

Recombinant Human SPHK2 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50924

Size: 10ug, 100ug

Protein Name: Sphingosine kinase 2 (SK 2) (SPK 2) (EC 2.7.1.91)

Synonym: SPHK2, SK2

UniProt ID: Q9NRA0

UniProt Link: www.uniprot.org/uniprotkb/Q9NRA0/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 654 AA

Molecular Weight: 69 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MNGHLEAEEQQDQRPDQELTGSWGHGPRSTLVRAKAMAPPPPLAASTPLLHGEFGSYPARGPR
FALTLTSQLHIQRLRPKPEARPRGGLVPLAEVSGCCTLSRSPSDSAAYFCIYTYPRGRRGARRRA
TRTFRADGAATYEENRAEAQRWATALTCLLRGLPLPGDGEITPDLLPRPPRLLLLVNPFGGGRGLAW
QWCKNHVLP MISEAGLSFNLIQTERQNHARELVQGLSLSEWDGIVTVSGDGLLHEVLNGLLDRPDW
EEAVKMPVGILPCGSGNALAGAVNQHGGEFEPALGLDLLNCSLLLCRGGGHPLDLLSVTLASGSRCF
SFLSVAWGFVSDVDIQSERFRALGSARFTLGTVLGLATLHTYRGRLSYLPATVEPASPTPAHSLPRA
KSELTLPDPAPPMAHSPHRSVSDLPLPLPQPALASPGSPEPLPILSLNGGGPELAGDWGGAGDA
PLSPDPLLSSPPGSPKAALHSPVSEGAPVIPSSGLPLPTPDARVGASTCGPPDHLLPPLGTPLPPD
WVTLEGDFVLM LAISPSHLGADLVAAPHARFDDGLVHLCWVRSGISRAALLRLFLAMERGSFSLGC
PQLGYAAARA FRLEPLTPRGVLTVDGEQVEYGPLQAQMHPGIGTLLTGPPGCPGREG

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Sphingosine kinase 2 (SK 2) (SPK 2) (EC 2.7.1.91) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Catalyzes the phosphorylation of sphingosine to form sphingosine-1-phosphate (SPP), a lipid mediator with both intra- and extracellular functions. Also acts on D-erythro-dihydrosphingosine, D-erythro-sphingosine and L-threo-dihydrosphingosine. Binds phosphoinositides (PubMed:12954646, PubMed:19168031). In contrast to prosurvival SPHK1, has a positive effect on intracellular ceramide levels, inhibits cells growth and enhances apoptosis (PubMed:16118219). In mitochondria, is important for cytochrome-c oxidase assembly and mitochondrial respiration. The SPP produced in mitochondria binds PHB2 and modulates the regulation via PHB2 of complex IV assembly and respiration (PubMed:20959514). In nucleus, plays a role in epigenetic regulation of gene expression. Interacts with HDAC1 and HDAC2 and, through SPP production, inhibits their enzymatic activity, preventing the removal of acetyl groups from lysine residues with histones. Up-regulates acetylation of histone H3-K9, histone H4-K5 and histone H2B-K12 (PubMed:19729656). In nucleus, may have an inhibitory effect on DNA synthesis and cell cycle (PubMed:12954646, PubMed:16103110). In mast cells, is the main regulator of SPP production which mediates calcium influx, NF-kappa-B activation, cytokine production, such as TNF and IL6, and degranulation of mast cells (By similarity). In dopaminergic neurons, is involved in promoting mitochondrial functions regulating ATP and ROS levels (By similarity). Also involved in the regulation of glucose and lipid metabolism (By similarity).

Subcellular Localization: Cytoplasm . Nucleus . Endoplasmic reticulum . Mitochondrion inner membrane . Note=In nucleus, located in nucleosomes where it associates with core histone proteins such as histone 3 (PubMed:19729656). In brains of patients with Alzheimer's disease, may be preferentially localized in the nucleus. Cytosolic expression decrease correlates with the density of amyloid deposits (PubMed:29615132). In apoptotic cells, colocalizes with CASP1 in cell membrane where is cleaved and released from cells in an active form (PubMed:20197547).; [Isoform 2]: Lysosome membrane .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.