Active Acid Sphingomyelinase (ASM)

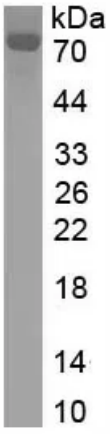
Catalog#:PHH12656

概述（Summary）

别称（Alternative Names）	SMPD1; NPD; SMase; aSMase; Sphingomyelin Phosphodiesterase 1,Acid Lysosomal; Simply Sphingomyelinase
纯度（Purity）	Greater than 95% as determined by reducing SDS-PAGE.
内毒素（Endotoxin level）	Please contact with the lab for this information
蛋白构建（Construction）	【His62-Pro628】
Accession #	P17405
表达宿主（Host）	293F
种属（Species）	Homo sapiens (Human)
预测分子量（Predicted MW）	64.9 kDa
制剂（Form）	Lyophilized from a 0.2 μm filtered solution of PBS, pH7.4, containing 0.01% SKL, 1mM DTT, 5% Trehalose and Proclin300.
运输方式（Shipping）	The product is shipped with ice bag. Upon receipt, store it immediately at the temperature listed below.
稳定性&储存（Stability &Storage）	12 months at -20°C to -80°C in lyophilized state.6 months at -20°C to -80°C under sterile conditions after reconstitution.7-10 days at 2°C to 8°C under sterile conditions after reconstitution.Please minimize freeze-thaw cycles.
复溶（Reconstitution）	Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.
背景介绍（References）	Converts sphingomyelin to ceramide. Exists as two enzymatic forms that arise from alternative trafficking of a single protein precursor, one that is targeted to the endolysosomal compartment, whereas the other is released extracellularly. However, in response to various forms of stress, lysosomal exocytosis may represent a major source of the secretory form.; In the lysosomes, converts sphingomyelin to ceramide. Plays an important role in the export of cholesterol from the intraendolysosomal membranes. Also has phospholipase C activities toward 1,2-diacylglycerolphosphocholine and 1,2-diacylglycerolphosphoglycerol.

Modulates stress-induced apoptosis through the production of ceramide.; When secreted, modulates cell signaling with its ability to reorganize the plasma membrane by converting sphingomyelin to ceramide. Secreted form is increased in response to stress and inflammatory mediators such as IL1B, IFNG or TNF as well as upon infection with bacteria and viruses. Produces the release of ceramide in the outer leaflet of the plasma membrane playing a central role in host defense. Ceramide reorganizes these rafts into larger signaling platforms that are required to internalize P. aeruginosa, induce apoptosis and regulate the cytokine response in infected cells. In wounded cells, the lysosomal form is released extracellularly in the presence of Ca(2+) and promotes endocytosis and plasma membrane repair.; Lacks residues that bind the cofactor Zn(2+) and has no enzyme activity.; Lacks residues that bind the cofactor Zn(2+) and has no enzyme activity.; (Microbial infection) Secretion is activated by bacteria such as P. aeruginos, N. gonorrhoeae and others, this activation results in the release of ceramide in the outer leaflet of the plasma membrane which facilitates the infection.; (Microbial infection) Secretion is activated by human coronaviruses SARS-CoV and SARS-CoV-2 as well as Zaire ebolavirus, this activation results in the release of ceramide in the outer leaflet of the plasma membrane which facilitates the infection.

电泳图（SDS-PAGE image）



Greater than 95% as determined by reducing SDS-PAGE.

活性图（Bioactivity image）

$$\text{Specific Activity (pmol/min/μg)} = \frac{\Delta OD * F}{T * N}$$

△OD=Adjusted for Substrate Blank

F=Conversion Factor(Derived using calibration standard p-Nitrophenol)

T= Time

N=Amount of enzyme

Sphingomyelin phosphodiesterase 1 (SMPD1), also known as acid sphingomyelinase (ASM), belongs to the sphingomyelin phosphodiesterase family. The protein Converts sphingomyelin to ceramide. ASM also has phospholipase C activities toward 1,2-diacylglycerolphosphocholine and 1,2-diacylglycerolphosphoglycerol. Thus, the recombinant human ASM activity was measured by its ability to hydrolyze 2-N-Hexadecanoylamino-4-nitrophenylphosphorylcholine (HDA-PC) to p-Nitrophenol. The reaction was performed in 50 mM MES, 0.5 μM ZnCl2, pH 7.5 (Assay Buffer), initiated by addition 50 μL of various concentrations of ASM (diluted with Assay Buffer) to 50 μL of 1 mM Substrate HDA-PC (50 mM stock solution in methanol, diluted with Assay Buffer). Incubated at room temperature for 20 minutes in the dark, then read at a wavelength of 405 nm. One unit of enzyme activity is defined as the 1μg of enzyme required to convert 1pmol of HDA-PC to p-Nitrophenol in 1min at 37°C. The specific activity of recombinant human ASM is >1000 pmol/min/μg.

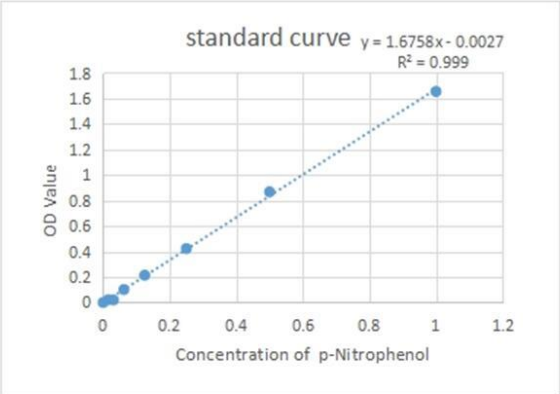


Figure 1. The standard curve of p-Nitrophenol

注意事项（Note）

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