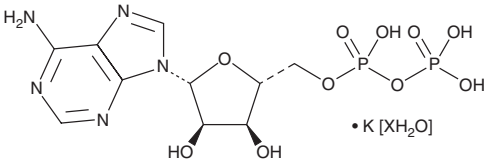
PRODUCT INFORMATION

Adenosine 5'-diphosphate (potassium salt hydrate)

Item No. 21121

Formal Name:	adenosine 5'-(trihydrogen diphosphate), monopotassium salt, hydrate
Synonyms:	Adenosine Pyrophosphate, ADP, 5'-ADP
MF:	$C_{10}H_{14}N_5O_{10}P_2 \bullet K\ [XH_2O]$
FW:	466.3
Purity:	≥95%
UV/Vis.:	λ_{max}: 257 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Adenosine 5'-diphosphate (ADP) (potassium salt hydrate) is supplied as a crystalline solid. Aqueous solutions of ADP (potassium salt hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of ADP (potassium salt hydrate) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

ADP is an adenine nucleotide containing two phosphate groups esterified to the sugar moiety at the 5' position. It is produced by dephosphorylation of adenosine 5'-triphosphate (ATP; Item No. 14498) by ATPases and can be converted back to ATP by ATP synthases. ADP can also be metabolized to adenosine 5'-monophosphate (AMP; Item No. 21094) and 2'-deoxyadenosine 5'-diphosphate (dADP). ADP can modulate several receptors, activating certain purinergic receptors (EC_{50} = 24 nM for $P2Y_1$) and inhibiting others (IC_{50} = 67 nM for $P2X_{2/3}$), inhibiting rat ecto-5'nucleotidase (K_i = 0.91 nM), and regulating the phosphorylation status of AMP-activated protein kinase (AMPK).[1-4]

References

1. Azran, S., Förster, D., Danino, O., *et al.* Highly efficient biocompatible neuroprotectants with dual activity as antioxidants and P2Y receptor agonists. *J. Med. Chem.* **56(12)**, 4938-4952 (2013).
2. Baqi, Y., Lee, S.-Y., Iqbal, J., *et al.* Development of potent and selective inhibitors of ecto-5'-nucleotidase based on an anthraquinone scaffold. *J. Med. Chem.* **53(5)**, 2076-2086 (2010).
3. Jarvis, M.F., Bianchi, B., Uchic, J.T., *et al.* [^{3}H]A-317491, a novel high-affinity non-nucleotide antagonist that specifically labels human $P2X_{2/3}$ and $P2X_3$ receptors. *J. Pharmacol. Exp. Ther.* **310(1)**, 407-416 (2004).
4. Ruderman, N.B., Carling, D., Prentki, M., *et al.* AMPK, insulin resistance, and the metabolic syndrome. *J. Clin. Invest.* **123(7)**, 2764-2772 (2013).

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