

Recombinant Human Carbonic Anhydrase II

Cat. No. CA2-144H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant human CA2 was expressed in E.coli and purified by using conventional chromatography, 29.2 kDa (260aa)
Species	Human
Source	E.coli
Description	Carbonic anhydrase 2 (CA2) is one of fourteen forms of human α carbonic anhydrases . Carbonic anhydrase catalyzes reversible hydration of carbon dioxide. CA2 is a cytosolic enzyme with the highest activity among all known CAs. Mutations in the CA2 gene result in the CA2 deficiency syndrome, an autosomal recessive disorder that produces osteopetrosis, renal tubular acidosis and cerebral calcification.
Purity	> 95% by SDS - PAGE
Sequences of amino acids	MSHHWGYGKH NGPEHWHKDF PIAKGERQSP VDIDHTAKY DPSLKPLSVS YDQATSLRIL NNGHAFNVEF DDSQDKAVLK GGPLDGTYRL IQFHFHWGSL DGQGSEHTVD KKKYAAELHL VHWNTKYGDF GKAVQQPDGL AVLGIFLKVG SAKPGLQKV V DVLDSIKTKG KSADFTNFDP RGLLPESLDY WTPGSLTTP PLLECVTWIV LKEPISVSSE QVLKFRKLN NGEGEPEELM VDNWRPAQPL KNRQIKASFK
Concentration	1 mg/ml (determined by Bradford assay)
Form	Liquid. In 20 mM Tris-HCl buffer (pH 8.0) containing 1mM DTT, 50mM NaCl, 10%

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	glycerol
Biological activity	Specific activity is 50-70 nmoles/min/ug 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 25°C for 1 minute.
Activity Assay	1. Prepare assay buffer into a suitable container: The final concentrations are 12.5 mM Tris, 75 mM NaCl, pH 7.5. 2. Dilute 4-Nitrophenyl-Acetate(4-NPA) to 2 mM in Assay Buffer. 3. Dilute recombinant CA2 protein with various concentrations (1ug, 2ug, 5ug) in 50 ul assay buffer. 4. Load 50 µL of 2mM 4-NPA into diluted recombinant CA2 solutions, and start the reaction by adding 50 µL of 2 mM Substrate. 5. Read at a wavelength of 405 nm (bottom read) in kinetic mode for 5 minutes.
Storage	Can be stored at +4°C short term (1-2 weeks). For long term storage, aliquot and store at -20°C or -70°C. Avoid repeated freezing and thawing cycles.

GENE INFORMATION

Gene Name	CA2 carbonic anhydrase II [Homo sapiens]
Synonyms	CA2; carbonic anhydrase II; CAII; Car2; CA-II; CA2; carbonic anhydrase B; carbonic dehydratase; carbonate dehydratase II; EC 4.2.1.1; CAC; Carbonic anhydrase C
Gene ID	760
mRNA Refseq	NM_000067
Protein Refseq	NP_000058
MIM	611492

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UniProt ID	P00918
Chromosome Location	8q22
Pathway	Nitrogen metabolism
Function	carbonate dehydratase activity; lyase activity; metal ion binding; zinc ion binding

Ribbon diagram of human carbonic anhydrase II, with zinc ion visible in the center

