



## Recombinant Protein Technical Manual

**Recombinant Mouse Carbonic Anhydrase XII/CA12  
Protein (His Tag)(Active)**  
RPES0198

### Product Data:

**Product SKU:** RPES0198

**Size:** 10µg

**Species:** Mouse

**Expression host:** HEK293 Cells

**Uniprot:** NP\_848483.2

### Protein Information:

**Molecular Mass:** 32.8 kDa

**AP Molecular Mass:** 40-45 kDa

**Tag:** C-His

**Bio-activity:** Measured by its esterase activity. The specific activity is >50 pmoles/min/µg, as measured with 1 mM 4-Nitrophenyl acetate and 0.4 µg enzyme at 400 nm in 100 µL of 12.5 mM Tris, 75 mM NaCl, pH 7.5.

**Purity:** > 95 % as determined by SDS-PAGE

**Endotoxin:** < 1.0 EU per µg of the protein as determined by the LAL method.

**Storage:** Lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.

**Shipping:** This product is provided as lyophilized powder which is shipped with ice packs.

**Formulation:** Lyophilized from sterile PBS, pH 7.4

**Reconstitution:** Please refer to the printed manual for detailed information.

**Application:**

**Synonyms:** Carbonic anhydrase 12; Carbonate dehydratase XII; Carbonic anhydrase XII; CA-XII; CA12; Carbonate dehydratase XII; CAXII; Car12

## Immunogen Information:

**Sequence:** Met 1-Ser 301

## Background:

Carbonic anhydrases (CAs) are a large family of zinc metalloenzymes first discovered in 1933 that catalyze the reversible hydration of carbon dioxide. CAs participate in a variety of biological processes, including respiration, calcification, acid-base balance, bone resorption, and the formation of aqueous humor, cerebrospinal fluid, saliva, and gastric acid. CA12, also known as Car12 and carbonic anhydrase XII, is a type I membrane enzyme of an N-terminal extracellular catalytic domain, a membrane-spanning  $\alpha$ -helix, and a small intracellular C-terminal domain. It is highly expressed in colon, kidney, prostate, intestine and activated lymphocytes and moderately expressed in pancreas, ovary, and testis. Overexpression of the CA12 is observed in certain human cancers and is used as a tumor marker. rmCA12 corresponds to the extracellular domain and has both carbonic anhydrase activity and esterase activity.