Data Sheet (Cat.No.TMPY-01734)

TargetMol

CA13 Protein, Human, Recombinant (His)

General Information

Synonyms:	carbonic anhydrase XIII;FLJ37995;CAXIII;MGC59868
Protein Construction:	A DNA sequence encoding the human CA13 (NP_940986.1) (Met 1-His 262) was expressed, with a polyhistide tag at the C-terminus. Predicted N terminal: Met 1
Species:	Human
Expression Host:	E. coli
Accession:	Q8N1Q1
Molecular Weight:	30.3 kDa (predicted); 32 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its esterase activity. The specific activity is >7 pmoles/min/μg.
Purity:	> 96 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 20 mM Tris, 0.5M NaCl, pH 8.0.Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

The carbonic anhydrases (or carbonate dehydratases) are classified as metalloenzyme for its zinc ion prosthetic group and form a family of enzymes that catalyze the rapid interconversion of carbon dioxide and water to bicarbonate and protons, a reversible reaction that takes part in maintaining acid-base balance in blood and other tissues. The carbonic anhydrasekl (CA) family consists of at least 11 enzymatically active members and a few inactive homologous proteins. The CAXIII is a member of the CA family, which owns a globular molecule with high

structural similarity to cytosolic isozymes, CAI, II, and III. Recombinant mouse CAXIII showed catalytic activity similar to those of mitochondrial CAV and cytosolic CAI. In human tissues, CAXIII expression was identified in the thymus, small intestine, spleen, prostate, ovary, colon, and testis. In mouse, positive tissues included the spleen, lung, kidney, heart, brain, skeletal muscle, and testis. In conclusion, the predicted amino acid sequence, structural model, distribution, and activity data suggest that CAXIII represents a novel enzyme, which may play important physiological roles in several organs.

Reference

Lehtonen J,et al.(2004) Characterization of CA XIII, a Novel Member of the Carbonic Anhydrase Isozyme Family. The Journal of Biological Chemistry. 279: 2719-27.
Lindskog S. (1997) Structure and mechanism of carbonic anhydrase. Pharmacology & Therapeutics. 74(1): 1-20.
Baird TT,et al.(1997) Catalysis and Inhibition of Human Carbonic Anhydrase IV. Biochemistry. 36 (9): 2669-78.

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