

SMPD1 Protein, Human (sf9, His)

Cat. No.:	HY-P76710
Synonyms:	Sphingomyelin phosphodiesterase; Acid sphingomyelinase; ASMase; Smpd1; Asm
Species:	Human
Source:	Sf9 insect cells
Accession:	P17405 (M1-P628)
Gene ID:	6609
Molecular Weight:	Approximately 66.3 kDa.

PROPERTIES

Biological Activity	Measured by its ability to cleave 2-N-Hexadecanoylamino-4-nitrophenylphosphorylcholine (HNPPC). The specific activity is ≥ 1735 pmol/min/ μ g, as measured under the described conditions.
Appearance	Solution
Formulation	Supplied as a 0.2 μ m filtered solution of 20 mM Tris, 500 mM NaCl, 25 % glycerol, pH 7.5.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background	SMPD1, a multifaceted enzyme, is instrumental in the dynamic conversion of sphingomyelin to ceramide, a process crucial for diverse cellular functions. This conversion occurs in the lysosomes, where SMPD1 plays a pivotal role in sphingolipid metabolism. Remarkably, SMPD1 exhibits two distinct enzymatic forms resulting from alternative trafficking of a single protein precursor, with one form targeted to the endolysosomal compartment and the other released extracellularly. Under various stress conditions, lysosomal exocytosis emerges as a major source of the secretory form, highlighting the adaptability of SMPD1 in response to cellular cues. In addition to its sphingomyelinase activity, SMPD1 contributes significantly to cholesterol export from intraendolysosomal membranes, demonstrating its involvement in lipid homeostasis. Moreover, SMPD1 showcases phospholipase C activities towards specific substrates, underscoring its versatility in lipid metabolism. Beyond lipid processing, SMPD1 exerts regulatory control over stress-induced apoptosis by modulating ceramide production, adding a layer of complexity to its multifunctional role in cellular processes.
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Caution: Product has not been fully validated for medical applications. For research use only.

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