

# CTH (K-20): sc-101924

## 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<sub>2</sub>S). Thus, CTH is the major H<sub>2</sub>S-producing enzyme in kidney, liver, vascular smooth muscle cells and enterocytes. The endogenous production of H<sub>2</sub>S 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.

## REFERENCES

- Lu, Y., et al. 1992. Cloning and nucleotide sequence of human liver cDNA encoding for cystathionine  $\gamma$ -lyase. *Biochem. Biophys. Res. Commun.* 189: 749-758.
- Yang, G., et al. 2004. Cystathionine  $\gamma$ -lyase overexpression inhibits cell proliferation via a H<sub>2</sub>S-dependent modulation of ERK1/2 phosphorylation and p21<sup>Cip1/WAF-1</sup>. *J. Biol. Chem.* 279: 49199-49205.

## CHROMOSOMAL LOCATION

Genetic locus: CTH (human) mapping to 1p31.1.

## SOURCE

CTH (K-20) is a purified rabbit polyclonal antibody raised against CTH of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.02% sucrose.

## APPLICATIONS

CTH (K-20) is recommended for detection of CTH of human origin by Western Blotting (starting dilution 1:200, 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 shRNA Plasmid (h): sc-78973-SH and CTH shRNA (h) Lentiviral Particles: sc-78973-V.

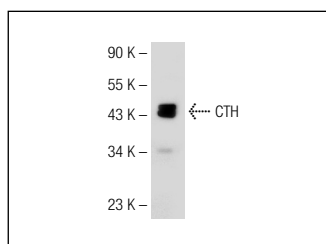
Molecular Weight of CTH: 45 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

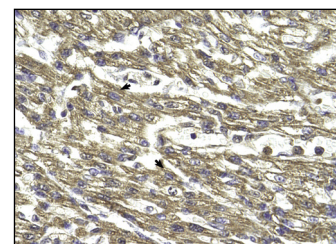
## RECOMMENDED SECONDARY REAGENTS

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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA



CTH (K-20): sc-101924. Western blot analysis of CTH expression in Hep G2 whole cell lysate.



CTH (K-20): sc-101924. Immunoperoxidase staining of formalin fixed, paraffin-embedded human heart tissue showing cytoplasmic staining.

## SELECT PRODUCT CITATIONS

- Aminzadeh, M.A., et al. 2012. Downregulation of the renal and hepatic hydrogen sulfide (H<sub>2</sub>S)-producing enzymes and capacity in chronic kidney disease. *Nephrol. Dial. Transplant.* 27: 498-504.

## 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) or our catalog for detailed protocols and support products.



Try **CTH (F-1): sc-374249** or **CTH (A-2): sc-365381**, our highly recommended monoclonal alternatives to CTH (K-20). Also, for AC, HRP, FITC, PE, Alexa Fluor<sup>®</sup> 488 and Alexa Fluor<sup>®</sup> 647 conjugates, see **CTH (F-1): sc-374249**.