

## Active Recombinant *B. pertussis* Adenylate Cyclase Protein, His tagged

**Cat. No.** CYAA-01B    **Lot. No.** (See product label)

### SPECIFICATION

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Overview</b>    | Active Recombinant <i>B. pertussis</i> Adenylate Cyclase Protein (Gln2-Arg399) with an N-terminal Met and 6-His tag was expressed in <i>E. coli</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Species</b>             | <i>B. pertussis</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Source</b>              | <i>E. coli</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Protein Length</b>      | 2-399 aa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Description</b>         | <i>B. pertussis</i> Adenylate Cyclase is an enzymatic toxin that converts ATP to 3'-5'cyclic AMP and plays a role in the pathogenesis of whooping cough. The $K_m$ for ATP of the enzyme is 0.6 mM. The enzyme activity is calmodulin (CaM) dependent with a $K_d$ for CaM of 0.2 nM. The protein is synthesized as a large bifunctional precursor of 1706 amino acid residues, endowed with Adenylate Cyclase and haemolytic activity. The enzyme corresponds to amino acid 1 to 399 and is released from the precursor as a 43 kD fragment. The N-terminal portion (residues 1-235/237) harbors the catalytic site, whereas the C-terminal portion (residues 235/237-399) corresponds to the main CaM-binding domain of the enzyme |
| <b>Tag</b>                 | His                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Molecular Mass</b>      | 44 kDa                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>N-terminal Sequence</b> | Met                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| Analysis              |                                                                                                                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bio-Activity</b>   | Measured by its ability to convert ATP to cAMP and pyrophosphate. The specific activity is > 250 nmol/min/μg                                                                                                        |
| <b>Endotoxin</b>      | < 0.01 EU/μg by LAL                                                                                                                                                                                                 |
| <b>Purity</b>         | > 90%, by SDS-PAGE under reducing conditions and visualized by Colloidal Coomassie Blue stain at 5 μg per lane.                                                                                                     |
| <b>Storage</b>        | Use a manual defrost freezer and avoid repeated freeze-thaw cycles.<br>6 months from date of receipt, -20 to -70 centigrade as supplied.<br>3 months, -20 to -70 centigrade under sterile conditions after opening. |
| <b>Storage Buffer</b> | Supplied as a 0.2 μm filtered solution in Tris and NaCl.                                                                                                                                                            |
| <b>Shipping</b>       | The product is shipped with polar packs.                                                                                                                                                                            |
| <b>Reference</b>      | 1. Weiss, A.A. and E.L Hewlett (1986) Annu. Rev. Microbiol. 40:661.<br>2. Glaser, P. et al. (1989) EMBO J.8:967.<br>3. Shattuck, R.L. et al. (1985) Biochemistry 24:6358.                                           |

## GENE INFORMATION

|                        |                                                                                                                |
|------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Gene Name</b>       | <a href="#">cyaA bifunctional adenylate cyclase toxin/hemolysin CyaA [ Bordetella pertussis ]</a>              |
| <b>Official Symbol</b> | <a href="#">cyaA</a>                                                                                           |
| <b>Synonyms</b>        | cyaA; bifunctional adenylate cyclase toxin/hemolysin CyaA; bifunctional adenylate cyclase toxin/hemolysin CyaA |

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|                |              |
|----------------|--------------|
| Gene ID        | 69600712     |
| Protein Refseq | WP_010929995 |
| UniProt ID     | P15318       |

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