Human SMPD1 Protein (His Tag)

Catalog Number: 11087-H08B1

General Information

Gene Name Synonym:

ASM; ASMASE; NPD

Protein Construction:

A DNA sequence encoding the human SMPD1 (BAD93012.1) (Met1-Pro628) was expressed with a polyhistidine tag at the C-terminus.

Source: Human

Expression Host: Baculovirus-Insect Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE.

Bio-activity:

Measured by its ability to cleave 2-N-Hexadecanoylamino-4-nitrophenylphosphorylcholine (HNPPC). The specific activity is >1000 pmol/min/μg.

Endotoxin:

< 1.0 EU per μg protein as determined by the LAL method.

Stability:

Samples are stable for up to twelve months from date of receipt at -70 ℃

Predicted N terminal: Leu 47

Molecular Mass:

The recombinant human SMPD1 consists of 593 amino acids and predicts a molecular mass of 66.3 kDa.

Formulation:

Supplied as sterile 20 mM Tris, 500 mM NaCl, 25 % glycerol, pH 7.5.

Usage Guide

Storage:

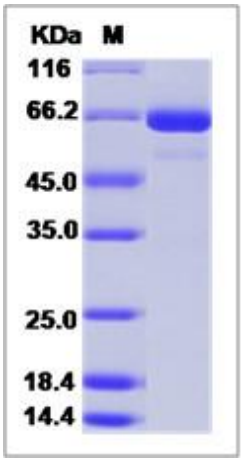
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Sphingomyelin phosphodiesterase 1 (SMPD1) , also known as ASM (acid sphingomyelinase), is a member of the acid sphingomyelinase family of enzymes. Three isoforms have been identified, isoform 1 is 631 amino acids (aa) in length as the pro form, while Isoform 2 and isoform 3 have lost catalytic activity. The active SMPD1 isoform 1 contains one saposin B-type domain that likely interacts with sphingomyelin, and a catalytic region. Human SMPD1 is 86% aa identical to mouse SMPD1. SMPD1 is a monomeric lysosomal enzyme that converts sphingomyelin (a plasma membrane lipid) into ceramide through the removal of phosphorylcholine. This generates second messenger components that participate in signal transduction. Defects in SMPD1 are the cause of Niemann-Pick disease type A (NPA) and type B (NPB), also known as Niemann-Pick disease classical infantile form and Niemann-Pick disease visceral form. Niemann-Pick disease is a clinically and genetically heterogeneous recessive disorder. NPB has little if any neurologic involvement and patients may survive into adulthood.

References

1.Schuchman E.H., *et al.*,(1991), Human acid sphingomyelinase. Isolation, nucleotide sequence and expression of the full-length and alternatively spliced cDNAs. J. Biol. Chem. 266:8531-8539. 2.Newrzella D., *et al.*, (1992), Molecular cloning of the acid sphingomyelinase of the mouse and the organization and complete nucleotide sequence of the gene.Biol. Chem. Hoppe-Seyler 373:1233-1238. 3.Schuchman E.H., *et al.*,(1992), Structural organization and complete nucleotide sequence of the gene encoding human acid sphingomyelinase (SMPD1).Genomics 12:197-205.