

# CTH (D-12): sc-365382

## BACKGROUND

CTH (cystathionine  $\gamma$ -lyase), also known as CSE or  $\gamma$ -cystathionase, is a member of the *trans*-sulfuration enzyme family and participates in the *trans*-sulfuration pathway. CTH is a cytoplasmic enzyme produced in the cytosol and is responsible for catalyzing the pyridoxal phosphate-dependent  $\beta$ -disulfide elimination reaction resulting in ammonium, pyruvate and thiocysteine. The thiocysteine that is produced may then react with other thiols (or cysteine) and form hydrogen sulfide ( $H_2S$ ). Thus, CTH is the major  $H_2S$ -producing enzyme in kidney, liver, vascular smooth muscle cells and enterocytes. The endogenous production of  $H_2S$  plays a significant role in the regulation of cellular functions, including cell growth, hyperpolarization of cell membranes, modulation of neuronal excitability and relaxation of smooth muscle cells. Mutations in the gene encoding CTH can result in the autosomal recessive disease cystathioninuria; a disorder characterized by the unusual accumulation of plasma cystathionine causing increased urinary excretion.

## CHROMOSOMAL LOCATION

Genetic locus: CTH (human) mapping to 1p31.1; Cth (mouse) mapping to 3 H4.

## SOURCE

CTH (D-12) is a mouse monoclonal antibody raised against amino acids 61-227 mapping within an internal region of CTH of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

CTH (D-12) is recommended for detection of CTH isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 CTH siRNA (h): sc-78973, CTH siRNA (m): sc-142618, CTH siRNA (r): sc-270000, CTH shRNA Plasmid (h): sc-78973-SH, CTH shRNA Plasmid (m): sc-142618-SH, CTH shRNA Plasmid (r): sc-270000-SH, CTH shRNA (h) Lentiviral Particles: sc-78973-V, CTH shRNA (m) Lentiviral Particles: sc-142618-V and CTH shRNA (r) Lentiviral Particles: sc-270000-V.

Molecular Weight of CTH: 45 kDa.

Positive Controls: CTH (m): 293T Lysate: sc-119499, K-562 whole cell lysate: sc-2203 or Hep G2 cell lysate: sc-2227.

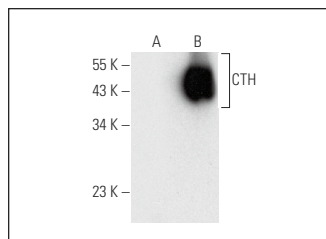
## STORAGE

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

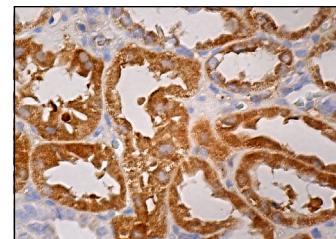
## RESEARCH USE

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

## DATA



CTH (D-12): sc-365382. Western blot analysis of CTH expression in non-transfected: sc-117752 (A) and mouse CTH transfected: sc-119499 (B) 293T whole cell lysates.



CTH (D-12): sc-365382. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules.

## SELECT PRODUCT CITATIONS

- Pan, L.L., et al. 2014. Sodium hydrosulfide prevents myocardial dysfunction through modulation of extracellular matrix accumulation and vascular density. *Int. J. Mol. Sci.* 15: 23212-23226.
- Shen, Y., et al. 2015. MiRNA-30 family inhibition protects against cardiac ischemic injury by regulating cystathionine- $\gamma$ -lyase expression. *Antioxid. Redox Signal.* 22: 224-240.
- Zivanovic, J., et al. 2019. Selective persulfide detection reveals evolutionarily conserved antiaging effects of S-sulfhydration. *Cell Metab.* 30: 1152-1170.e13.
- Liu, Y., et al. 2021. A novel cystathionine  $\gamma$ -lyase inhibitor, I194496, inhibits the growth and metastasis of human TNBC via downregulating multiple signaling pathways. *Sci. Rep.* 11: 8963.
- Duan, X., et al. 2021. Dandelion root extract affects ESCC progression via regulating multiple signal pathways. *Food Funct.* 12: 9486-9502.
- Kwon, D., et al. 2022. Effects of dietary restriction on hepatic sulfur-containing amino acid metabolism and its significance in acetaminophen-induced liver injury. *J. Nutr. Biochem.* 108: 109082.
- Latorre, J., et al. 2022. The combined partial knockdown of CBS and MPST genes induces inflammation, impairs adipocyte function-related gene expression and disrupts protein persulfidation in human adipocytes. *Antioxidants* 11: 1095.
- Shanmugam, S., et al. 2023. Ethanol inhibition of undifferentiated rat neural progenitor cell replication can be prevented by chlorogenic acid via the NFATc4/CSE signaling pathway. *Alcohol Clin. Exp. Res.* 47: 1530-1543.



See **CTH (F-1): sc-374249** for CTH antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.