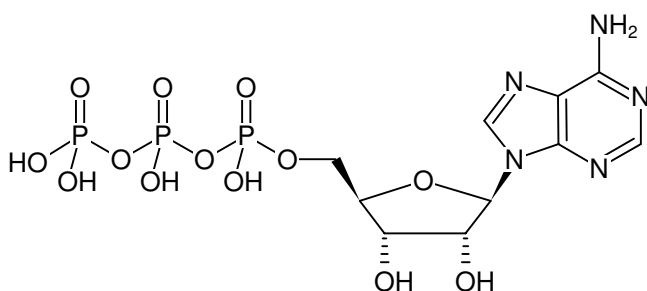


**ATP - Solid**

Adenosine 5'-triphosphate, Disodium salt trihydrate

Cat. No.	Amount
NU-1010-1G	1 g
NU-1010-10G	10 g
NU-1010-100G	100 g



Structural formula of ATP - Solid

For research use only!**Shipping:** shipped on blue ice**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:** C₁₀H₁₆N₅O₁₃P₃ (free acid)**Molecular Weight:** 507.18 g/mol (free acid)**Exact Mass:** 507.00 g/mol (free acid)**CAS#:** 51963-61-2**Purity:** ≥ 98 % (HPLC)**Form:** lyophilised**Spectroscopic Properties:** λ_{max} 259 nm, ε 15.1 L mmol⁻¹ cm⁻¹ (Tris-HCl pH 7.0)**Applications:**ATP-sensitive calcium channels^[1]V-ATPases (cellular proton pumps)^[2]ATP-coupled chromatin remodelling^[3]ATP-binding cassette transporters^[4]ATP-grasp enzymes^[5]

Agonistic ligand, mainly for nucleoside receptor A₁
Nucleoside-triphosphates can be converted by different membrane-bound phosphatases into nucleosides acting as nucleoside receptor ligands.

Specific Ligands:

Ligand for purinergic receptors:

P2X₁-P2X₃^[6,7]P2X_{1/4}^[8]P2X₄^[7]P2X₇^[9,10,11]P2X₁ - P2X₇^[12]P2Y₁^[10,14]P2Y₂^[13,14]P2Y₁₁^[14]

Quality Control Specifications: in vitro transcription (T7 RNA polymerase): visible RNA fragments after 5 min incubation, DNases, RNases, Nicking Activity: not detectable, Proteases: not detectable

Selected References:

[1] Wang *et al.* (2011) The biological effect of endogenous sulfur dioxide in the cardiovascular system. *Eur. J. Pharmacol.* **670** (1):1.

[2] Scott *et al.* (2011) Duelling functions of the V-ATPase. *EMBO J.* **30** (20):4113.

[3] Erdel *et al.* (2011) Chromatin remodelling in mammalian cells by ISWI-type complexes—where, when and why? *FEBS J.* **278** (19):3608.

[4] Gatti *et al.* (2011) Novel insights into targeting ATP-binding cassette transporters for antitumor therapy. *Curr. Med. Chem.* **18** (27):4237.

[5] Fawaz *et al.* (2011) The ATP-grasp enzymes. *Bioorg. Chem.* **39** (5):185.

[6] Lambertucci *et al.* (2015) Medicinal chemistry of P2X receptors: Agonists and orthosteric antagonists. *Curr. Med. Chem.* **22** (7):915.

[7] Ralevic (2015) P2X receptors in the cardiovascular system and their potential as therapeutic targets in disease. *Curr. Med. Chem.* **22** (7):851.

[8] Harhun *et al.* (2014) ATP-evoked sustained vasoconstrictions mediated by heteromeric P2X_{1/4} receptors in cerebral arteries. *Stroke* **45** (8):2444.

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- [9] Facci *et al.* (2014) Toll-like receptors 2, -3 and -4 prime microglia but not astrocytes across central nervous system regions for ATP-dependent interleukin-1 β release. *Sci. Rep.* **4**:6824.
- [10] Stolz *et al.* (2015) Homodimeric anoctamin-1, but not homodimeric anoctamin-6, is activated by calcium increases mediated by the P2Y1 and P2X7 receptors. *Pflugers Archiv* DOI:10.1007/s00424-015-1687-3.
- [11] Lord *et al.* (2014) Pharmacology of a novel central nervous system-penetrant P2X7 antagonist JNJ-42253432. *J. Pharmacol. Exp. Ther.* **351** (3):628.
- [12] Dal Ben *et al.* (2015) Purinergic P2X receptors: Structural models and analysis of ligand-target interaction. *Eur. J. Med. Chem.* **89**:561.
- [13] Xie *et al.* (2014) The P2Y2 nucleotide receptor mediates the proliferation and migration of human hepatocellular carcinoma cells induced by ATP. *J. Biol. Chem.* **289** (27):19137.
- [14] Kim *et al.* (2002) Methanocarba modification of uracil and adenine nucleotides: High potency of northern ring conformation at P2Y1, P2Y2, P2Y4 and P2Y11 but not P2Y6 receptors. *J. Med. Chem.* **45**:208.
- Volonte *et al.* (2009) Membrane components and purinergic signalling: the purinome, a complex interplay among ligands, degrading enzymes, receptors and transporters. *FEBS J.* **276**:318.
- Yegutkin (2008) Nucleotide and nucleoside converting enzymes: Important modulators of purinergic signalling cascade. *Biochim. Biophys. Acta* **1783**:673.
- Hasko *et al.* (2007) Shaping of monocyte and macrophage function by adenosine receptors. *Pharmacol. & Therapeutics* **113**:264.
- Holland *et al.* (1991) Detection of specific polymerase chain reaction product by utilizing the 5'→3' exonuclease activity of *Thermus aquaticus* DNA polymerase. *Proc. Natl. Acad. Sci. USA* **88** (16):7276.
- Erlich *et al.* (1988) Primer-directed enzymatic amplification of DNA with a thermostable DNA polymerase. *Science* **29** (239):487.
- Williams *et al.* (1986) Effects of purine nucleotides on the binding of [3H]cyclopentyladenosine to adenosine A1-receptors in rat brain membranes. *J. Neurochem.* **47** (1):88.
- Sanger *et al.* (1977) DNA sequencing with chain-terminating inhibitors. *Proc. Natl. Acad. Sci. USA* **74**:5463.