

OCTN1 (P-12): sc-19820

BACKGROUND

Carnitine (β -hydroxy- γ -trimethylaminobutyrate) is a small, highly polar compound that aids in the β -oxidation of long-chain fatty acids. Organic cation/carnitine transporters (OCTN) assist in the elimination of cationic compounds, including xenobiotics, and transport carnitine for reabsorption in the kidney. Similar to organic cation transporters (OCT), OCTN proteins localize to the plasma membrane of epithelial cells. OCTN1 is expressed as 64, 70 and 82 kDa proteins in kidney, trachea, bone marrow and fetal liver. OCTN2 is abundantly expressed as 70 and 80 kDa proteins in kidney, skeletal muscle, placenta and heart. OCTN3 is strongly expressed as 54 and 60 kDa proteins in testis and weakly expressed in kidney. The gene encoding human OCTN1 maps to chromosome 5 and the gene encoding human OCTN2 maps to chromosome 5q31. Mutations in the gene encoding OCTN2 lead to systemic carnitine deficiency (SCD), an autosomal recessive disorder characterized by cardiomyopathy, skeletal myopathy, lethargy, hypoglycemia and hyperamonemia.

REFERENCES

1. Tamai, I., et al. 1997. Cloning and characterization of a novel human pH-dependent organic cation transporter, OCTN1. *FEBS Lett.* 419: 107-111.
2. Tamai, I., et al. 1998. Molecular and functional identification of sodium ion-dependent, high affinity human carnitine transporter OCTN2. *J. Biol. Chem.* 273: 20378-20382.
3. Wu, X., et al. 1998. cDNA sequence, transport function, and genomic organization of human OCTN2, a new member of the organic cation transporter family. *Biochem. Biophys. Res. Commun.* 246: 589-595.
4. Lamhonwah, A.M., et al. 1998. Carnitine uptake defect: frameshift mutations in the human plasmalemmal carnitine transporter gene. *Biochem. Biophys. Res. Commun.* 252: 396-401.
5. Km, L., et al. 1998. A missense mutation of mouse OCTN2, a sodium-dependent carnitine cotransporter, in the juvenile visceral steatosis mouse. *Biochem. Biophys. Res. Commun.* 252: 590-594.
6. Nezu, J., et al. 1999. Primary systemic carnitine deficiency is caused by mutations in a gene encoding sodium ion-dependent carnitine transporter. *Nat. Genet.* 21: 91-94.
7. Tamai, I., et al. 2000. Molecular and functional characterization of organic cation/carnitine transporter family in mice. *J. Biol. Chem.* 275: 40064-40072.
8. Tamai, I., et al. 2001. Na⁺-coupled transport of L-carnitine via high-affinity carnitine transporter OCTN2 and its subcellular localization in kidney. *Biochim. Biophys. Acta* 1512: 273-584.

CHROMOSOMAL LOCATION

Genetic locus: SLC22A4 (human) mapping to 5q23.3; Slc22a4 (mouse) mapping to 11 B1.3.

SOURCE

OCTN1 (P-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of OCTN1 of mouse origin.

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-19820 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

OCTN1 (P-12) is recommended for detection of OCTN1 of mouse, rat and, to a lesser extent, 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).

Suitable for use as control antibody for OCTN1 siRNA (h): sc-42558, OCTN1 siRNA (m): sc-42559, OCTN1 shRNA Plasmid (h): sc-42558-SH, OCTN1 shRNA Plasmid (m): sc-42559-SH, OCTN1 shRNA (h) Lentiviral Particles: sc-42558-V and OCTN1 shRNA (m) Lentiviral Particles: sc-42559-V.

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.

PROTOCOLS

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


 MONOS
 Satisfaction
 Guaranteed

Try **OCTN1/2 (H-9): sc-515731**, our highly recommended monoclonal alternative to OCTN1 (P-12).