



### Synonym

CAIX, CA9, CA-IX, G250, MN, P54, 58N, pMW1

### Source

FITC-Labeled Human Carbonic Anhydrase IX (38-414), His Tag(CA9-HF228) is expressed from human 293 cells (HEK293). It contains AA 38 Gln - 414 Asp (Accession # [Q16790-1](#)).

Predicted N-terminus: 38 Gln

### Molecular Characterization

**CA9(38 Gln - 414 Asp)  
Q16790-1**      **Poly-his**

This protein carries a polyhistidine tag at the C-terminus.

The protein has a calculated MW of 41.8 kDa. The protein migrates as 43-55 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE) due to glycosylation.

The protein is designed as a dimer.

### Conjugate

FITC

Excitation source: 488 nm spectral line, argon-ion laser

Excitation Wavelength: 488 nm

Emission Wavelength: 535 nm

### Labeling

*The primary amines in the side chains of lysine residues and the N-terminus of the protein are conjugated with FITC using standard chemical labeling method. The residual FITC is removed by molecular sieve treatment during purification process.*

### Protein Ratio

The FITC to protein molar ratio is 0.5-2.

### Purity

>90% as determined by SDS-PAGE.

### Formulation

Lyophilized from 0.22 µm filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

### Reconstitution

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

### Storage

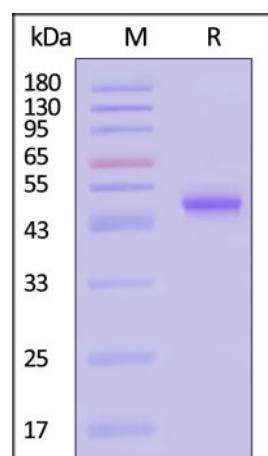
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

*Please protect from light and avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

### SDS-PAGE



### SEC-MALS

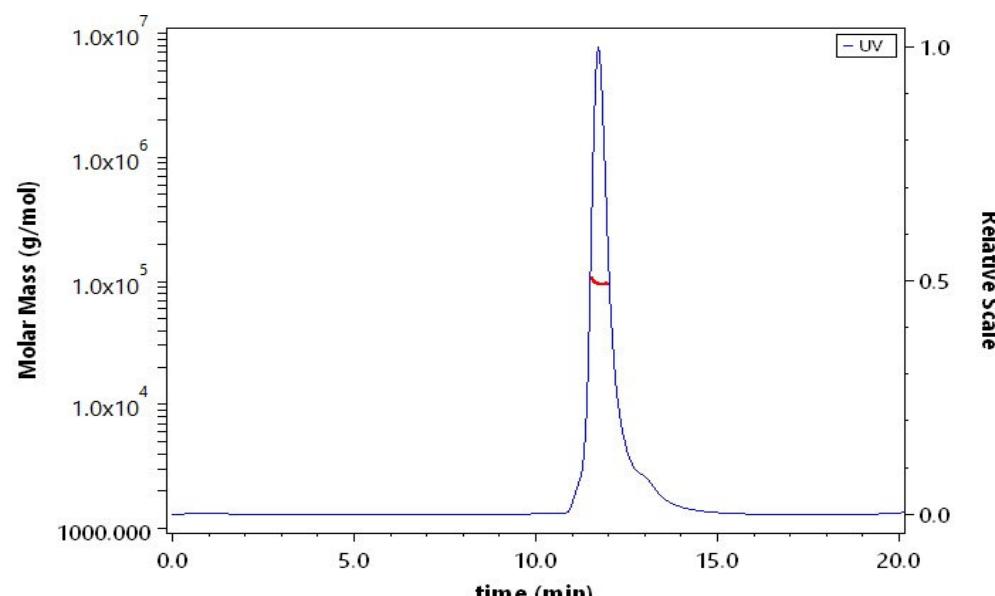
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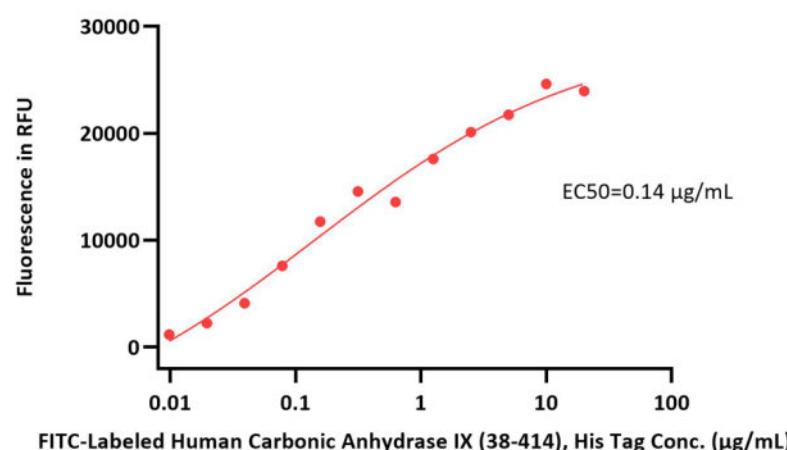
FITC-Labeled Human Carbonic Anhydrase IX (38-414), His Tag on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 90% (With [Star Ribbon Pre-stained Protein Marker](#)).



The purity of FITC-Labeled Human Carbonic Anhydrase IX (38-414), His Tag (Cat. No. CA9-HF228) is more than 85% and the molecular weight of this protein is around 80-110 kDa verified by SEC-MALS. [Report](#)

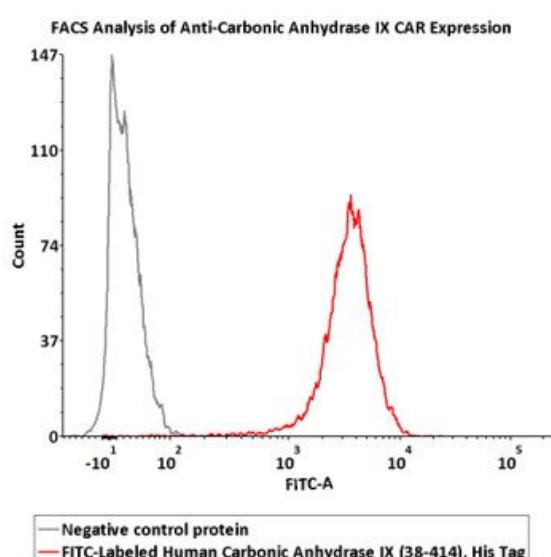
## Bioactivity-ELISA

**FITC-Labeled Human Carbonic Anhydrase IX (38-414), His Tag ELISA**  
0.1 µg of Anti-Carbonic Anhydrase IX Antibody, Human IgG1 per well



Immobilized Anti-Carbonic Anhydrase IX Antibody, Human IgG1 at 1 µg/mL (100 µL/well) can bind FITC-Labeled Human Carbonic Anhydrase IX (38-414), His Tag (Cat. No. CA9-HF228) with a linear range of 0.01-1.25 µg/mL (QC tested).

## Bioactivity-FACS



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2e5 of Anti-Carbonic Anhydrase IX CAR-293 cells were stained with 100  $\mu$ L of 3  $\mu$ g/mL of FITC-Labeled Human Carbonic Anhydrase IX (38-414), His Tag (Cat. No. CA9-HF228) and negative control protein respectively. FITC signal was used to evaluate the binding activity (QC tested).

## Background

Carbonic anhydrases (CAs) are a large family of zinc metalloenzymes. CAs form a family of enzymes that catalyze the rapid interconversion of carbon dioxide and water to bicarbonate and protons (or vice versa), a reversible reaction that occurs rather slowly in the absence of a catalyst. One of the functions of the enzyme in animals is to interconvert carbon dioxide and bicarbonate to maintain acid-base balance in blood and other tissues, and to help transport carbon dioxide out of tissues. The active site of most carbonic anhydrases contains a zinc ion. There are at least five distinct CA families ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$  and  $\varepsilon$ ).

Carbonic anhydrase 9 (CA9 / CAIX) is also known as Membrane antigen MN (MN), Renal cell carcinoma-associated antigen G250, which belongs to the alpha-carbonic anhydrase family. CA9 / CAIX with an optimal activity at pH 6.49. Reversible hydration of carbon dioxide. CA IX participates in pH regulation. CA9 may be involved in the control of cell proliferation and transformation. CA-IX appears to be a novel specific biomarker for a cervical neoplasia.

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