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KD-Validated Anti-Cystathionine Gamma-Lyase Mouse Monoclonal Antibody

Mouse monoclonal antibody
Catalog # AGI1903

Product Information

Application	WB, FC
Primary Accession	P32929
Reactivity	Human, Mouse
Clonality	Monoclonal
Isotype	Mouse IgG2b
Clone Names	24GB5615
Calculated MW	44508
Gene Name	CTH
Aliases	CTH; Cystathionine Gamma-Lyase; CSE; Cystathionase (Cystathionine Gamma-Lyase); Cysteine-Protein Sulfhydrase; Homocysteine Desulfhydrase; Cysteine Desulfhydrase; Gamma-Cystathionase; EC 4.4.1.1; CGL; Homoserine Dehydratase; Homoserine Deaminase; EC 4.4.1.2; EC 4.4.1
Immunogen	Recombinant protein of human CTH

Additional Information

Gene ID	1491
Other Names	Cystathionine gamma-lyase, CGL, CSE, 4.4.1.1, Cysteine desulfhydrase, Cysteine-protein sulfhydrase, Gamma-cystathionase, Homocysteine desulfhydrase, 4.4.1.2, CTH

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:10212249, PubMed:18476726, PubMed:19261609, PubMed:19961860). Part of the L- cysteine derived from the trans-sulfuration pathway is utilized for biosynthesis of the ubiquitous antioxidant glutathione (PubMed:18476726). 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:10212249, PubMed:19019829, PubMed:19261609, PubMed:19961860). In vitro, it converts two L-cysteine molecules into lanthionine and H2S, also two L-homocysteine molecules to homolanthionine and H2S, which can be particularly relevant under conditions of severe

hyperhomocysteinemia (which is a risk factor for cardiovascular disease, diabetes, and Alzheimer's disease) (PubMed:19261609). Lanthionine and homolanthionine are structural homologs of L,L-cystathionine that differ by the absence or presence of an extra methylene group, respectively (PubMed:19261609). 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 (PubMed:22169477). By generating the gasotransmitter H2S, it participates in a number of physiological processes such as vasodilation, bone protection, and inflammation (Probable) (PubMed:29254196). Plays an essential role in myogenesis by contributing to the biogenesis of H2S 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)