

## RayBiotech, Inc.

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# Certificate of Analysis and Data Sheet

## Recombinant E.Coli Carbonic Anhydrase 2

**Catalog No.**  
228-10171

**Source:**  
*Escherichia Coli.*

### **Synonyms**

Carbonic anhydrase 2, Carbonate dehydratase 2, can, cynT2, yadF, b0126, JW0122, Carbonic Anhydrase II.

### **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 grows in hot springs which forms the gamma class.

### **Description**

Carbonic anhydrase II is an E.coli Recombinant protein produced in E.Coli containing 240 amino acids (1-220) and having a molecular mass of 27 kDa. Carbonic anhydrase is expressed with an amino-terminal hexahistidine tag.

The Carbonic anhydrase 2 is purified by proprietary chromatographic techniques.

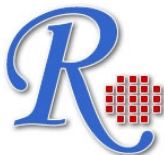
### **Physical Appearance**

Sterile Filtered colorless solution.

### **Formulation**

The Carbonic Anhydrase 2 enzyme is supplied in 20mM Tris pH-8 and 1mM DTT.

**The products are furnished for LABORATORY RESEARCH USE ONLY.  
Not for diagnostic or therapeutic use.**



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### ***Purity***

Greater than 95.0% as determined by

- (a) Analysis by RP-HPLC.
- (b) Analysis by SDS-PAGE.

### ***Stability***

Carbonic Anhydrase II although stable at 4°C for 1 week, should be stored desiccated below -18°C. For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA).

**Please prevent freeze-thaw cycles.**

### ***Amino Acid Sequence***

MGSSHHHHHH SSGLVPRGSH MKDIDTLISN NALWSKMLVE EDPGFFEKLAQAQKPRFLWI  
GCSDSRVPAE RLTGLEPGEL FVHRNVANLV IHTDLNCLSV VQYAVDVLEV EHHICGHYG  
CGGVQAAVEN PELGLINNWL HIRDIWFKH SLLGEMPQE RRLDTLCELN VMEQVYNLGH  
STIMQSAWKR GQKVTIHGWA YGIHDGLLRD LDVTATNRET LEQRYRHGIS NLKCLKHANHK

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