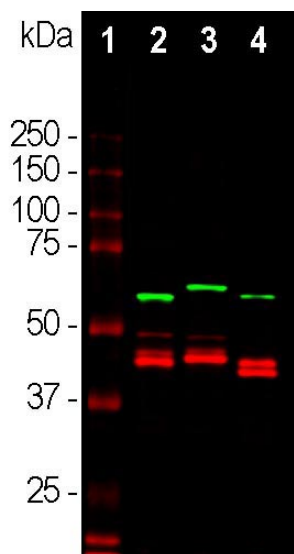


Ordering Information
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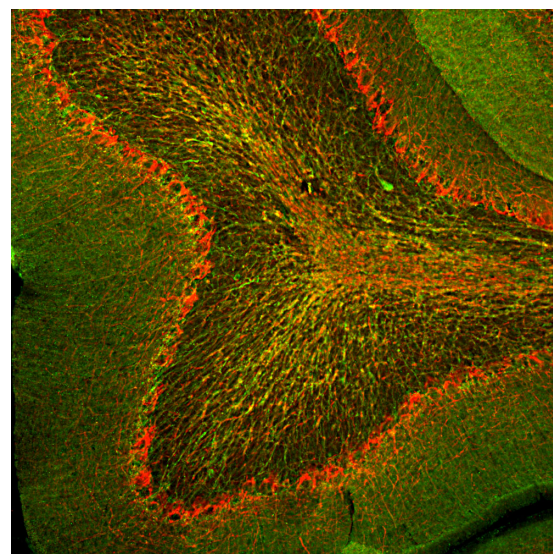
HGNC Name: CNP
UniProt: P09543
RRID: AB_2572249
Immunogen: Full length human recombinant protein
Format: Concentrated IgY preparation in PBS plus 0.02% NaN₃
Storage: Store at 4°C for short term. For longer term, store at -20°C.
Recommended dilutions:
 WB: 1:5,000-10,000 IF/IHC: 1:2,000-4,000

References:
 1. Monoh K, Kurihara T, Sakimura K, Takahashi Y. Structure of mouse 2',3'-cyclic-nucleotide 3'-phosphodiesterase gene. *BBRC* 165:1213-20 (1989). 2. Kasama-Yoshida H, et al. A comparative study of 2',3'-cyclic-nucleotide 3'-phosphodiesterase in vertebrates: cDNA cloning and amino acid sequences for chicken and bullfrog enzymes. *J. Neurochem.* 69:1335-42 (1997). 3. Gravel M, et al. Overexpression of 2',3'-cyclic nucleotide 3'-phosphodiesterase in transgenic mice alters oligodendrocyte development and produces aberrant myelination. *Mol. Cell. Neurosci.* 6:453-66 (1996). 4. Bifulco M, Laezza C, Stingo S, Wolff J. 2',3'-Cyclic nucleotide 3'-phosphodiesterase: a membrane-bound, microtubule-associated protein and membrane anchor for tubulin. *PNAS* 99:1807-11 (2001). 5. Vlkolinský R, Cairns N, Fountoulakis M, Lubec G. Decreased brain levels of 2',3'-cyclic nucleotide-3'-phosphodiesterase in Down syndrome and Alzheimer's disease. *Neurobiol. Aging* 22:547-53 (2001).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, ICC/IF, IHC	Chicken		46kDa, 48kDa	Hu, Rt, Ms, Bo, Po, Ho



Western blot analysis of spinal cord tissue lysates using chicken pAb to CNP, CPCA-CNP, dilution 1:5,000, in red: [1] protein standard (red), [2] mouse, [3] rat, and [4] cow spinal cord. A doublet of bands at 46 and 48kDa correspond to isoforms of the CNP protein. The blot was simultaneously probed with mouse mAb to α -internexin, MCA-2E3, dilution 1:2,000 in green. Major bands in the 64-66 kDa range corresponds to α -internexin.



Immunofluorescent analysis of rat cerebellum section stained with chicken pAb to CNP, CPCA-CNP, dilution 1:2,000 in green and costained with rabbit pAb to NF-H, RPCA-NF-H, dilution 1:10,000, in red. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45 μ M, and free-floating sections were stained with above antibodies. The CNP antibody stains myelin and oligodendrocytes, cells that create the myelin sheath around axons. The NF-H antibody labels the heavily phosphorylated axonal forms of NF-H which are localized in large projection axons.

Background:

The 2',3'-cyclic nucleotide 3'-phosphodiesterase (CNP), is an enzyme which catalyzes the hydrolysis of 2', 3'-cyclic nucleotides to 2'-nucleotides. These cyclic nucleotides are structurally different from the better known and studied 3'-5'-cyclic nucleotides of which the best known example is cyclic AMP. CNP has two isoforms, CNPase 1 (46kDa) and CNPase 2 (48kDa), which are encoded separately by different promoters of the same gene (1). These enzymes are present in very high levels in brain and peripheral nerve, makes up 4% of total CNS myelin protein. They are found almost exclusively in oligodendrocytes and Schwann cells, appearing early in oligodendrocyte development, earlier than most other myelin specific proteins (2). Antibodies to CNP have been very useful as a marker for these particular cell types. CNP is thought to play a critical role in the events leading up to myelination, for the oligodendrocytes overexpressing CNP appear to mature earlier in development, resulting in earlier maximum gene expression for myelin basic proteins (3). It has been reported that CNP is also associated with microtubules in brain tissue and may promote microtubule assembly. CNP can link tubulin to cellular membranes, and may regulate cytoplasmic microtubule distribution (4). In various diseases, neurological mutants, and in experimental conditions in which myelin is reduced, CNP levels may also be severely reduced. Decreased brain levels of CNP have also been reported in Down syndrome and Alzheimer's disease (5). The CPCA-CNP antibody was made against the full length recombinant form of human CNP expressed in and purified from E. Coli, and the antibody can be used to identify myelinating cells in cell culture and in sections and to trace axonal projections in sectioned material. The same recombinant protein was then used to generate polyclonal rabbit RPCA-CNP, goat polyclonal GPCA-CNP, and mouse monoclonal anti CNP MCA-1H10 antibodies. Like CPCA-CNP, these antibodies are excellent markers of myelin and myelinating cells and recognize CNP cleanly on western blots.

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Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry
 IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken
 Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.