

Product Information

Adenosine 3'-phosphate 5'-phosphosulfate lithium salt, hydrate

Catalog Number **A1651**
Storage Temperature $-70\text{ }^{\circ}\text{C}$

CAS RN 109434-21-1
Molecular Formula: $\text{C}_{10}\text{H}_{15}\text{N}_5\text{O}_{13}\text{P}_2\text{S} \cdot x\text{Li}^+ \cdot y\text{H}_2\text{O}$
Molecular Weight: 507.26 (free acid basis)
Extinction Coefficient: $E^{\text{mM}} = 15.4$ (259 nm, pH 7.0)¹
Synonyms: PAPS, APPS

Product Description

3'-Phosphoadenosine 5'-phosphosulfate (PAPS) is utilized as the biological source of active sulfate in reactions catalyzed by sulfotransferases. This results in the formation of sulfate esters of phenols, steroids, primary and secondary amines, lipids, and glycosides.²⁻⁴ PAPS is synthesized biologically in a series of coupled enzymatic reactions:⁵

1. ATP and inorganic sulfate, to produce Adenosine 5'-phosphosulfate (APS) and pyrophosphate, catalyzed by ATP-sulfurylase in the presence of magnesium.
2. APS and additional ATP, to form PAPS and ADP, catalyzed by APS-kinase in the presence of magnesium.

The chemical synthesis of PAPS has been reported.⁶

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is soluble in water (50 mg/ml), yielding a clear solution. It is recommended that solutions be prepared fresh, directly before use.

Stability testing of frozen solutions of this product has not been performed in our laboratories. If stock solutions must be prepared, one suggestion is to prepare them in pH 8.0 buffer and store them aliquoted at $-70\text{ }^{\circ}\text{C}$. One published reference suggests preparation of stock solutions of PAPS at neutral pH and storage at $-80\text{ }^{\circ}\text{C}$.⁷

References

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2. Horowitz, J.P. *et al.*, Studies on Bovine Adrenal Estrogen Sulfotransferase. III. Facile Synthesis of 3'-phospho- and 2'-phosphoadenosine 5'-phosphosulfate. *Biochim. Biophys. Acta*, **480(2)**, 376-381 (1977).
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5. Klaassen, C.D., and Boles, J.W., Sulfation and sulfotransferases 5: the importance of 3'-phosphoadenosine 5'-phosphosulfate (PAPS) in the regulation of sulfation. *FASEB J.*, **11(6)**, 404-418 (1997).
6. Sekura, R.D., Adenosine 3'-phosphate 5'-phosphosulfate. *Methods Enzymol.*, **77**, 413-415 (1981).
7. Seibert, C. *et al.*, *Chemokines*, Chapter Seventeen - Preparation and Analysis of N-Terminal Chemokine Receptor Sulfopeptides Using Tyrosylprotein Sulfotransferase Enzymes. *Methods Enzymol.*, **570**, 357-388 (2016).

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