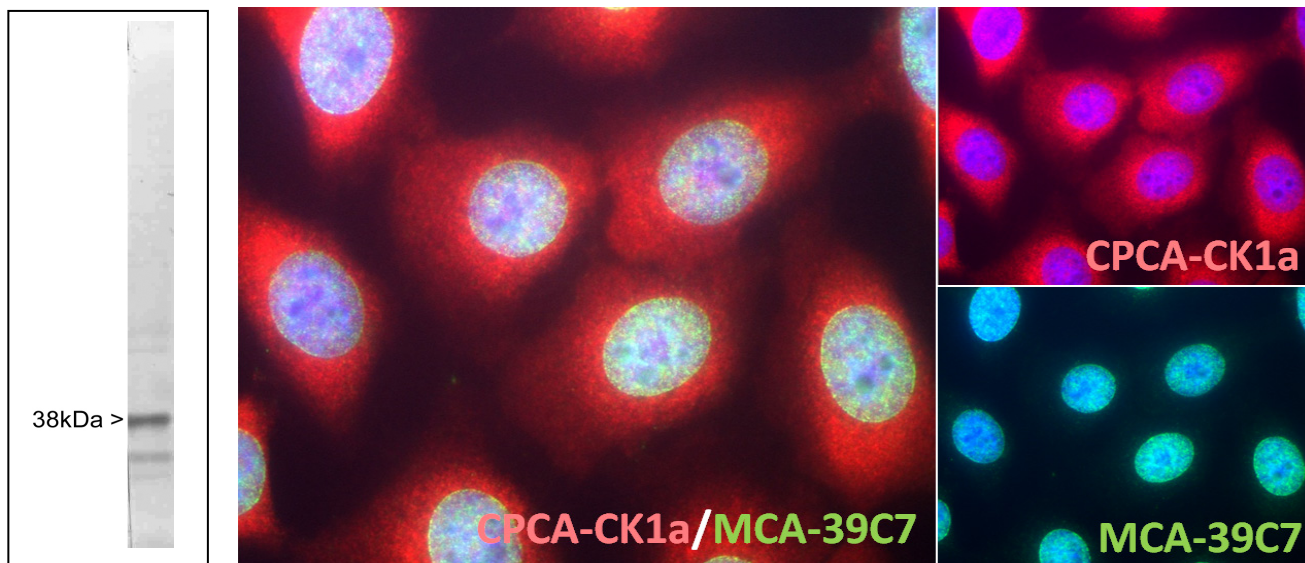


Catalog CPCA-CK1a: Chicken Polyclonal Antibody to Casein Kinase 1 alpha

The Immunogen: Many serine threonine (ser/thr) protein kinases are activated by specific small signaling molecules such as calcium, cAMP, cGMP while others appear to be cofactor independent. The casein kinases belong to this group; however, regulation of their activity is still something of a mystery (1, 2). There are two broad families of these kinases called CKI and CKII (or CK1 and CK2). They were originally isolated since extracts of most cells contain two distinct fractions of kinase activity both of which are able to phosphorylate the milk protein casein. It is now known that the CKI and CKII activities represent two different families of distinct kinases, each consisting of several different gene products. The different proteins clearly represent an ancient and unusually conserved family of kinases, sharing some unique sequence characteristics not found in other protein kinases. The CKI family consists of several different genes, divided in alpha, beta, gamma, delta and epsilon, some of which are encoded by more than one gene. The single mammalian CK1 alpha gene can generate four different proteins by alternate transcription. CPCA-CK1a was raised against the shortest of these proteins, and will therefore bind to all CK1 isotypes. The CK1 alpha proteins are involved in the control of protein degradation, and phosphorylate acidic regions of their substrate molecules. Typically the target ser/thr residues are closely followed by two or three aspartic or glutamic acid residues. Alternately, phosphorylation on residues 3 or 4 amino acids N-terminal to a ser/thr residue can also favor CKI phosphorylation. This means that CKI family enzymes often phosphorylate one or more ser/thr residues C-terminal to a phosphorylation site generated by the activity of another protein kinase.



Left: Western blot of whole rat spinal cord homogenate stained with CPCA-CK1a, at dilution of 1:10,000. A prominent band running with an apparent SDS-PAGE molecular weight of ~38kDa and a less prominent band at ~34kDa corresponds to CK1 alpha isotypes. **Right:** Immunofluorescent image of HeLa cells stained with CPCA-CK1a (red) and our mouse monoclonal antibody to panspecific nuclear pore complexes **MCA-39C7** (green). Casein kinase 1 alpha has a particulate distribution both in the nucleus and the cytoplasm. Blue is the Hoechst DNA stain. High quality immunocytochemical images made using this antibody are shown in reference 4.

Antibody Characteristics: This antibody was generated in chicken by standard procedures and immunoglobulin was extracted from egg yolk. The resulting polyclonal antibody belongs to the IgY subclass. This is the chicken homologue of mammalian IgG and can be used in the same general way, with the caveat that this type of antibody does not bind either Protein A or Protein G. Suitable second antibody reagents can be obtained from many vendors including Molecular Probes and Sigma-Aldrich.

Suggestions for use: Try at dilutions of 1:500 to 1:1,000 for immunofluorescence, and 1:5,000 for ABC or other enzyme linked immunocytochemical procedures. For western blots try at 1:10,000.

Storage Instructions: Shipped on ice. Please store at 4°C for regular uses. For long term storage, please leave frozen at -20°C and avoid freeze/thaw cycles.

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.

References:

1. Knippschild U, Gocht A, Wolff S, Huber N, Lohler J, Stoter M. The casein kinase 1 family: participation in multiple cellular processes in eukaryotes. *Cell Signal*. 17: 675-89 (2005)
2. Vielhaber E and Virshup DM. Casein kinase I: from obscurity to center stage. *IUBMB Life*. 51:73-8 (2001).
3. Kuret J, Johnson GS, Cha D, Christenson ER, DeMaggio AJ, Hoekstra MF. Casein kinase 1 is tightly associated with paired-helical filaments isolated from Alzheimer's disease brain. *J Neurochem*. 69: 2506-15 (1997).
4. Dupre-Crochet S, Figueroa A, Hogan C, Ferber EC, Bialucha CU, Adams J, Richardson EC, and Fujita Y. Casein Kinase 1 Is a Novel Negative Regulator of E-Cadherin-Based Cell-Cell Contacts. *Molecular and Cellular Biology* Volume 27:3804-3816 (2007)

©EnCor Biotechnology Inc. April 21, 2016