

CTH (F-1): sc-374249

BACKGROUND

CTH (cystathionine γ -lyase), also known as CSE or γ -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 β -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.

REFERENCES

1. Lu, Y., et al. 1992. Cloning and nucleotide sequence of human liver cDNA encoding for cystathionine γ -lyase. *Biochem. Biophys. Res. Commun.* 189: 749-758.
2. Yang, G., et al. 2004. Cystathionine γ -lyase overexpression inhibits cell proliferation via a H_2S -dependent modulation of ERK1/2 phosphorylation and p21^{Cip/WAK-1}. *J. Biol. Chem.* 279: 49199-49205.

CHROMOSOMAL LOCATION

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

SOURCE

CTH (F-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 43-75 within an internal region of CTH of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CTH (F-1) is available conjugated to agarose (sc-374249 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374249 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374249 PE), fluorescein (sc-374249 FITC), Alexa Fluor[®] 488 (sc-374249 AF488), Alexa Fluor[®] 546 (sc-374249 AF546), Alexa Fluor[®] 594 (sc-374249 AF594) or Alexa Fluor[®] 647 (sc-374249 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-374249 AF680) or Alexa Fluor[®] 790 (sc-374249 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374249 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

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

APPLICATIONS

CTH (F-1) 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 μ g per 100-500 μ 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).

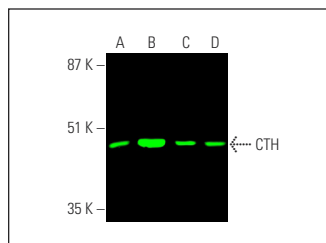
CTH (F-1) is also recommended for detection of CTH isoforms 1 and 2 in additional species, including bovine and porcine.

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.

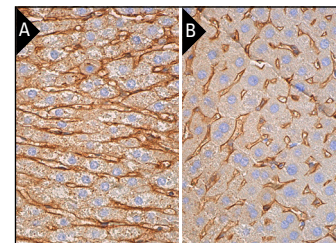
Molecular Weight of CTH: 45 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

DATA



CTH (F-1): sc-374249. Near-infrared western blot analysis of CTH expression in 293T (A), HeLa (B), K-562 (C) and U-87 MG (D) whole cell lysates. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Detection reagent used: m-IgGx BP-CFL 680: sc-516180.



CTH (F-1): sc-374249. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat liver (A) and mouse liver (B) tissue showing cytoplasmic and membrane staining of hepatic sinusoidal cells.

SELECT PRODUCT CITATIONS

1. Veeranki, S. and Tyagi, S.C. 2015. Mechanisms of hyperhomocysteinemia induced skeletal muscle myopathy after ischemia in the CBS^{-/-} mouse model. *Int. J. Mol. Sci.* 16: 1252-1265.
2. Chi, Z., et al. 2019. Histone deacetylase 6 inhibitor tubastatin A attenuates angiotensin II-induced hypertension by preventing cystathionine γ -lyase protein degradation. *Pharmacol. Res.* 146: 104281.
3. Eleftheriadis, T., et al. 2020. Mistimed H_2S upregulation, Nrf2 activation and antioxidant proteins levels in renal tubular epithelial cells subjected to anoxia and reoxygenation. *Biomed. Rep.* 13: 3.

RESEARCH USE

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