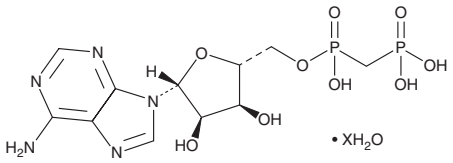
PRODUCT INFORMATION

Adenosine 5'-methylenediphosphate (hydrate)

Item No. 34504

Formal Name:	adenosine, 5′-[hydrogen P-(phosphonomethyl)phosphonate], hydrate
Synonyms:	Adenosine 5'-(α,β-methylene)diphosphate, AMP-CP, APCP, 5'-APCP
MF:	$C_{11}H_{17}N_5O_9P_2 \bullet XH_2O$
FW:	425.2
Purity:	≥98%
Supplied as:	A 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'-methylenediphosphate (hydrate) is supplied as a solid. A stock solution may be made by dissolving the adenosine 5'-methylenediphosphate (hydrate) in water. The solubility of adenosine 5'-methylenediphosphate (hydrate) in water is approximately 50 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Adenosine 5'-methylenediphosphate is an inhibitor of ecto-5'-nucleotidase, also known as CD73, with a K_i value of 37 nM.[1] It inhibits cAMP accumulation induced by adenosine 5'-monophosphate (AMP; Item No. 21094), adenosine 5'-diphosphate (ADP; Item Nos. 16778 | 21121), or adenosine 5'-triphosphate (ATP; Item No. 14498) but not adenosine (Item No. 21232) in VA-13 human fibroblasts when used at a concentration of 100 µM. Adenosine 5'-methylenediphosphate reduces proliferation of U138MG glioma cells, as well as inhibits the invasion and migration of MHCC97H hepatocellular carcinoma (HCC) cells in a migration assay.[2,3] It increases tumor infiltration of $CD3^+CD8^+$ T cells and reduces tumor growth in a K1735 murine melanoma model when administered at a dose of 400 µg/mouse.[4]

References

1. Bruns, R.F. Adenosine receptor activation by adenine nucleotides requires conversion of the nucleotides to adenosine. *Naunyn Schmiedebergs Arch. Pharmacol.* **315(1)**, 5-13 (1980).
2. Braganhol, E., Tamajusuku, A.S.K., Bernardi, A., *et al.* Ecto-5′-nucleotidase/CD73 inhibition by quercetin in the human U138MG glioma cell line. *Biochim. Biophys. Acta* **1770(9)**, 1352-1359 (2007).
3. Shali, S., Yu, J., Zhang, X., *et al.* Ecto-5′-nucleotidase (CD73) is a potential target of hepatocellular carcinoma. *J. Cell Physiol.* **234(7)**, 10248-10259 (2018).
4. Forte, G., Sorrentino, R., Montinaro, A., *et al.* Inhibition of CD73 improves B cell-mediated anti-tumor immunity in a mouse model of melanoma. *J. Immunol.* **189(5)**, 2226-2233 (2021).

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