Ceramide Kinase (CERK). Sf9 cells Active Enzyme

Ceramide kinase, Acylsphingosine kinase, hCERK, Lipid kinase 4, LK4, CERK, KIAA1646

Background

Sphingolipids, in addition to being structural components of membranes, regulate cell-cell and cell-substrate interactions, proliferation, and differentiation. Members of this diverse group of lipids have emerged as a novel class of signaling molecules that also regulate phagocytosis. The mechanisms by which sphingolipids exert these effects remain incompletely defined. More than a decade ago, it was found that ceramide can be phosphorylated to ceramide 1-phosphate (C1P). Ceramide kinase (CERK) and its phosphorylated product ceramide 1-phosphate (C1P) are central players in inflammation and cancer. The product of CERK activity, ceramide 1-phosphate (C1P), has been reported to have mitogenic effects. C1P is a direct activator of cytosolic phospholipase A2 and is involved in arachidonic acid release. CERK is a mediator of Ca2+-dependent degranulation in mast cells. In both arachidonic acid release and mast cell degranulation, the intracellular elevation of Ca2+ is a central event that acts as a regulatory mechanism of CERK activity. C1P is found in brain synaptic vesicles, and plays a role in regulating the secretion of neurotransmitters. CERK activity exists in HL-60 cells where the C1P is derived from ceramide released from sphingomyelin. The expressed kinase has specific ceramide phosphorylating activity. CERKs exist in a variety of cellular organisms, including plants, nematodes, insects, and vertebrates.

Activity

142 pmole/min/μg.

Purity

80%

Applications

Useful for the study of enzyme kinetics, screening inhibitors, and selectivity profiling.

Ordering Information

Catalog Number
X2076E

Size
10 μg

Customer Storage
Product should be stored at -70°C. Aliquot to avoid freeze/thaw cycles

Formulation
Provided in 40 mM Tris-HCl pH 8.0, 110 mM NaCl, 2.2 mM KCl, 40 μg/ml Flag peptide, 3 mM DTT and 20% glycerol

Ship Conditions
Ship on dry ice, freeze upon arrival

Stability
Products are stable for one year from purchase when stored properly

Concentration
See vial for concentration

Source
Full length human protein with C-terminal FLAG tag.

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Assay Methods

Materials

Assay buffer: 20 mM HEPES pH7.2, 80 mM KCl, 3 mM CaCl2, 10 mM MgCl2, 2 mM DTT, 5 µM ATP

Procedure

CERK activity measured at 37ºC for 25 min in assay buffer using a μ-Octylglucodie mixed micellar assay with 100 μM Ceramide. ATP reduction was detected using Kinase-Glo Luminescent Kinase Assay Platform (Promega).

References

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Product Specific References

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