

Ordering Information

Web www.encorbio.com
Email admin@encorbio.com
Phone 352-372-7022
Fax 352-372-7066

HGNC Name: CALB1

UniProt: P05937

RRID: AB_2572238

Immunogen: Full-length recombinant human calbindin protein, EnCor product *Prot-r-Calb1*, expressed in and purified from *E. coli*.

Format: Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaCl₃

Storage: Store at 4°C for short term, for longer term store at -20°C

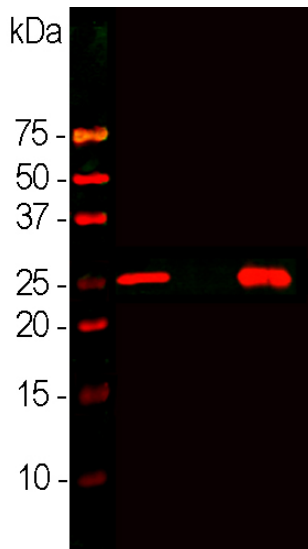
Recommended dilutions:

WB: 1:1,000-1:5,000. IF/ICC or IHC: 1:1,000.

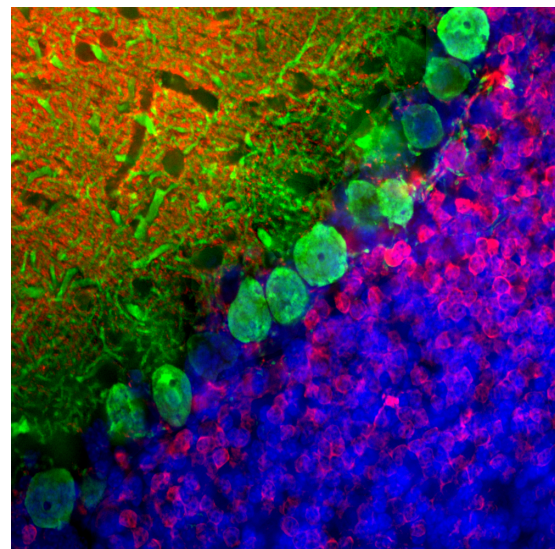
References:

1. Kretsinger RH, Nockolds CE. Carp Muscle Calcium-binding Protein: II. Structure determination and general description. *J. Biol. Chem.* 248:3313-26 (1973).
2. Andressen C, Bllimcke I, Celio MR. Calcium-binding proteins: selective markers of nerve cells. *Cell Tissue Res.* 271:181-208 (1993).
3. Schwaller B, Meyer M, Schiffmann S. 'New' functions for 'old' proteins: The role of the calcium binding proteins calbindin D-28k, calretinin and parvalbumin, in cerebellar physiology. Studies with knockout mice. *The Cerebellum* 1:241-58 (2002).
4. Celio MR. Calbindin D-28k and parvalbumin in the rat nervous system. *Neurosci.* 35:375-475 (1990).
5. Condé F, et al. Local circuit neurons immunoreactive for calretinin, calbindin D-28k or parvalbumin in monkey prefrontal cortex: Distribution and morphology. *J. Comp. Neurol.* 341:95-116 (1994).
6. Hof PR, et al. Cellular distribution of the calcium-binding proteins parvalbumin, calbindin, and calretinin in the neocortex of mammals: phylogenetic and developmental patterns. *J. Chem. Neuroanat.* 16:77-116 (1999).

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Mouse	IgG1	28kDa	Hu, Rt, Ms, Co, Pi



Western blot analysis of different neuronal tissue lysates using mouse mAb to calbindin, MCA-4H7, dilution 1:2,000: [1] protein standard, [2] rat cerebellum, [3] pig hippocampus, and [4] cow cerebellum. Band at ~25 kDa corresponds to calbindin protein, heavily expressed in the cerebellum but less in hippocampus.



Immunofluorescent analysis of rat brain cerebellum section stained with mouse mAb to calbindin, MCA-4H7, dilution 1:1,000, in green, and costained with rabbit pAb to calretinin, *RPCA-Calretinin*, dilution 1:5,000 in red. The blue is DAPI staining of nuclear DNA. Following transcardial perfusion with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45µm, and free-floating sections were stained with the above antibodies. Calbindin antibody prominently labels the dendrites and perikarya of Purkinje cells in the molecular layer of cerebellum. In contrast the calretinin antibody stains granule cells, in the granular layer, and their processes in the molecular layer.

Background:

Calbindin, also known as calbindin 1 or calbindin-D28k is a member of the large superfamily of cytoplasmic EF hand containing Calcium binding proteins and is expressed in the brain, intestine, kidney and pancreas (1-3). It is particularly concentrated in the dendrites and perikarya of cerebellar Purkinje cells, but is also found in many GABAergic interneurons in the cerebral cortex. These GABAergic interneurons in most cases express only one of three Calcium binding proteins, namely calbindin or parvalbumin or calretinin. As a result these important and physiologically distinct inhibitory interneurons can be identified and subclassified based on their content of these three proteins (4-6).

The MCA-4H7 antibody was made against full length recombinant human calbindin expressed in and purified from *E. coli*, EnCor product *Prot-r-Calb1*. We have shown that the antibody binds calbindin cleanly on western blots and in sections but fails to recognize the related calretinin and parvalbumin proteins. It is therefore ideally suited for identifying and subclassifying cortical GABAergic neurons. The antibody works well for western blotting and for IF, ICC and IHC (see data under "Additional Info" tab). EnCor manufactures an alternate mouse monoclonal antibody to calbindin *MCA-5A9* and a chicken polyclonal to calbindin *CPCA-Calb*, allowing double and triple labeling of appropriate cell and tissue samples.

FOR RESEARCH USE ONLY. NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE.

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.