

# CHDH (D-13): sc-102443

## BACKGROUND

Choline is an essential micronutrient that is one of the major sources of methyl groups in the human diet and is necessary for the structure and function of all cells. CHDH (choline dehydrogenase) is a 594 amino acid protein belonging to the GMC oxidoreductase family. This flavin adenine dinucleotide (FAD)-dependent enzyme converts choline to betaine aldehyde, which is then oxidized to betaine, one of the precursors of methionine. CHDH activity is highest in the kidney and liver and it is localized to the matrix side of the inner mitochondrial membrane. Since the gene encoding CHDH is regulated by estrogen, CHDH may be a possible marker for early stage ER-positive breast cancer due to its potential to predict anti-estrogen resistance. Polymorphisms in the gene encoding CHDH have been linked to the degree of susceptibility for choline deficiency.

## REFERENCES

1. Zeisel, S.H. 2000. Choline: needed for normal development of memory. *J. Am. Coll. Nutr.* 19: 528S-531S.
2. Huang, S. and Lin, Q. 2003. Functional expression and processing of rat choline dehydrogenase precursor. *Biochem. Biophys. Res. Commun.* 309: 344-350.
3. Kohlmeier, M., et al. 2005. Genetic variation of folate-mediated one-carbon transfer pathway predicts susceptibility to choline deficiency in humans. *Proc. Natl. Acad. Sci. USA* 102: 16025-16030.
4. da Costa, K.A., et al. 2006. Common genetic polymorphisms affect the human requirement for the nutrient choline. *FASEB J.* 20: 1336-1344.
5. Slow, S. and Garrow, T.A. 2006. Liver choline dehydrogenase and kidney betaine-homocysteine methyltransferase expression are not affected by methionine or choline intake in growing rats. *J. Nutr.* 136: 2279-2283.
6. Wang, Z., et al. 2007. The prognostic biomarkers HOXB13, IL17BR, and CHDH are regulated by estrogen in breast cancer. *Clin. Cancer Res.* 13: 6327-6334.
7. Xu, X., et al. 2008. Choline metabolism and risk of breast cancer in a population-based study. *FASEB J.* 22: 2045-2052.

## CHROMOSOMAL LOCATION

Genetic locus: CHDH (human) mapping to 3p21.1.

## SOURCE

CHDH (D-13) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of CHDH of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-102443 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

CHDH (D-13) is recommended for detection of CHDH 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

CHDH (D-13) is also recommended for detection of CHDH in additional species, including canine and porcine.

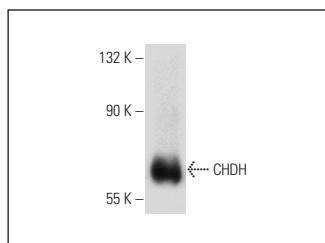
Suitable for use as control antibody for CHDH siRNA (h): sc-78159, CHDH shRNA Plasmid (h): sc-78159-SH and CHDH shRNA (h) Lentiviral Particles: sc-78159-V.

Molecular Weight of CHDH: 65 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



CHDH (D-13): sc-102443. Western blot analysis of CHDH expression in mouse liver tissue extract.

## STORAGE

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



Try **CHDH (C-5): sc-393885** or **CHDH (A-7): sc-514980**, our highly recommended monoclonal alternatives to CHDH (D-13).