

**CTH Antibody (clone 2D6)**  
**Mouse Monoclonal Antibody**  
**Catalog # ALS16060****Specification**

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**CTH Antibody (clone 2D6) - Product Information**

|                   |                        |
|-------------------|------------------------|
| Application       | WB, IHC                |
| Primary Accession | <a href="#">P32929</a> |
| Reactivity        | Human, Monkey, Dog     |
| Host              | Mouse                  |
| Clonality         | Monoclonal             |
| Calculated MW     | 45kDa KDa              |

**CTH Antibody (clone 2D6) - Additional Information****Gene ID** 1491**Other Names**

Cystathionine gamma-lyase, 4.4.1.1, Cysteine-protein sulfhydrase, Gamma-cystathionase, CTH

**Target/Specificity**

Human CTH

**Reconstitution & Storage**

Store at -20°C. Minimize freezing and thawing.

**Precautions**

CTH Antibody (clone 2D6) is for research use only and not for use in diagnostic or therapeutic procedures.

**CTH Antibody (clone 2D6) - Protein Information****Name** CTH**Function**

Catalyzes the last step in the trans-sulfuration pathway from L-methionine to L-cysteine in a pyridoxal-5'-phosphate (PLP)-dependent manner, which consists on cleaving the L,L-cystathionine molecule into L-cysteine, ammonia and 2-oxobutanoate (PubMed:<a href="http://www.uniprot.org/citations/10212249" target="\_blank">10212249</a>, PubMed:<a href="http://www.uniprot.org/citations/19261609" target="\_blank">19261609</a>, PubMed:<a href="http://www.uniprot.org/citations/19961860" target="\_blank">19961860</a>, PubMed:<a href="http://www.uniprot.org/citations/18476726" target="\_blank">18476726</a>). Part of the L-cysteine derived from the trans-sulfuration pathway is utilized for biosynthesis of the ubiquitous antioxidant glutathione (PubMed:<a href="http://www.uniprot.org/citations/18476726" target="\_blank">18476726</a>). Besides its role in the conversion of L- cystathionine into L-cysteine, it utilizes L-cysteine and L- homocysteine as substrates (at much lower rates than L,L-cystathionine) to produce the endogenous gaseous signaling molecule hydrogen sulfide (H2S) (PubMed:<a href="http://www.uniprot.org/citations/10212249" target="\_blank">10212249</a>),

PubMed:<a href="http://www.uniprot.org/citations/19261609" target="\_blank">19261609</a>, PubMed:<a href="http://www.uniprot.org/citations/19961860" target="\_blank">19961860</a>, PubMed:<a href="http://www.uniprot.org/citations/19019829" target="\_blank">19019829</a>). In vitro, it converts two L-cysteine molecules into lanthionine and H<sub>2</sub>S, also two L-homocysteine molecules to homolanthionine and H<sub>2</sub>S, which can be particularly relevant under conditions of severe hyperhomocysteinemia (which is a risk factor for cardiovascular disease, diabetes, and Alzheimer's disease) (PubMed:<a href="http://www.uniprot.org/citations/19261609" target="\_blank">19261609</a>). Lanthionine and homolanthionine are structural homologs of L,L-cystathionine that differ by the absence or presence of an extra methylene group, respectively (PubMed:<a href="http://www.uniprot.org/citations/19261609" target="\_blank">19261609</a>). Acts as a cysteine-protein sulfhydrylase by mediating sulfhydrylation of target proteins: sulfhydrylation consists of converting -SH groups into -SSH on specific cysteine residues of target proteins such as GAPDH, PTPN1 and NF-kappa-B subunit RELA, thereby regulating their function (PubMed:<a href="http://www.uniprot.org/citations/22169477" target="\_blank">22169477</a>). By generating the gasotransmitter H<sub>2</sub>S, it participates in a number of physiological processes such as vasodilation, bone protection, and inflammation (Probable) (PubMed:<a href="http://www.uniprot.org/citations/29254196" target="\_blank">29254196</a>). Plays an essential role in myogenesis by contributing to the biogenesis of H<sub>2</sub>S in skeletal muscle tissue (By similarity). Can also accept homoserine as substrate (By similarity). Catalyzes the elimination of selenocystathionine (which can be derived from the diet) to yield selenocysteine, ammonia and 2-oxobutanoate (By similarity).

**Cellular Location**

Cytoplasm.

**Tissue Location**

Highly expressed in liver (PubMed:10727430, PubMed:20305127). Also in muscle and lower expression in most tissues except heart, pituitary gland, spleen, thymus, and vascular tissue, where it is hardly detected (PubMed:20305127)

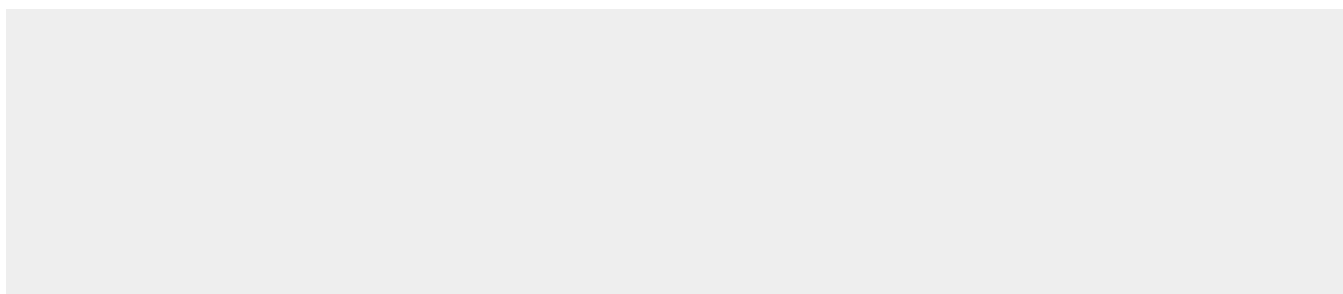
**Volume**

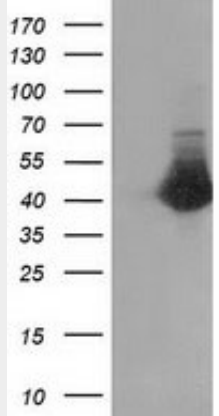
50 µl

**CTH Antibody (clone 2D6) - Protocols**

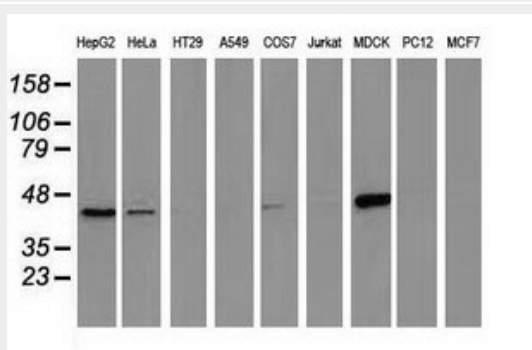
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

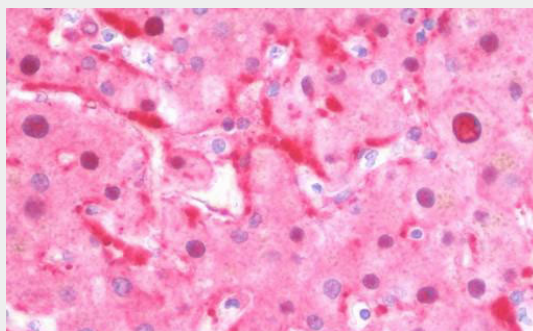
**CTH Antibody (clone 2D6) - Images**



HEK293T cells were transfected with the pCMV6-ENTRY control (Left lane) or pCMV6-ENTRY CTH...



Western blot of extracts (35 ug) from 9 different cell lines by using anti-CTH monoclonal...



Anti-CTH antibody IHC staining of human liver.

### CTH Antibody (clone 2D6) - Background

Catalyzes the last step in the trans-sulfuration pathway from methionine to cysteine. Has broad substrate specificity. Converts cystathionine to cysteine, ammonia and 2-oxobutanoate. Converts two cysteine molecules to lanthionine and hydrogen sulfide. Can also accept homocysteine as substrate. Specificity depends on the levels of the endogenous substrates. Generates the endogenous signaling molecule hydrogen sulfide (H<sub>2</sub>S), and so contributes to the regulation of blood pressure. Acts as a cysteine-protein sulfhydrase by mediating sulfhydration of target proteins: sulfhydration consists of converting -SH groups into -SSH on specific cysteine residues of target proteins such as GAPDH, PTPN1 and NF-kappa-B subunit RELA, thereby regulating their function.

### CTH Antibody (clone 2D6) - References

Lu Y.,et al.Biochem. Biophys. Res. Commun. 189:749-758(1992).  
Kalnine N.,et al.Submitted (MAY-2003) to the EMBL/GenBank/DDBJ databases.

Ota T.,et al.Nat. Genet. 36:40-45(2004).

Totoki Y.,et al.Submitted (APR-2005) to the EMBL/GenBank/DDBJ databases.

Gregory S.G.,et al.Nature 441:315-321(2006).