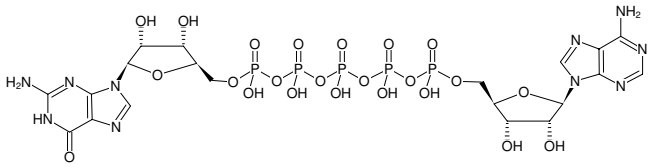
DATA SHEET

Jena Bioscience

AP_5G

P^1-(5'-Adenosyl) P^5-(5'-guanosyl) pentaphosphate, Triethylammonium salt

Cat. No.	Amount
NU-504S	50 µl (10 mM)
NU-504L	5 x 50 µl (10 mM)



Structural formula of AP_5G

For research use only!

Shipping: shipped on gel packs

Storage Conditions: store at -20 °C

Short term exposure (up to 1 week cumulative) to ambient temperature possible.

Shelf Life: 12 months after date of delivery

Molecular Formula: $C_{20}H_{29}N_{10}O_{23}P_5$ (free acid)

Molecular Weight: 932.37 g/mol (free acid)

Exact Mass: 932.01 g/mol (free acid)

CAS#: 56983-24-5

Purity: ≥ 95 % (HPLC)

Form: solution in water

Color: colorless to slightly yellow

Concentration: 10 mM - 11 mM

pH: 7.5 ±0.5

Spectroscopic Properties: λ_{max} 259 nm, ε 27.0 L $mmol^{-1}$ cm^{-1} (Tris-HCl pH 7.5)

Applications:
Substrate replacement at UMP-CMP kinase[1]

Crystal structure of complex with GMP kinase[2]

Vasoconstriction via activation of P2X-receptors[3]

Activation of P2X receptor ion channels[4]

Specific Ligands:

Binding to purinoreceptors P2Y1 and P2X[5]

Binding to purinoreceptors P2X3 and rP2X1[6]

Selected References:

[1] Topalis *et al.* (2007) Nucleotide binding to human UMP-CMP kinase using fluorescent derivatives – a screening based on affinity for the UMP-CMP binding site. *FEBS J.* **274 (14)**:3704.

[2] Hible *et al.* (2006) Crystal structures of GMP kinase in complex with ganciclovir monophosphate and Ap5G. *Biochimie* **88**:1157.

[3] van der Giet *et al.* (2001) The critical role of adenosine and guanosine in the affinity of dinucleoside polyphosphates to P (2X)-receptors in the isolated perfused rat kidney. *Br. J. Pharmacol.* **132 (2)**:467.

[4] Lewis *et al.* (2000)Effects of diadenosine polyphosphates (Ap (n)As) and adenosine polyphospho guanosines (Ap (n)Gs) on rat mesenteric artery P2X receptor ion channels.*Br. J. Pharmacol.* **129 (1)**:124.

[5] van der Giet *et al.* (2002) Effects of dinucleoside polyphosphates on regulation of coronary vascular tone. *Eur. J. Pharmacol.* **448 (2-3)**:207.

[6] Cinkilic *et al.* (2001) Selective agonism of group I P2X receptors by dinucleotides dependent on a single adenine moiety. *J. Pharmacol. Exp. Ther.* **299 (1)**:131.

Winward *et al.* (2010) Oxidation of the diphosphoinositol polyphosphate phosphohydrolase-like Nudix hydrolase Aps from Drosophila melanogaster induces thermolability–A possible regulatory switch? *Int. J. Biochem. Cell Biol.* **42 (7)**:1174.

Safrany *et al.* (2007) Characterisation of a bis (5'-nucleosyl)-tetraphosphatase (asymmetrical) from *Drosophila melanogaster*. *Int. J. Biochem. Cell Biol.* **39 (5)**:943.

Cherfils *et al.* (2006) Crystal structures of GMP kinase in complex with ganciclovir monophosphate and Ap5G. *Biochimie* **88 (9)**:1157.

Gross *et al.* (2006) Nucleotide-binding domains of Cystic Fibrosis Transmembrane Conductance Regulator, an ABC Transporter, Catalyze Adenylate Kinase Activity but not ATP Hydrolysis. *J. Biol. Chem.* **281 (7)**:4058.

Leslie *et al.* (2002) Cloning and characterisation of hAps1 and hAps2, human diadenosine polyphosphate-metabolising Nudix hydrolases. *BMC*

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Biochemistry **3**:20.

Prinz *et al.* (1999) Binding of nucleotides to guanylate kinase, p21 (ras), and nucleoside-diphosphate kinase studied by nano-electrospray mass spectrometry. *J. Biol. Chem.* **274 (50)**:35337.

Ortiz *et al.* (1993) Specific synthesis of adenosine (5')tetraphospho (5')nucleoside and adenosine- (5')oligophospho (5')adenosine (n > 4) catalyzed by firefly luciverase. *Eur. J. Biochem.* **212 (1)**:263.

Feldhaus *et al.* (1975) Synthetic Inhibitors of Adenylate Kinases in the Assays for ATPases and Phosphokinases. *Eur. J. Biochem.* **57**:197.