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Product Information

Apyrase
from potato

Catalog Number **A6410**
Storage Temperature –20 °C

CAS RN 9000-95-7
EC 3.6.1.5
Synonyms: Adenosine 5′-diphosphatase, Adenosine 5′-triphosphatase, ATP diphosphohydrolase[1]

Product Description

Apyrase has adenosine 5′-triphosphatase (ATPase) and adenosine 5′-diphosphatase (ADPase) activities,[2] where hydrolysis of the pyrophosphate bonds leads to sequential release of inorganic orthophosphate.[3] At least two isoenzymes with different ATPase/ADPase ratios exist in different varieties of potato (*Solanum tuberosum*:[4,5]

- 'Pimpernel' isoenzyme, with a high ATPase/ADPase ratio of ~10:1 and an isoelectric point (pI) of 8.74
- 'Desirée' isoenzyme, with a low ATPase/ADPase ratio of ~1:1 and an isoelectric point (pI) of 6.69

These isozymes each have a molecular mass of ~49 kDa (gel filtration).[5] This product is predominantly the high ATPase/ADPase ratio isozyme.

Apyrase requires divalent metal ions for activity, with optimal activity observed with 5 mM Ca^{2+}. For hydrolysis of organic di- and triphosphates, the optimal pH is 6.[5] For inorganic substrates, the optimal pH is 5.1.[5]

Preparation Instructions

This product is soluble in water (1 mg/mL). One publication has reported preparation of 1,000 units/mL stock solutions of apyrase in PBS.[6]

Storage/Stability

Stock solutions at pH between 5–7.5 can be stored as frozen aliquots, such as in 30 mM HEPES, pH 7.2.[7] For enzyme solutions of <1 mg/ml, dissolve in HEPES buffer, pH 7.5, containing 1 mM $MgC1_2$,1 mM DTT, 1 mM EDTA, and 1 mg/mL BSA. Repeated freeze-thaw cycles risk loss of activity. One publication indicates storage of 340 units/mL stock solutions of apyrase in calcium-free Tyrode's buffer, at –20 °C, in single-use aliquots.[8]

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.

References

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