

# DCAKD (SQ-14): sc-100348

## BACKGROUND

Coenzyme A (CoA) is an essential cofactor used in numerous biochemical pathways. It plays a critical role in the synthesis and oxidation of fatty acids and is vital to the citric acid cycle. The biosynthesis pathway of CoA from pantothenic acid (also known as vitamin B5) is essential and universal in prokaryotes and eukaryotes. In humans, the final steps of the biosynthesis pathway is carried out by the bifunctional enzyme COASY. The sequence of these enzymes are highly conserved between different bacterial species. The phosphopantetheine adenylyltransferase and dephospho-coenzyme A kinase activities of COASY are evolutionarily conserved activities. DCAKD (dephospho-CoA kinase domain containing protein) is a 231 amino acid protein that consists of a dephospho-CoA kinase domain and an ATP nucleotide binding motif. Localizing to mitochondria and the cytosol, DCAKD belongs to the coaE family, which suggests that it may play a role in the biosynthesis of CoA.

## REFERENCES

- Skrede, S. and Halvorsen, O. 1983. Mitochondrial pantetheinephosphate adenylyltransferase and dephospho-CoA kinase. *Eur. J. Biochem.* 131: 57-63.
- Obmolova, G., Teplyakov, A., Bonander, N., Eisenstein, E., Howard, A.J. and Gilliland, G.L. 2001. Crystal structure of dephospho-coenzyme A kinase from *Haemophilus influenzae*. *J. Struct. Biol.* 136: 119-125.
- Aghajanian, S. and Worrall, D.M. 2002. Identification and characterization of the gene encoding the human phosphopantetheine adenylyltransferase and dephospho-CoA kinase bifunctional enzyme (CoA synthase). *Biochem. J.* 365: 13-18.
- Daugherty, M., Polanuy, B., Farrell, M., Scholle, M., Lykidis, A., de Crécy-Lagard, V. and Osterman, A. 2002. Complete reconstitution of the human coenzyme A biosynthetic pathway via comparative genomics. *J. Biol. Chem.* 277: 21431-21439.
- Zhyvoloup, A., Nemazanyy, I., Babich, A., Panasyuk, G., Pobigailo, N., Vudmaska, M., Naidenov, V., Kukharenko, O., Palchevskii, S., Savinska, L., Ovcharenko, G., Verdier, F., Valovka, T., Fenton, T., Rebholz, H., Wang, M.L., Shepherd, P., Matsuka, G., Filonenko, V. and Gout, I.T. 2002. Molecular cloning of CoA Synthase. The missing link in CoA biosynthesis. *J. Biol. Chem.* 277: 22107-22110.

## CHROMOSOMAL LOCATION

Genetic locus: DCAKD (human) mapping to 17q21.31.

## SOURCE

DCAKD (SQ-14) is a mouse monoclonal antibody raised against recombinant DCAKD of human origin.

## PRODUCT

Each vial contains 50 µg IgG<sub>1</sub> kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

DCAKD (SQ-14) is recommended for detection of DCAKD of 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), immunohistochemistry (including paraffin-embedded sections) (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 DCAKD siRNA (h): sc-93599, DCAKD shRNA Plasmid (h): sc-93599-SH and DCAKD shRNA (h) Lentiviral Particles: sc-93599-V.

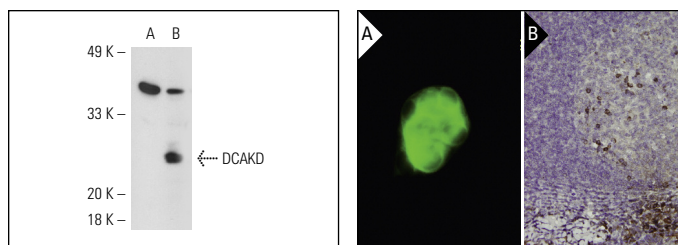
Molecular Weight of DCAKD: 27 kDa.

Positive Controls: DCAKD (h): 293 Lysate: sc-113181 or MCF7 whole cell lysate: sc-2206.

## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA



DCAKD (SQ-14): sc-100348. Western blot analysis of DCAKD expression in non-transfected: sc-110760 (A) and human DCAKD transfected: sc-113181 (B) 293 whole cell lysates.

DCAKD (SQ-14): sc-100348. Immunofluorescence staining of paraformaldehyde-fixed MCF7 cells showing membrane and cytoplasmic localization (A). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human tonsil tissue showing cytoplasmic localization (B).

## 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](http://www.scbt.com) for detailed protocols and support products.