

Biotinylated Human Carbonic Anhydrase IV / CA4 Protein, His,Avitag™ (active enzyme, MALS verified)

Catalog # CAV-H82E3



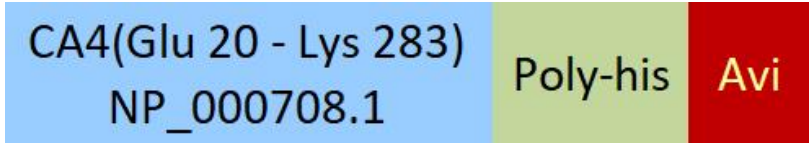
Synonyms

CA4, Carbonic anhydrase 4

Source

Biotinylated Human Carbonic Anhydrase IV Protein, His,Avitag (CAV-H82E3) is expressed from human 293 cells (HEK293). It contains AA Glu 20 - Lys 283 (Accession # [NP_000708.1](#)).

Molecular Characterization



This protein carries a polyhistidine tag at the C-terminus, followed by an Avi tag (Avitag™).

The protein has a calculated MW of 34.5 kDa. The protein migrates as 35-38 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE) due to glycosylation.

Labeling

Biotinylation of this product is performed using Avitag™ technology. Briefly, the single lysine residue in the Avitag is enzymatically labeled with biotin.

Protein Ratio

Passed as determined by the SABA assay / HABA assay / binding ELISA.

Purity

>90% as determined by SDS-PAGE.

>95% as determined by SEC-MALS.

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.

Shipping and Storage

This product is shipped at ambient temperature.

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

Please avoid repeated freeze-thaw cycles.

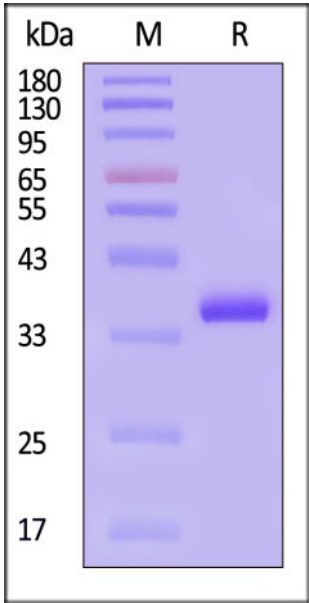
This product is stable after storage at:

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

ACRO Quality Management System

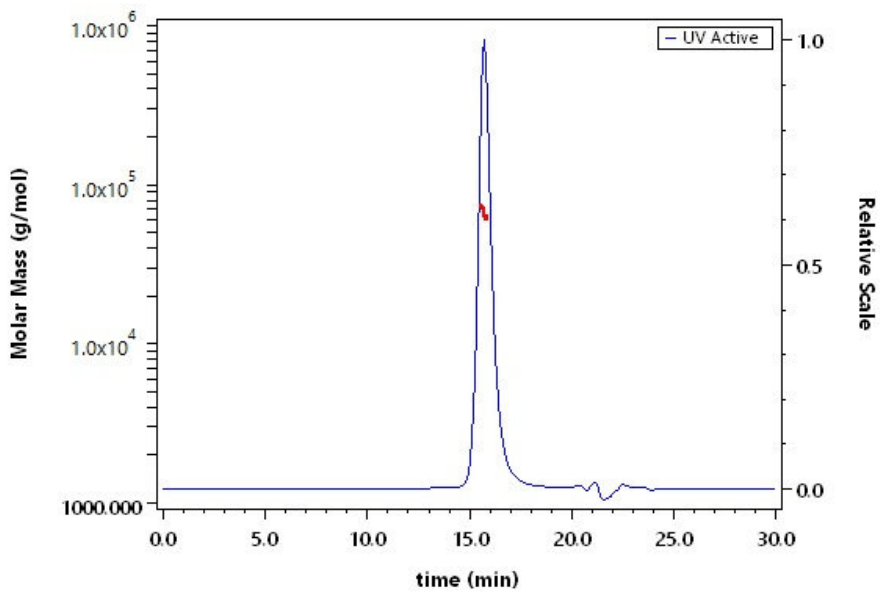
- [QMS\(ISO, GMP\)](#)
- [Quality Advantages](#)
- [Quality Control Process](#)

SDS-PAGE



Biotinylated Human Carbonic Anhydrase IV Protein, His,Avitag 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](#)).

SEC-MALS



The purity of Biotinylated Human Carbonic Anhydrase IV Protein, His,Avitag (Cat. No. CAV-H82E3) is more than 95% and the molecular weight of this protein is around 50-70 kDa verified by SEC-MALS.

Bioactivity

Measured by its esterase activity. The specific activity is >5 pmol/min/μg (QC tested).

Background

Carbonic anhydrase IV (CA4) is a glycosylphosphatidylinositol (GPI)-anchored, membrane-bound zinc metalloenzyme belonging to the α -carbonic anhydrase family. It reversibly catalyzes the hydration of carbon dioxide to bicarbonate and a proton, contributing to acid–base homeostasis and bicarbonate-dependent ion transport. CA4 is predominantly expressed on the apical membrane of renal proximal tubule epithelial cells, pulmonary capillary endothelial cells, gastrointestinal epithelial cells, and brain microvascular endothelial cells, where it facilitates bicarbonate reabsorption, gas exchange, and local pH regulation. Its catalytic activity requires a zinc ion and is potently inhibited by sulfonamide-based carbonic anhydrase inhibitors. Altered CA4 expression has been reported in several pathological conditions, while carbonic anhydrase inhibition is clinically exploited in disorders such as glaucoma. In addition, CA4 contributes to carbonation taste perception by catalyzing the hydration of CO₂ near sour-sensitive taste receptor cells.



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