

Product Information

Arylsulfatase, Enhanced

Recombinant from *P. aeruginosa* for Steroid Sulfate Hydrolysis**SAE0213**

Product Description

Synonyms: Aryl-sulfatase, Aryl-sulfate sulfohydrolase, Phenolsulfatase

Storage Temperature: -20 °C

Arylsulfatases are a group of enzymes that hydrolyze aromatic sulfate esters to their parent aryl compounds and to free inorganic sulfate. In particular, arylsulfatase from *Pseudomonas aeruginosa* is also notably active in the hydrolysis of aliphatic sulfate esters.¹

This enhanced arylsulfatase is a recombinantly expressed form of the arylsulfatase found in *Pseudomonas aeruginosa*, with mutations introduced to enhance catalysis of steroidal sulfate esters.² This recombinant arylsulfatase is useful for sample preparation of urine metabolites (sulfated drug and endogenous conjugates) before HPLC and/or Mass Spectrometry analysis. This enhanced arylsulfatase will hydrolyze sulfoconjugates to improve retention time and consolidate parent analyte peaks on HPLC.³

This recombinant arylsulfatase from *P. aeruginosa* was engineered for enhanced activity for processing of sulfated metabolites, as a tool for analytical purposes. This enzyme has shown an enhanced catalytic efficiency (V_{\max}/K_m) compared to the wild-type arylsulfatase, such as in the hydrolysis of Dehydroepiandrosterone Sulfate (DHEAS) and Tapentadol Sulfate (TapS).

This product is a purified enzyme recombinantly expressed in *E. coli*. It is supplied in an aqueous solution containing 20 mM HEPES (pH 7.8), 150 mM NaCl, 10% glycerol, and 0.25 mM CaCl₂.

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.

Storage/Stability

The product is stable for at least 2 years when stored at -20 °C. It is advised to minimize freeze-thaw cycles by aliquoting the product. This product can be stored at 2-8 °C for up to 1 month without a substantial decrease in activity.

Activity

Unit Definition: One unit will hydrolyze 1.0 µmole of *p*-nitrocatechol sulfate per hour at pH 8.0 at 37 °C.

Activity range: 2000-3000 units/mL

References

1. Beil, S. *et al.*, "Purification and Characterization of the Arylsulfatase Synthesized by *Pseudomonas aeruginosa* PAO During Growth in Sulfate-Free Medium and Cloning of the Arylsulfatase Gene (*atsA*)". *Eur. J. Biochem.*, **229(2)**, 385-394 (1995).
2. Uduwela, D. R. *et al.*, "Enhancing the Steroid Sulfatase Activity of the Arylsulfatase from *Pseudomonas aeruginosa*". *ACS Catalysis*, **8(9)**, 8902-8914 (2018).
3. Gomes, R. L., *et al.*, "Analysis of conjugated steroid androgens: Deconjugation, derivatization and associated issues". *J. Pharm. Biomed. Anal.*, **49(5)**, 1133-1140 (2009).

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