PRODUCT INFORMATION

CdnP (*Mycobacterium tuberculosis* strain ATCC 25618/H37Rv recombinant)

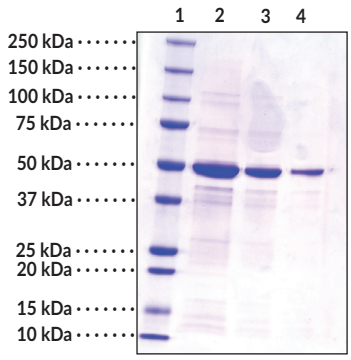
Item No. 22809

Overview and Properties

Synonyms:	Bifunctional Oligoribonuclease and PAP Phosphatase NrnA, 3'(2'),5'-Bisphosphate Nucleotidase, CnpB, Cyclic di-NMP Phosphodiesterase, PAP Phosphatase, 3'-Phosphoadenosine 5'-phosphate Phosphatase, Rv2837c
Source:	Active recombinant *M. tuberculosis* strain ATCC 25618/H37Rv N-terminal Trx-, His-, and S-tagged CdnP expressed in *E. coli*
Amino acids:	1-336 (full length)
Uniprot No.:	P71615
Molecular Weight:	52.71 kDa
Storage:	-80°C (as supplied); avoid freeze/thaw cycles by storing protein in aliquots
Stability:	≥1 year
Purity:	***batch specific*** (≥70% estimated by SDS-PAGE)
Supplied in:	50 mM HEPES, pH 8.0, with 150 mM sodium chloride
Protein Concentration:	***batch specific*** mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: CdnP (5 µg)
Lane 3: CdnP (2 µg)
Lane 4: CdnP (1 µg)

Representative gel image shown; actual purity may vary between batches.

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Description

Cyclic dinucleotide phosphodiesterase (CdnP) is a soluble phosphodiesterase involved in regulating cyclic dinucleotide signaling during intracellular infections of *M. tuberculosis*.[1] It is composed of an N-terminal Asp-His-His (DHH) domain and a C-terminal DHH-associated (DHHA1) domain that catalyze the hydrolysis of cyclic dinucleotides. CdnP hydrolyzes a variety of cyclic dinucleotides, including cyclic di-AMP (Item No. 17753), cyclic di-GMP (Item No. 17144), and 2′3′-cGAMP (Item No. 19887), which decreases their recognition by the stimulator of interferon genes (STING), a key mediator in the host innate immune response.[2-4] Knockout of the gene encoding CdnP, *CnpB*, increases the production of IFN-β in isolated mouse bone marrow-derived macrophages (BMDMs) infected with *CnpB*$^{-/-}$ *M. tuberculosis*, as well as decreases pulmonary and splenic bacterial burden and increases survival in *CnpB*$^{-/-}$ *M. tuberculosis*-infected mice.[5] Cayman's CdnP (*Mycobacterium tuberculosis* strain ATCC 25618H37Rv recombinant) protein contains N-terminal Trx- and His-tags followed by a thrombin cleavage site and an S-tag followed by an enterokinase cleavage site.

References

1. He, Q., Wang, F., Liu, S., *et al*. Structural and biochemical insight into the mechanism of Rv2837c from *Mycobacterium tuberculosis* as a c-di-NMP phosphodiesterase. *J. Biol. Chem.* **291(27)**, 14386-14387 (2016).
2. Cheng, S.S., Chung, M.J., Lin, C.Y., *et al*. Phytochemicals from *Cunninghamia konishii* Hayata act as antifungal agents. *J. Agric. Food Chem.* **60(1)**, 124-128 (2012).
3. Dey, R.J., Dey, B., Zheng, Y., *et al*. Inhibition of innate immune cytosolic surveillance by an *M. tuberculosis* phosphodiesterase. *Nat. Chem. Biol.* **13(2)**, 210-217 (2017).
4. Jeong, H.U., Kwon, S.S., Kong, T.Y., *et al*. Inhibitory effects of cedrol, β-cedrene, and thujopsene on cytochrome P450 enzyme activities in human liver microsomes. *J. Toxicol. Environ. Health A* **77(22-24)**, 1522-1532 (2014).
5. Chen, S.S., Zhang, Y., Lu, Q.L., *et al*. Preventive effects of cedrol against alopecia in cyclophosphamide-treated mice. *Environ. Toxicol. Pharmacol.* **46**, 270-276 (2016).

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