



Product Information

Sphingolipid Ceramide N-Deacylase, from *Pseudomonas*

Product Number **S 2563**

Storage Temperature -20 °C

Product Description

Sphingolipid ceramide N-deacylase (SCDase) from *Pseudomonas* sp. hydrolyzes the N-acyl linkage between fatty acids and sphingosine bases in the ceramide moiety of sphingolipids. It acts on many acidic and neutral glycosphingolipids (GSLs) and sphingomyelin, but does not react as efficiently with ceramide.¹ Hydrolytic activity of the enzyme is enhanced in an aqueous-organic biphasic system.^{2,3} This enzyme activity is inhibited by Hg^{2+} , Zn^{2+} , and Cu^{2+} . The reaction is not inhibited by Mn^{2+} , Ca^{2+} , Mg^{2+} , and EDTA. The optimum pH range for hydrolysis activity is 5.0 to 6.0 (20 mM sodium acetate buffer with 0.8% Triton X-100).

This enzyme can be used to prepare lysoGSLs from GSLs. LysoGSLs are important starting materials for preparing neoglycoconjugates including glycosphingosyl peptides, proteins, and synthetic polymers, enabling further study of various lysosomal storage diseases.⁴

The enzyme also catalyzes the reverse reaction (condensation) between fatty acids and sphingosine bases to form sphingolipids^{5,6} and the transacylation (fatty acid exchange) between free fatty acids and sphingolipids. The reverse reaction has a pH optimum of 7.0 (25 mM sodium phosphate with 0.1% Triton X-100).

Vial Content: 250 milliunits in a solution containing 50 mM sodium acetate, pH 6.0, with 0.1% Lubrol PX.

Unit Definition: One unit will hydrolyze 1 μmol of asialo G_{M1} per minute at pH 6.0 at 37 °C.

This enzyme preparation is essentially free from the following exoglycosidase activities:

α -galactosidase,
 β -galactosidase,
 α -N-acetylgalactosaminidase,
 β -N-acetylgalactosaminidase,
 β -N-acetylglucosaminidase,
 α -mannosidase,
 α -fucosidase,
sialidase.

Furthermore, it is essentially free from protease and sphingomyelinase activities.

Precautions and Disclaimer

This product is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at -20 °C. Avoid repeated freeze-thaw cycles.

References

1. Ito, M., et al., J. Biol. Chem., **270**, 24370-24374 (1995).
2. Kurita, T., et al., J. Lipid Res., **41**, 846-851 (2000).
3. Kurita, K., and Ito, M., Eur. J. Biochem., **268**, 592-602 (2001).
4. Hannun, Y., and Bell, R., Science, **235**, 670-674 (1987).
5. Mitsutake, S., et al., Anal. Biochem., **247**, 52-57 (1997).
6. Mitsutake, S. et al., J. Biochem., **123**, 859-863 (1998).

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