SANTA CRUZ BIOTECHNOLOGY, INC.

CAT (D-20): sc-22683

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Aging affects oxidative metabolism in liver and other tissues. Carnitine acyltransferases are key enzymes of this process in mitochondria. Carnitine acetyltransferase (CAT, CRAT) catalyzes the reversible conversion of acetyl-CoA and carnitine to acetylcarnitine and CoA. The essential functions of CAT are to regenerate CoA, which allows peroxisomal β-oxidation to proceed, and to facilitate transport of acetyl moieties to mitochondria for oxidation. More than 70% of CAT is located in the mitochondrial matrix and it is also located in the endoplasmic reticulum, peroxisomal and mitochondrial inner membrane. An age associated decrease in CAT activity has been reported in many rat systems. The human gene encoding CAT maps to chromosome 9q34.11 and encodes a protein that contains a peroxisomal targeting signal and is expressed mostly in skeletal muscle, and less in heart, liver and pancreas. Total CAT activity is induced by acetate and fatty acids, and repressed by glucose.

REFERENCES

1. Corti, O., Finocchiaro, G., Rossi, E., Zuffardi, O. and DiDonato, S. 1994. Molecular cloning of cDNAs encoding human carnitine acetyltransferase and mapping of the corresponding gene to chromosome 9q34.1. Genomics 23: 94-99.
2. Stemple, C.J., Davis, M.A. and Hynes, M.J. 1998. The facC gene of *Aspergillus nidulans* encodes an acetate-inducible carnitine acetyltransferase. J. Bacteriol. 180: 6242-6251.
3. Masterson, C. and Wood, C. 2000. Pea chloroplast carnitine acetyltransferase. Proc. Biol. Sci. 267: 1-6.
4. Liu, J., Killilea, D.W. and Ames, B.N. 2002. Age-associated mitochondrial oxidative decay: improvement of carnitine acetyltransferase substrate-binding affinity and activity in brain by feeding old rats acetyl-L-carnitine and/or R-α-lipoic acid. Proc. Natl. Acad. Sci. USA 99: 1876-1881.

CHROMOSOMAL LOCATION

Genetic locus: CRAT (human) mapping to 9q34.11; Crat (mouse) mapping to 2 B.

SOURCE

CAT (D-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CAT 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-22683 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

CAT (D-20) is recommended for detection of CAT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

CAT (D-20) is also recommended for detection of CAT in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CAT siRNA (h): sc-41467, CAT siRNA (m): sc-41468, CAT shRNA Plasmid (h): sc-41467-SH, CAT shRNA Plasmid (m): sc-41468-SH, CAT shRNA (h) Lentiviral Particles: sc-41467-V and CAT shRNA (m) Lentiviral Particles: sc-41468-V.

Molecular Weight of CAT: 68 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

SELECT PRODUCT CITATIONS

1. Chen, Y., Duan, Y., Yang, X., Sun, L., Liu, M., Wang, Q., Ma, X., Zhang, W., Li, X., Hu, W., Miao, R.Q., Xiang, R., Hajjar, D.P. and Han, J. 2015. Inhibition of ERK1/2 and activation of LXR synergistically reduce atherosclerotic lesions in ApoE-deficient mice. Arterioscler Thromb. Vasc. Biol. 35: 948-959.

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.