

# Ceramide Kinase (C-20): sc-79406

## BACKGROUND

Ceramide Kinase, also known as CERK, LK4 (lipid kinase 4) or acylsphingosine kinase, is a 537 amino acid peripheral membrane protein that localizes to both the membrane and the cytoplasm and contains one DAGHc domain. Highly expressed in brain, liver, kidney, heart and skeletal muscle, with lower expression in spleen, lung, thymus and small intestine, Ceramide Kinase uses calcium and magnesium as cofactors to catalyze the ATP-dependent conversion of ceramide to ceramide 1-phosphate (C1P), a sphingolipid metabolite. Ceramide Kinase functions at an optimal pH of 6-7.5 and, via its catalytic activity, plays an important role in a variety of cellular processes, including apoptosis, phagocytosis and cellular proliferation.

## REFERENCES

1. Sugiura, M., Kono, K., Liu, H., Shimizugawa, T., Minekura, H., Spiegel, S. and Kohama, T. 2002. Ceramide Kinase, a novel lipid kinase. Molecular cloning and functional characterization. *J. Biol. Chem.* 277: 23294-23300.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610307. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Hinkovska-Galcheva, V., Boxer, L.A., Kindzelskii, A., Hiraoka, M., Abe, A., Goparju, S., Spiegel, S., Petty, H.R. and Shayman, J.A. 2005. Ceramide 1-phosphate, a mediator of phagocytosis. *J. Biol. Chem.* 280: 26612-26621.
4. Wijesinghe, D.S., Massiello, A., Subramanian, P., Szulc, Z., Bielawska, A. and Chalfant, C.E. 2005. Substrate specificity of human Ceramide Kinase. *J. Lipid Res.* 46: 2706-2716.
5. Van Overloop, H., Gijbbers, S. and Van Veldhoven, P.P. 2006. Further characterization of mammalian Ceramide Kinase: substrate delivery and (stereo) specificity, tissue distribution, and subcellular localization studies. *J. Lipid Res.* 47: 268-283.
6. Mitra, P., Maceyka, M., Payne, S.G., Lamour, N., Milstien, S., Chalfant, C.E. and Spiegel, S. 2007. Ceramide Kinase regulates growth and survival of A549 human lung adenocarcinoma cells. *FEBS Lett.* 581: 735-740.
7. Date, T., Mitsutake, S. and Igarashi, Y. 2007. Ceramide Kinase expression is altered during macro-phage-like cell differentiation of the leukemia cell line HL-60. *In Vitro Cell. Dev. Biol. Anim.* 43: 321-323.
8. Lamour, N.F., Stahelin, R.V., Wijesinghe, D.S., Maceyka, M., Wang, E., Allegood, J.C., Merrill, A.H., Cho, W. and Chalfant, C.E. 2007. Ceramide Kinase uses ceramide provided by ceramide transport protein: localization to organelles of eicosanoid synthesis. *J. Lipid Res.* 48: 1293-1304.

## CHROMOSOMAL LOCATION

Genetic locus: CERK (human) mapping to 22q13.31; CerK (mouse) mapping to 15 E2.

## SOURCE

Ceramide Kinase (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Ceramide Kinase of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-79406 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Ceramide Kinase (C-20) is recommended for detection of Ceramide Kinase of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Ceramide Kinase (C-20) is also recommended for detection of Ceramide Kinase in additional species, including equine.

Suitable for use as control antibody for Ceramide Kinase siRNA (h): sc-72868, Ceramide Kinase siRNA (m): sc-72869, Ceramide Kinase shRNA Plasmid (h): sc-72868-SH, Ceramide Kinase shRNA Plasmid (m): sc-72869-SH, Ceramide Kinase shRNA (h) Lentiviral Particles: sc-72868-V and Ceramide Kinase shRNA (m) Lentiviral Particles: sc-72869-V.

Molecular Weight of Ceramide Kinase: 60 kDa.

Positive Controls: mouse heart extract: sc-2254 or A2058 whole cell lysate: sc-364178.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.



Try **Ceramide Kinase (G-3): sc-376730**, our highly recommended monoclonal alternative to Ceramide Kinase (C-20).