

Cosmc (K-14): sc-67480

BACKGROUND

Cosmc, or C1GALT1-specific chaperone 1, is a 318 amino acid protein encoded by the human gene C1GALT1C1. Cosmc is believed to be a chaperone required for the generation of 1 O-glycan Gal- β 1-3GalNAc- α 1-Ser/Thr (Tn antigen), which is a precursor for many extended O-glycans in glycoproteins. Cosmc may also function as a specific molecular chaperone assisting the folding/stability of core 1 β -3-galactosyltransferase (C1GALT1). Cosmc is a single-pass type II membrane protein. Cosmc is ubiquitously expressed in all tissue types. It is most abundantly expressed in small intestine, stomach, salivary gland, kidney and testis and at intermediate levels in whole brain, cerebellum, spinal cord, thymus, spleen, trachea, lung, pancreas, ovary and uterus. Defects in C1GALT1C1 are the cause of Tn syndrome, a rare autoimmune disease caused by somatic mutation in the C1GALT1C1 gene in which subpopulations of blood cells of all lineages carry an incompletely glycosylated Tn antigen, effecting red cells and platelets and leading to anemia, leukopenia and thrombocytopenia. Tn-polyagglutinability is sometimes associated with leukemia or is a preleukemic state.

REFERENCES

- Zhang, Q.H., et al. 2000. Cloning and functional analysis of cDNAs with open reading frames for 300 previously undefined genes expressed in CD34⁺ hematopoietic stem/progenitor cells. *Genome Res.* 10: 1546-1560.
- Kudo, T., et al. 2002. Molecular cloning and characterization of a novel UDP-Gal:GalNAc(α) peptide β 1,3-galactosyltransferase (C1Gal-T2), an enzyme synthesizing a core 1 structure of O-glycan. *J. Biol. Chem.* 277: 47724-47731.
- Ju, T., et al. 2002. A unique molecular chaperone Cosmc required for activity of the mammalian core 1 β 3-galactosyltransferase. *Proc. Natl. Acad. Sci. USA* 99: 16613-16618.
- Ju, T., et al. 2005. Protein glycosylation: chaperone mutation in Tn syndrome. *Nature* 437: 1252.
- Qin, W., et al. 2005. Peripheral B lymphocyte β 1,3-galactosyltransferase and chaperone expression in immunoglobulin A nephropathy. *J. Intern. Med.* 258: 467-477.
- Ju, T., et al. 2006. Identification of core 1 O-glycan T-synthase from *Caenorhabditis elegans*. *Glycobiology* 16: 947-958.
- Schietinger, A., et al. 2006. A mutant chaperone converts a wildtype protein into a tumor-specific antigen. *Science* 314: 304-308.
- LocusLink Report (LocusID: 29071). <http://www.ncbi.nlm.nih.gov/LocusLink/>

CHROMOSOMAL LOCATION

Genetic locus: C1galt1c1 (mouse) mapping to X A3.3.

SOURCE

Cosmc (K-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Cosmc of mouse origin.

RESEARCH USE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-67480 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Cosmc (K-14) is recommended for detection of Cosmc of mouse and rat 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).

Cosmc (K-14) is also recommended for detection of Cosmc in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Cosmc siRNA (m): sc-62149, Cosmc shRNA Plasmid (m): sc-62149-SH and Cosmc shRNA (m) Lentiviral Particles: sc-62149-V.

Molecular Weight of Cosmc: 36 kDa.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.