

Certificate of Analysis

Catalog Number	BP15921
Product Name	ATP disodium salt

Physical and Chemical Properties

Synonyms	Adenosine 5'-triphosphate disodium salt, Adenosine- Triphosphate, ATP disodium, Disodium adenosine triphosphate, Adetide, ATP
CAS No.	987-65-5
Chemical Formula	C10H14N5Na2O13P3
Molecular Weight	551.145
Solubility	H2O: 10 mM DMSO: Insoluble
Storage	Powder: -20°C for 2 years In solvent: -80°C for 1 year
Chemical Structure OR Tested Image	HO-P-O-P-O-P-O ONa ONa OH OH OH

Product Information

Description	Adenosine 5'-triphosphate disodium salt is a P2 purinoceptor agonist.
In vitro	ATP release and autocrine feedback through P2Y2 and A3 receptors provide signal amplification, controlling gradient sensing and migration of neutrophils. ATP results in production of reactive oxygen species (ROS), which stimulates the phosphatidylinositol 3-kinase (PI3K) pathway and subsequent Akt and ERK1/2 activation. ATP-dependent ROS production and PI3K activation also stimulate transcription of genes required for an oxidative stress response. ATP-mediated ROS-dependent PI3K is required for activation of caspase-1 and secretion of IL-1beta and IL-18. ATP potently stimulates TNF-alpha release, resulting from TNF-alpha mRNA expression in rat cultured brain microglia. ATP-induced TNF-alpha release is Ca(2+)-dependent, and a sustained Ca(2+) influx correlated with the TNF-alpha release in ATP-stimulated microglia. ATP-induced TNF-alpha release is inhibited by PD 098059, an inhibitor of extracellular signal-regulated protein kinase (ERK) kinase 1 (MEK1), which activates ERK, and also by SB 203580, an inhibitor of p38 mitogen-activated protein kinase. ATP rapidly activates both ERK and p38 even in the absence of extracellular Ca(2+). ATP-induced cytotoxicity is mediated by classical alterations of apoptosis, including membrane blebbing, nuclear condensation, and DNA fragmentation. ATP but not other nucleotides lead to the potent and selective activation of NF-κB in microglial cells through a P2Z receptor-mediated pathway.
In vivo	ATP regulates microglial branch dynamics in the intact mice brain, and its release from the damaged tissue and surrounding astrocytes mediates a rapid microglial response towards injury.
Analytical Data	

HPLC	Shows Min >99% purity
H-NMR	Consistent with structure
Stability and Solubility Advice	Information on product stability, especially in solution, has rarely been reported and in most cases we can only provide a general guideline. We recommend that once the stock solution has been prepared, it be stored in equal quantities in sealed vials and used within 1 month. Avoid repeated freezing and thawing cycles. Storage conditions for some special products should be referred to their storage details.

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