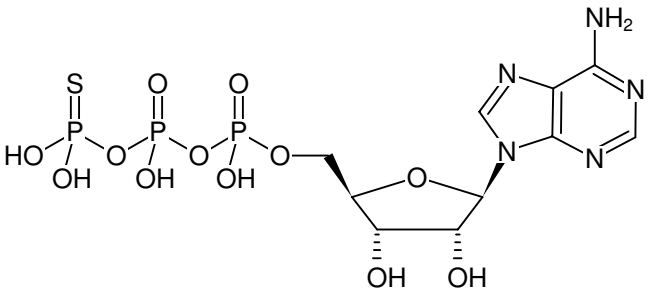
DATA SHEET

Jena Bioscience

ATPγS

Ado-5'-PPP[S]
Adenosine-5'-(γ-thio)-triphosphate, Tetralithium salt
Adenosine-5'-(3-thio)-triphosphate, Adenosine-5'-(3-thiotriphosphate)

Cat. No.	Amount
NU-406-5	5 mg
NU-406-25	25 mg
NU-406-50	50 mg



Structural formula of ATPγS

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: $C_{10}H_{16}N_5O_{12}P_3S$ (free acid)

Molecular Weight: 523.24 g/mol (free acid)

Exact Mass: 522.97 g/mol (free acid)

CAS#: 93839-89-5

Purity: ≥ 90 % (HPLC), contains < 10 % ADP

Form: solid

Color: white to off-white

Spectroscopic Properties: λ_{max} 259 nm, ε 15.4 L mmol^{-1} cm^{-1} (Tris-HCl pH 7.5)

Applications:
Modulation of intracellular signalling[1,2]

Signalling of purinergic receptors[3]

Regulation of cation channels[4]

Modulation of cytokine secretion[5]

Substrate for kinases[6]

5' end labeling with T4 Polynucleotide Kinase (T4 PNK) of DNA[9] and RNA[9,10]

Agonistic ligand, mainly for nucleoside receptor A_1
Nucleosidephosphates stabilized against hydrolytic degradation can directly bind to nucleoside receptors.

Specific Ligands:

Purinoreceptors[7]

Proteasomes[8]

Agonist for P2Y2[11] and 12 receptors[1,15] and for P2X(2) purinoreceptor[3,12,13,14]

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] Buzzi *et al.* (2009) Extracellular ATP activates MAP kinase cascades through a P2Y purinergic receptor in the human intestinal Caco-2 cell line. *Biochim. Biophys. Acta* **1790**:1651.

[2] Wu *et al.* (2008) Extracellular ATP-induced NO production and ist dependence on membrane Ca^{2+} flux in Salvia miltiorrhiza hairy roots. *J. Experim. Botany* **59**:4007.

[3] Hansen *et al.* (2008) Purinergic receptors and calcium signalling in human pancreatic duct cell lines. *Cell. Phys. Biochem.* **22**:157.

[4] Ashrafpour *et al.* (2008) ATP regulation of a large conductance voltage-gated cation channel in rough endoplasmatic reticulum of rat hepatocytes. *Arch. Biochem. Biophys.* **471**:50.

[5] Nalos *et al.* (2008) Host tissue damage signal ATP impairs IL-12 and IFNgamma secretion in LPS stimulated whole human blood. *Intensive care medicine* **34**:1891.

[6] Carlson *et al.* (2010) Use of a semisynthetic epitope to probe histidine

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kinase activity and regulation. *Anal. Biochem.* **397**:139.

[7] Choi *et al.* (2009) Modulation of firing activity by ATP in dopamine neurons of the substantia nigra pars compacta. *Neuroscience* **160**:587.

[8] Wang *et al.* (2009) Structural insights on the mycobacterium tuberculosis protosomal ATPase Mpa. *Structure* **17**:1377.

[9] Grant *et al.* (2007) A facile method for attaching nitroxide spin labels at the 5' terminus of nucleic acids. *Nucleic Acids Research* **35 (10)**:e77.

[10] Akabayov *et al.* (2002) Immobilization of RNA: Application to Single Molecule Spectroscopy. *Molecular, Cellular and Tissue Engineering, 2002. Proceedings of the IEEE-EMBS Special Topic Conference*:71.

[11] Gorodeski (2002) Regulation of transcervical permeability by two distinct P2 purinergic receptor mechanisms. *Am. J. Physiol. Cell Physiol.* **282 (1)**:C75.

[12] Bo *et al.* (1994) Comparative studies on affinities of ATP derivatives for P2X-purinoreceptors in rat urinary bladder. *Br. J. Pharmacol.* **112 (4)**:1151.

[13]He *et al.* (2002) Purinergic P2X (2) receptor desensitization depends on coupling between ectodomain and C-terminal domain. *Molec. Pharmac.* **62 (5)**:1187.

[14]Evans *et al.* (1995) Pharmacological characterizationof heterogously expressed ATP-gated cation channels (P2X purinoreceptors). *Mol. Pharmacol.* **48**:178.

[15] Isfort *et al.* (2011) Real-time imaging reveals that P2Y2 and P2Y12 receptor agonists are not chemoattractants and macrophage chemotaxis to complement C5a is phosphatidylinositol 3-kinase (PI3K)- and p38 mitogen-activated protein kinase (MAPK)-independent. *J. Biol. Chem.* **288 (52)**:44776.

Schmohl *et al.* (2012) Functional analysis of Rho GTPase activation and inhibition in a bead-based miniaturized format. *Methods Mol. Biol.* **827**:271.

Fischmann *et al.* (2009) Crystal Structures of MEK1 Binary and Ternary Complexes with Nucleotides and Inhibitors. *Nucleic Acids Research* **48 (12)**:2661.

Del Toro Duany *et al.* (2008) The reverse gyrase helicase-like domain is a nucleotide-dependent switch that is attenuated by the topoisomerase domain. *Nucleic Acids Research* **36 (18)**:5882.

Wong *et al.* (2006) Endogenous activation of adenosine A1 receptors, but not P2X receptors, during high frequency synaptic transmission at the calyx of Held. *J. Neurophysiology* **95 (6)**:3336.

Chang *et al.* (2005) Nitric Oxide-dependent Allosteric Inhibitory Role of a Second Nucleotide Binding Site in Soluble Guanylyl Cyclase. *J. Biol. Chem.* **280 (12)**:11513.

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Masino *et al.* (2002) Modulation of hippocampal glutamatergic transmission by ATP is dependent on adenosine A1 receptors. *J. Pharmacol. and Experiment. Therapeutics* **303 (1)**:356.