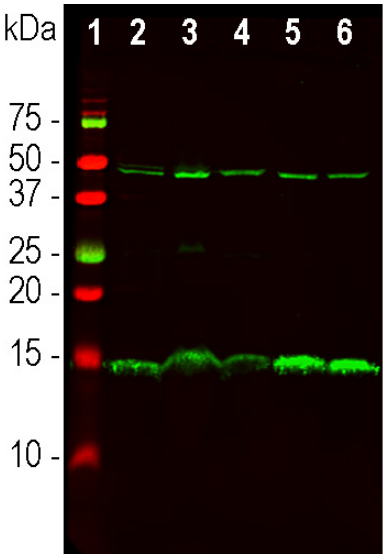
PEA-15 Mouse Monoclonal Antibody

MCA-4D117

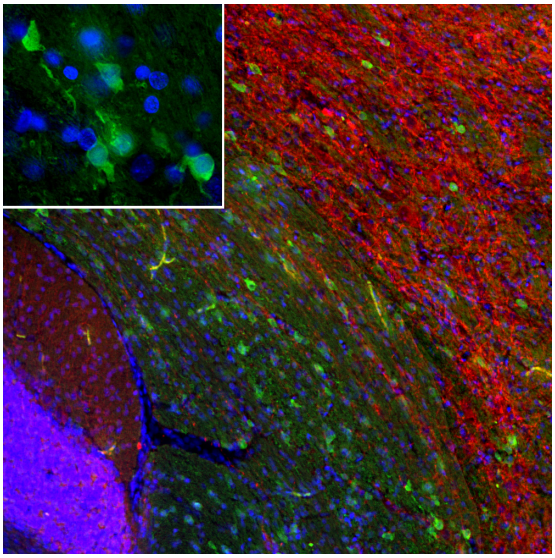
Ordering Information
Web *www.encorbio.com*
Email *admin@encorbio.com*
Phone *352-372-7022*
Fax *352-372-7066*

HGNC Name: *PEA-15*
UniProt: *Q15121*
RRID: *AB_2861183*
Immunogen: *Full length human PEA-15 as expressed in and purified from E. coli.*
Format: *Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN_3*
Storage: *Shipped on ice. Store at 4°C for short term, for longer term at -20°C. Avoid freeze / thaw cycles.*
Recommended dilutions:
WB: 1:1,000-1:2,000. ICC/IF: 1:1,000-2,000

Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, ICC/IF	Mouse	IgG1	15kDa	Hu, Rt, Ms, Co



Western blot analysis of different tissue lysates using mouse mAb to PEA-15, MCA-4D117, dilution 1:1,000 in green: [1] protein standard (red), [2] rat whole brain, [3] rat cerebellum, [4] mouse whole brain, [5] cow cortex and [6] cow cerebellum. The strong band at about 15kDa corresponds to the PEA-15 protein.



Immunofluorescent analysis of rat brain section stained with mouse mAb to PEA-15, MCA-4D117, dilution 1:1,000 in red, and costained with chicken pAb to MAP2, CPCA-MAP2, dilution 1:5,000 in green. The blue is Hoechst staining of nuclear DNA. Following transcardial perfusion of rat with 4% paraformaldehyde, brain was post fixed for 24 hours, cut to 45µM, and free-floating sections were stained with above antibodies. The PEA-15 antibody labels the cytoplasm of certain presumably neuronal cells which are not labelled by the astrocyte specific GFAP antibody.

Background:

Pea15 was originally isolated as a major low molecular weight of embryonic mouse striatal astrocytes grown in cell culture. Three spots on 2D gels with an apparent molecular weight of 15kDa and isoelectric point 5.1-5.3 were shown to be different forms of one protein. The protein was serine phosphorylated on one site by protein kinase C both *in vivo* and *in vitro* and the protein was named "phosphoprotein enriched in astrocytes of 15kDa", hence PEA-15 (1). Subsequent cloning and sequencing revealed a protein well conserved in sequence between mouse and human and which was heavily expressed in brain (2). Independently the same protein was found to be upregulated in fibroblasts and tissues of diabetic patients, and has hence named "protein enriched in diabetes" or PED (3). Immunocytochemical studies showed that the protein was heavily expressed in astrocytes and certain neurons in the CNS of mice, though it is expressed a lower levels ubiquitously (2,4). The protein could be phosphorylated on a second site by either CaMKII or Akt/PKB, and further examination of the amino acid sequence revealed an N-terminal death effector domain (DED), a predominantly α-helical domain found in many proteins which function in the regulation of apoptosis (5). PEA-15 was shown to interact with extracellular signal regulated kinase (ERK, 6) and regulate the nuclear entry of this protein, and several other important interactions with other proteins involved in regulation of apoptosis, glucose metabolism and cell growth have been described (reviewed in 7).

MCA-4D117 was made against a recombinant full length PEA-15 construct expressed in and purified from *E. coli*. The antibody can be used for western blotting IF, ICC and IHC (see "Additional Info" tab). We also supply an alternate mouse monoclonal antibody to PEA-15 MCA-4D2.

References:
1. Araujo, H. et al. Characterization of PEA-15, a major substrate for protein kinase C in astrocytes. J. Biol. Chem. 268:5911-20 (1993).
2. Estelles, A. et al. The Major Astrocytic Phosphoprotein PEA-15 Is Encoded by Two mRNAs Conserved on Their Full Length in Mouse and Human. J. Biol. Chem. 271:14800-6 (1996).
3. Condorelli, G. et al. PED/PEA-15 gene controls glucose transport and is overexpressed in type 2 diabetes mellitusEMBO J. 17:3858-66 (1998).
4. Sharif, A. et al. The expression of PEA-15 (phosphoprotein enriched in astrocytes of 15 kDa) defines subpopulations of astrocytes and neurons throughout the adult mouse brain. Neurosci. 126:263-75 (2004).
5. Boldin, MP. et al. A novel protein that interacts with the death domain of Fas/APO1 contains a sequence motif related to the death domain. J. Biol. Chem. 271:7795–78 (1995).
6. Ramos, JW. et al. PEA-15 Mediates Cytoplasmic Sequestration of ERK MAP Kinase. Dev. Cell 1:239–50 (2001).
7. Fiory, F. et al. Frontiers: PED/PEA-15, a multifunctional protein controlling cell survival and glucose metabolism. Am. J. Physiol. Endocrinol. Metab. 297:E592-601 (2009).

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.