



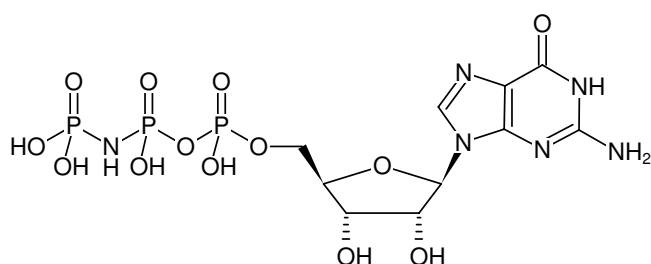
## GppNHp - Tetralithium salt

(GMPPNP)

GMPPNHp

Guanosine-5'-[( $\beta,\gamma$ )-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<sub>10</sub>H<sub>17</sub>N<sub>6</sub>O<sub>13</sub>P<sub>3</sub> (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:**  $\lambda_{\max}$  252 nm,  $\epsilon$  13.7 L mmol<sup>-1</sup> cm<sup>-1</sup> (Tris-HCl pH 7.5)

### Applications:

X-ray elongation factor EF-G<sup>[1]</sup>

X-ray with Rab27<sup>[2]</sup>

Conformational switch of IF( $\alpha,\beta,\gamma$ )<sup>[3]</sup>

Dynamic of ribosomes<sup>[4]</sup>

### Specific Ligands:

Rab27<sup>[2]</sup>

Initiation factors IF2, IF( $\alpha,\beta,\gamma$ ) and elongation factor EF-G<sup>[5,6]</sup>

**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. When stored at -20 °C, product may hydrolyze, thereby forming GppNH<sub>2</sub> at a rate of up to 1 % per month!

### 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 its effectors. *Nippon Kessho Gakkaishi* **51**:334.

[3] Makoto *et al.* (2008) Thermodynamic analysis reveals 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.

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

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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.

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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.