
Product Data Sheet

Product Name: Carbonic Anhydrase 2 Human

Cat. No.: GP21455

Batch No.: 1

Product Data

Purity	>98%	Source	Escherichia Coli.
Physical Appearance	solid	Shipping Condition	Shipped with Ice Packs.
Synonyms	Carbonic anhydrase 2; Carbonate dehydratase 2; Carbonic Anhydrase II; CA-II; Carbonic anhydrase C; CAC; CA2; CAII; Car2.		
Amino Acid Sequence	MSHHWGYGKH NGPEHWHKDF PIAKGERQSP VDIDHTAKY DPSLKPLSVS YDQATSLRIL NNGHAFNVEF DDSQDKAVLK GGPLDGTYRL IQFHFHWGSL DGQGSEHTVD KKKYAAELHL VHWNTKYGDF GKAVQQPDGL AVLGIFLKV G SAKPGLQKVV DVLDSIKTKG KSADFTNFDP RGLLPESLDY WTPGSLTTP PLLECVTWIV LKEPISVSSE QVLKFRKLN NGEGEPEELM VDNWRPAQPL KNRQIKASFK		
Formulation	Carbonic Anhydrase 2 protein solution (1mg/ml) containing 20mM Tris-HCl buffer (pH 8.0), 1mM DTT, 50mM NaCl and 10% glycerol.		

Introduction

The enzyme Carbonic anhydrase II having an accession number of NP_414668 is also called carbonate dehydratase which is part of the enzyme family that catalyses rapid inter-conversion of carbon dioxide & water to bicarbonate, carbonic acid and protons ($\text{CO}_2 + \text{H}_2\text{O} \rightleftharpoons \text{HCO}_3^- + \text{H}^+$), a reaction that occurs rather slowly in the absence of a catalyst. The majority of carbonic anhydrases enclose a zinc ion in their active site and therefore is classified as metalloenzymes. The most important function of Carbonic anhydrase is known to preserve acid-base balance in blood and other tissues, and to help transport carbon dioxide of tissues. Carbonic anhydrases have been found in all kingdoms of life. Carbonic anhydrase has 3 different classes: alpha, beta and gamma which share very little sequence or structural similarity, thus far they all perform the same function and require a zinc ion at the active site. Mammalian carbonic anhydrase is monomeric and belongs to the alpha class. Plant carbonic anhydrase is dimeric and belongs to the beta class. Methane-producing bacteria carbonic anhydrase is trimeric and

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grows in hot springs which forms the gamma class.

Biological Activity

Specific activity is 50-70 nmoles/min/?g and was obtained by measuring the increase in the amount of p-nitrophenol by its esterase activity. Specific activity is defined as the amount of p-nitrophenol that 1ug of enzyme can reduce at 25C for 1 minute.

Stability

Store at 4°C if entire vial will be used within 2-4 weeks. Store, frozen at -20°C for longer periods of time. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Avoid multiple freeze-thaw cycles.

Background

Carbonic anhydrase 2 Human Recombinant protein produced in E.Coli containing 260 amino acids (1-260) and having a molecular mass of 29.2 kDa. The Carbonic anhydrase 2 is purified by proprietary chromatographic techniques.

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