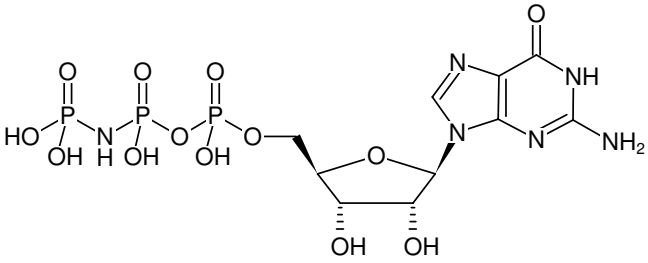
DATA SHEET

Jena Bioscience

GppNHp - Tetralithium salt

(GMPPNP)
GMPPNHP
Guanosine-5'-[(β,γ)-imido]triphosphate, Tetralithium salt

Cat. No.	Amount
NU-401-10	10 mg
NU-401-50	50 mg



For general laboratory use.

Shipping: shipped on dry ice

Storage Conditions: store at -20 °C

Shelf Life: 6 months after date of delivery

Molecular Formula: $C_{10}H_{17}N_6O_{13}P_3$ (free acid)

Molecular Weight: 522.19 g/mol (free acid)

Exact Mass: 522.01 g/mol (free acid)

CAS#: 64564-03-0

Purity: ≥ 95 % (HPLC)

Form: solid

Color: white to off-white

Spectroscopic Properties: λ_{max} 252 nm, ε 13.7 L $mmol^{-1}$ cm^{-1} (Tris-HCl pH 7.5)

Applications:
X-ray elongation factor EF-G[1]

X-ray with Rab27[2]

Conformational switch of IF(α,β,γ)[3]

Dynamic of ribosomes[4]

Specific Ligands:

Rab27[2]

Intitiation factors IF2, IF(α,β,γ) and elongation factor EF-G[5, 6]

Please note: For reasons of stability, please make sure that the pH value of a solution of this product never drops below 7.0. This can be achieved by dissolving the nucleotide in a buffer of your choice (50 - 100 mM, pH 7 - 10). Dissolve and adjust concentration photometrically.

Selected References:

[1] Hansson *et al.* (2005) Crystall structure of a mutant elongation factor G trapped with a GTP analogue. *FEBS Letters* **579**:4492.

[2] Chavas *et al.* (2009) Structural insights into Rab27 recruitment by ist effectors. *Nippon Kessho Gakkaishi* **51**:334.

[3] Makoto *et al.* (2008) Thermodynamic analysisreveals that GTP Binding affects the interaction between the alpha- and gamma-subunits of translation initiation factor 2. *Biochem. Biophys. Res. Com.* **371**:596.

[4] Ermolenko *et al.* (2007) Observation of intersubunit movement of the ribosome in solution using FRET. *J. Mol. Biol.* **370**:530.

[5] Burakovsky *et.al.* (2007) The interaction with Escherichia coli 23S rRNA helices 89 and 91 contributes to the IF2 activity but is insignificant for the functioning of the elongation factors. *Mol. Biol.* **41**:939.

[6] Spiegel *et al.* (2007) Elongation factor G stabilizes the hybrid-state conformation of 70S ribosome. *RNA* **13**:1473.

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.

Yang *et al.* (2010) A guaninine nucleotide exchange factor is a component of the meiotic spindle pole body in Schizosaccharomyces pombe. *Mol. Biol. Cell.* **21 (7)**:1272.

Chang *et al.* (2005) Nitric Oxide-dependent Allosteric Inhibitory Role of a Second Nucleotide Binding Site in Soluble Guanylyl Cyclase. *J. Biol. Chem.* **280**

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(12):11513.

Esters *et al.* (2001) High-resolution crystal structure of S. cerevisiae Ypt51 (Delta C15)-GppNHp, a small GTP-binding protein involved in regulation of endocytosis. *J. Mol. Biol.* **298 (1)**:111.

Tarricone *et al.* (2001) The structural basis of Arfaptin-mediated cross-talk between Rac and Arf signalling pathways. *Nature* **411 (6834)**:215.

Chook *et al.* (1999) Structure of the nuclear transport complex karyopherin-beta 2-Ran center dot GppNHp. *Nature* **399 (6733)**:230.

Rudolph *et al.* (1999) Nucleotide binding to the G12V-mutant of Cdc42 investigated by x-ray diffraction and fluorescence spectroscopy: Two different nucleotide states in one crystal. *Protein Sci.* **8 (4)**:778.

Vetter *et al.* (1999) Structure of a Ran-binding domain complexed with Ran bound to a GTP analogue: implications for nuclear transport. *Nature* **398 (6722)**:39.

Hirshberg *et al.* (1997)The crystal structure of human rac1, a member of the rho-family complexed with a GTP analogue. *Nat. Struct. Biol.* **4 (2)**:147.

Rittinger *et al.* (1997) Structure at 1.65 angstrom of RhoA and its GTPase-activating protein in complex with a transition-state analogue. *Nature* **389 (6652)**:758.

Rittinger *et al.* (1997) Crystal structure of a small G protein in complex with the GTPase-activating protein rhoGAP. *Nature* **388 (6643)**:693.

Nassar *et al.* (1995) The 2.2-Angstrom crystal-structure of the ras-binding domain of the serine threonine kinase c-Raf1 in complex with Rap1a and a GTP analog. *Nature* **375 (6532)**:554.

Tolkovsky (1980) 2'-deoxyadenosine functionally uncouples adenylate-cyclase from the guanyl nucleotide subunit without altering simultaneous gppnhp occupancy. *FEBS Lett.* **116 (2)**:165.