema factor<sup>[6]</sup>

Inhibition of edema factor (anthrax)<sup>[6]</sup>

### Selected References:

[1] Gille *et al.* (2003) Mant-substituted guanine nucleotides: A novel class of potent adenylyl cyclase inhibitors. *Life Sciences* **74**:271.

[2] Gille *et al.* (2004) Differential inhibition of adenylyl cyclase isoforms and soluble guanylyl cyclase by purine and pyrimidine nucleotides. *J. Biol. Chem.* **279**:19955

[3] Newton *et al.* (2010) A real-time fluorescent assay of the purified nitric oxide receptor, guanylyl cyclase. *Analytical Biochem.* **402**:129.

[4] Mou *et al.* (2006) Broad specifity of mammalian adenylyl cyclase for interaction with 2,3-substituted purine- and pyrimidine-nucleotide inhibitors. *Molecular Pharmacology* **70**:878.

[5] Goettle *et al.* (2007) Molecular analysis of the interaction of Bordetella pertussis adenylyl cyclase with fluorescent nucleotides. *Molecular Pharmacology* **72** (3):526.

[6] Suryanarayana *et al.* (2009) Distinct interactions of 2- and 3-O-(N-methyl)anthraniloyl-isomers of ATP and GTP with the adenylyl cyclase toxin from Bacillus anthraxis, edema factor. *Biochem. Pharmacol.* **78**:224.

Seifert et al. (2012) Inhibitors of membranous adenylyl cyclases. Trends Pharmacol Sci. 33(2):64.

Erdorf *et al.* (2011) Pharmacological characterization of adenylyl cyclase isoforms in rabbit kidney membranes. *Naunyn Schmiedebergs Arch. Pharmacol.* **383(4)**:357.

Labesse *et al.* (2011) Structural and functional characterization of the Mycobacterium tuberculosis uridine monophosphate kinase: insights into the allosteric regulation. *Nucleic Acids Res.* **39(8)**:3458.

Pinto *et al.* (2011) Structure-activity relationships for the interactions of 2'- and 3'-(O)-(N-methyl)anthraniloyl-substituted purine and pyrimidine nucleotides with mammalian adenylyl cyclases. *Biochem. Pharmacol.*82(4):358.

Spangler *et al.* (2011) Interaction of the diguanylate cyclase YdeH of 2'/3'-O-(N-Methyl-anthraniloyl)-guanosine-5'triphosphate, Triethylammonium salt Escherichia coli with 2',(3')-substituted purine and pyrimidine nucleotides. *J. Pharmacol. Exp. Ther.* **336(1)**:234.

Wang *et al.* (2011) Charge isomers of myelin basic protein: structure and interactions with membranes, nucleotide analogues, and calmodulin. *PLoS One.* **6(5)**:e19915.

Goettle *et al.* (2010) Cytidylyl and uridylyl cyclase activity of bacillus anthracis edema factor and Bordetella pertussis CyaA. *Biochemistry.* **49(26)**:5494.

Taha *et al.* (2009) Molecular Analysis of the Interaction of Anthrax Adenylyl Cyclase Toxin, Edema Factor, with 2'(3')-O-(N-(methyl)anthraniloyl)-Substituted Purine and Pyrimidine Nucleotides. *Molecular Pharmacology.* **75 (3)**:693.

Wang *et al.* (2009) Regulation of Immature Dendritic Cell Migration by RhoA Guanine Nucleotide Exchange Factor Arhgef5. *J. Mol. Chem.***284** (**42**):28599.

Dahl *et al.* (2008) The Importance of P-loop and Domain Movements in EF-Tu for Guanine Nucleotide Exchange. *J. Biol. Chem.* **281(30)**:21139.

Kambach *et al.* (2007) Human OLA1 Defines an ATPase subfamily in the Obg Family of GTP-binding proteins. *J. Biol. Chem.* **282(27)**:19928.

Pestova et al. (2006) Kinetic Analysis of Interaction of Eukaryotic Release Factor 3 with Guanine Nucleotides. J. Biol. Chem. 281(52):40224.

Sprang *et al.* (2006) Broad and Specifity of Mammalian Adenylyl Cyclase for Interaction with 2',3'-Substituted Purineand Pyrimidine Nucleotide Inhibitors. *Mol. Pharmacol.* **70**:878.

Wintermeyer *et al.* (2006) Role and timing of GTP binding and hydrolysis during EF-G-dependent RNA translocation on the ribosome.*PNAS* **103** (37):13670.

Alexandrov *et al.* (2001) Fluorescence methods for monitoring interactions of Rab proteins with nucleotides, Rab escort protein, and geranylgeranyltransferase. *Methods Enzymol.* **329**:14.

Simon *et al.* (1996) Kinetics of interaction of Rab5 and Rab7 with nucleotides and magnesium ions. *J. Biol. Chem.* **271**:20470.

Remmers et al. (1994) Fluorescent guanine nucleotide analogs and G protein activation. J. Biol. Chem. 269:13771.

Brownbridge *et al.* (1993) Interaction of GTPase activating proteins (GAPs) with p21ras measured by a novel fluorescence anisotropy method. Essential role of Arg-903 of GAP in activation of GTP hydrolysis on p21ras. *J. Biol. Chem.* **268**:10914.

Hazlett *et al.* (1993) Solution dynamics of p21ras proteins bound with fluorescent nucleotides: a time-resolved fluorescence study. *Biochemistry* **32**:13575.

Eccleston *et al.* (1991) Fluorescence approaches to the study of the p21ras GTPase mechanism. *Biochem. Soc. Trans.* **19**:432.

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