

Product Information

Sulfatase from *Helix pomatia*

Type H-I

S9626

Product Description

CAS Registry Number: 9016-17-5

Enzyme Commission (EC) Number: 3.1.6.1

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

Sulfonation and sulfation are important processes in the metabolism of compounds such as hormones, neurotransmitters, and drugs.^{1,2} Sulfonation and sulfation are catalyzed by various sulfotransferases. In turn, desulfonation and desulfation occur via the action of sulfatase.

Several sulfatases occur in *Helix pomatia* (also known as Roman Snail).³⁻⁶ Early studies indicated the presence of at least two such sulfatases.^{3,4} One publication on two sulfatases isolated from *Helix pomatia* indicated molecular mass values of ~85 kDa by gel filtration chromatography. More recent work has postulated that *Helix pomatia* contains at least three sulfatases.⁶

In vitro, this *Helix pomatia* sulfatase product has been used for deconjugation studies of various compounds, including:

- Environmental contaminants, such as bisphenol A⁷
- Hirudin⁸
- Vitamin E metabolites⁹
- β -adrenoreceptor agonists¹⁰
- Lignans from carob germ and carob seed¹¹

This product is a lyophilized powder. It is known to contain β -glucuronidase activity. For this reason, β -glucuronidase activity of this product is also determined.

Several theses¹³⁻¹⁵ and dissertations¹⁶⁻²⁴ have cited use of product S9626 in their protocols.

Precautions and Disclaimer

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.

Product

Sulfatase activity: $\geq 10,000$ units/g solid

Unit definition: One unit will hydrolyze 1.0 μ mole of *p*-nitrocatechol sulfate per hour at pH 5.0 at 37 °C, in a 30-minute assay.

Preparation Instructions

One publication reports preparation of solutions of this sulfatase product at 100 units/mL in 200 mM sodium acetate buffer with 20 mM saccharic acid 1,4-lactone.¹²

References

1. Kauffman, F.C., *Drug Metab. Rev.*, **36(3-4)**, 823-843 (2004).
2. Mueller, J.W. *et al.*, *Endocr. Rev.*, **36(5)**, 526-563 (2015).
3. Dodgson, K.S. and Powell, G.M., *Biochem. J.*, **73(4)**, 666-671 (1959).
4. Dodgson, K.S., and Powell, G.M., *Biochem. J.*, **73(4)**, 672-679 (1959).
5. Roy, A.B., and Williams, E.A., *Comp. Biochem. Physiol.*, **93B(2)**, 229-237 (1989).
6. Wittstock, U. *et al.*, *IUBMB Life*, **49**, 71-76 (2000).
7. Kurebayashi, H. *et al.*, *Toxicol. Sci.*, **73(1)**, 17-25 (2003).
8. Önnarfjord, P. *et al.*, *J. Biol. Chem.*, **279(1)**, 26-33 (2004).
9. Freiser, H., and Jiang, Q., *Anal. Biochem.*, **388(2)**, 260-265 (2009).

10. Yang, S. *et al.*, *J. Chromatogr. Sci.*, **51**(5), 436-445 (2013).
11. Durazzo, A. *et al.*, *Food Chem.*, **153**, 109-113 (2014).
12. Kane, A.S., and Thohan, S., "Dynamic culture of fish hepatic tissue slices to assess phase I and phase II biotransformation", in *Techniques in Aquatic Toxicology* (G.K. Ostrander, ed.). CRC Lewis Publishers (Boca Raton, FL), pp. 371-391 (1996).
13. Xu, Tianlin, "Analysis of Vitamin E Metabolites by Liquid Chromatography-Tandem Mass Spectrometry". Purdue University, M.S. thesis, p. 30 (2014).
14. Gautam, Barsanti, "Study of *HIPP25*, *HIPP26*, *HIPP27* gene expression and glucosinolate content in *Arabidopsis thaliana* and *Noccaea caerulea* upon heavy metal treatments". Norwegian University of Science and Technology, M.Sc. thesis, p. 34 (2017).
15. Royer, Charlotte Jauquet, "Advancing Development of *Porphyra umbilicalis* as a Red Algal Model System and Aquaculture Crop". University of Maine, M.S. thesis, p. 46 (2017).
16. Bolarinwa, Adrian, "Entwicklung einer HPLC-Methode zur Bestimmung ausgewählter Polyphenole und ihr Einsatz in Humanstudien" ("Development of an HPLC method for the determination of selected polyphenols and their use in human studies"). Technische Universität München, Dr. rer. nat. dissertation, p. 18 (2006).
17. Hennig, Kristin, "Plant science meets food science: genetic effects of glucosinolate degradation during food processing in *Brassica*". Wageningen University, Ph.D. dissertation, p. 27 (2013).
18. Vicente da Silva, E.M., "Pasta highly enriched with vegetables: From microstructure to sensory and nutritional aspects". Wageningen University, Ph.D. dissertation, p. 98 (2013).
19. Guo, Yi, "Effects of antioxidant status and oral delivery systems on quercetin bioavailability". The Ohio State University, Ph.D. dissertation, p. 64 (2014).
20. Roberts, Kristen Michelle, "Dietary Bioactives and Human Prostate Carcinogenesis". The Ohio State University, Ph.D. dissertation, p. 29 (2015).
21. Sasaki, Geoffrey Yasuo, "Dietary Green Tea to Attenuate Metabolic Endotoxemia-Associated Inflammation Along the Gut-Liver Axis". The Ohio State University, Ph.D. dissertation, p. 133 (2020).
22. Correia, Mario S.P., "Development of chemical biology tools for metabolomics analysis". Uppsala Universitet, Ph.D. dissertation, p. 24 (2021).
23. Loke, Steffen, "Optimizing the Process of Introducing New Metabolites of Anabolic-Androgenic Steroids – Method Evaluation, Synthesis, Verification". Freie Universität Berlin, Dr. rer. nat. dissertation, p. 61 (2021).
24. Nguyen, Vinh Phuc Thinh, "*Brassica carinata* meal issued from aviation fuel production, a renewable resource of valuable chemicals". University of Florida, Ph.D. dissertation, p. 111 (2021).

Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

Technical Assistance

Visit the tech service page at [SigmaAldrich.com/techservice](https://www.sigmaaldrich.com/techservice).

Standard Warranty

The applicable warranty for the products listed in this publication may be found at [SigmaAldrich.com/terms](https://www.sigmaaldrich.com/terms).

Contact Information

For the location of the office nearest you, go to [SigmaAldrich.com/offices](https://www.sigmaaldrich.com/offices).

The life science business of Merck operates as MilliporeSigma in the U.S. and Canada.

Merck and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

© 2022 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.
S9626pis Rev 05/22 GCY,MAM

MERCK