

Human Carbonic Anhydrase IX / CA9 Protein (His Tag)

Catalog Number: 10107-H08H



Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

CAIX; Carbonic Anhydrase IX; MN

Protein Construction:

A DNA sequence encoding the human carbonic anhydrase IX (CA9) precursor (NP_001207.2) (Met 1-Asp 414) was expressed with a polyhistidine tag at the C-terminus.

Source: Human

Expression Host: HEK293 Cells

QC Testing

Purity: > 95 % as determined by SDS-PAGE

Bio Activity:

Measured by its esterase activity. The specific activity is >30 pmoles/min/μg, as measured with 1 mM 4-Nitrophenyl acetate and 2.5 μg enzyme at 400 nm in 100 μL of 12.5 mM Tris, 75 mM NaCl, pH 7.5.

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Gln 38

Molecular Mass:

The recombinant human CA9 consists of 388 amino acids and predicts a molecular mass of 42.5 kDa. As a result of glycosylation, rhCA9 migrates with apparent molecular mass of 48 kDa in SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

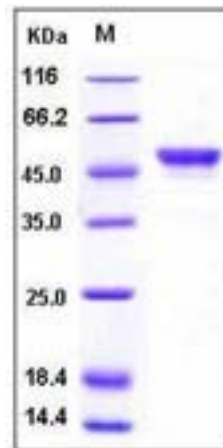
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Carbonic anhydrases IX (CA IX), also known as membrane antigen MN or CA9, is a member of the carbonic anhydrase (CA) family and may be involved in cell proliferation and cellular transformation. CAs are zinc metalloenzymes that catalyze the reversible hydration of carbon dioxide ($\text{H}_2\text{O} + \text{CO}_2 = \text{H}^+ + \text{HCO}_3^-$) and thus participate in a variety of biological and physical processes. CA IX protein is expressed primarily in carcinoma cells lines, and the expression is cell density dependent and has been shown to be strongly induced by hypoxia, accordingly facilitates adaptation of tumor cells to hypoxic conditions. It is involved in tumorigenesis through many pathways, such as pH regulation and cell adhesion control. CA IX is used as a marker of tumor hypoxia and as a new therapeutic target for many human carcinomas and cancers.

References

1. Lancaster JA, *et al.* (2001) Carbonic anhydrase (CA IX) expression, a potential new intrinsic marker of hypoxia: correlations with tumor oxygen measurements and prognosis in locally advanced carcinoma of the cervix. *Cancer Res.* 61(17): 6394-9.
2. Zvada J, *et al.* (2003) Soluble form of carbonic anhydrase IX (CA IX) in the serum and urine of renal carcinoma patients. *Br J Cancer.* 89(6): 1067-71.
3. Pan P, *et al.* (2006) Carbonic anhydrase gene expression in CA II-deficient (Car2^{-/-}) and CA IX-deficient (Car9^{-/-}) mice. *J Physiol.* 571(Pt 2): 319-27.

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