abcam

Product datasheet

Acidic Sphingomyelinase Assay Kit (Fluorimetric) ab190554

8 References 画像数 1

製品の概要

製品名	Acidic Sphingomyelinase Assay Kit (Fluorimetric)
検出方法	Fluorescent
サンプルの種類	Cell culture extracts, Tissue Extracts
アッセイタイプ	Semi-quantitative
検出感度	1 U/ml
種交差性	**交差種:** Other species **交差が予測される動物種:** Mammals
製品の概要	Acidic Sphingomyelinase Assay Kit (Fluorometric) (ab190554) provides one of the most sensitive methods for detecting acidic sphingomyelinase (SMase) activity in cell extracts, or for screening the effect of inhibitors on acid SMase activity. The kit uses our AbRed Indicator as a fluorogenic probe to indirectly quantify the phosphocholine produced from the hydrolysis of sphingomyelin (SM) by sphingomyelinase (SMase). The fluorescence intensity of AbRed is proportional to the formation of phosphocholine, therefore proportional to the SMase activity. This product can be used for measuring the SMase activity in cell extracts or solutions such as blood. The kit is an optimized “mix and read” assay which is compatible with HTS liquid handling instruments. This assay is semi-quantitative as it does not contain a SMase standard for calibration. When a known concentration of sphingomyelinase is used, the assay can detect as low as 1 U/mL acidic sphingomyelinase in solution.
特記事項	Sphingomyelinase (SMase; sphingomyelin phosphodiesterase, EC 3.1.4.12) is responsible for cleaving sphingomyelin (SM) to phosphocholine and ceramide. Activation of SMase plays an important role in cellular responses such as regulation of cell growth, cell differentiation, cell cycle arrest and programmed cell death. Five types of sphingomyelinase have been identified, based on their cation dependence and optimal pH of action: lysosomal acid SMase, secreted zinc-dependent acid SMase, magnesium-dependent neutral SMase, magnesium-independent neutral SMase and alkaline SMase. Among those five types, lysosomal acidic SMase and magnesium-dependent neutral SMase are considered to be the major factors for the production of ceramide in cellular stress responses.
試験プラットフォーム	Microplate reader

製品の特性

保存方法 Store at -20°C. Please refer to protocols.

内容	200 tests
AbRed Indicator	1 vial
Assay Buffer	1 x 10ml
DMSO	1 x 200µl
Enzyme Mix	2 vials
SMase Reaction Buffer	1 x 10ml
Sphingomyelin	1 x 100µl

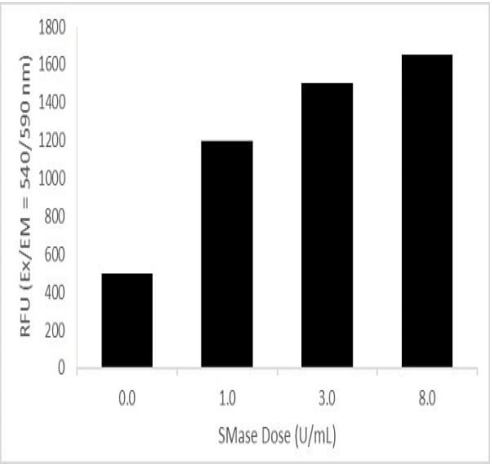
機能 Converts sphingomyelin to ceramide. Also has phospholipase C activities toward 1,2-diacylglycerolphosphocholine and 1,2-diacylglycerolphosphoglycerol. Isoform 2 and isoform 3 have lost catalytic activity.

関連疾患 Defects in SMPD1 are the cause of Niemann-Pick disease type A (NPDA) [MIM:257200]; also known as Niemann-Pick disease classical infantile form. It is an early-onset lysosomal storage disorder caused by failure to hydrolyze sphingomyelin to ceramide. It results in the accumulation of sphingomyelin and other metabolically related lipids in reticuloendothelial and other cell types throughout the body, leading to cell death. Niemann-Pick disease type A is a primarily neurodegenerative disorder characterized by onset within the first year of life, mental retardation, digestive disorders, failure to thrive, major hepatosplenomegaly, and severe neurologic symptoms. The severe neurological disorders and pulmonary infections lead to an early death, often around the age of four. Clinical features are variable. A phenotypic continuum exists between type A (basic neurovisceral) and type B (purely visceral) forms of Niemann-Pick disease, and the intermediate types encompass a cluster of variants combining clinical features of both types A and B.
Defects in SMPD1 are the cause of Niemann-Pick disease type B (NPDB) [MIM:607616]; also known as Niemann-Pick disease visceral form. It is a late-onset lysosomal storage disorder caused by failure to hydrolyze sphingomyelin to ceramide. It results in the accumulation of sphingomyelin and other metabolically related lipids in reticuloendothelial and other cell types throughout the body, leading to cell death. Clinical signs involve only visceral organs. The most constant sign is hepatosplenomegaly which can be associated with pulmonary symptoms. Patients remain free of neurologic manifestations. However, a phenotypic continuum exists between type A (basic neurovisceral) and type B (purely visceral) forms of Niemann-Pick disease, and the intermediate types encompass a cluster of variants combining clinical features of both types A and B. In Niemann-Pick disease type B, onset of the first symptoms occurs in early childhood and patients can survive into adulthood.

配列類似性 Belongs to the acid sphingomyelinase family.
Contains 1 saposin B-type domain.

細胞内局在 Lysosome.

画像



Sphingomyelinase Dose Response

Sphingomyelinase (purified from human placenta) dose response was measured on a 96-well half-are black plate following assay procedure, using a Gemini fluorescence microplate reader (Molecular Devices). 20 µL of SMase solution was incubated with 20 µL of Sphingomyelin Working Solution at 37°C for 3 hours, and then 20 µL of sphingomyelinase assay mixture was added into each well. Signals shown in the figure correspond to the readings at Ex/Em = 540/590 nm (cut off at 570 nm) after 2 hours incubation at room temperature.

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