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### Calcium/Calmodulin-dependent Kinase Antibodies

#### Calcium/Calmodulin kinase-I gamma (CamK-301AP; CaMK-312AP and CaMK-321AP) antibodies

Ca<sup>2+</sup>/calmodulin-dependent protein kinase I (CaM kinase I) was first purified from bovine brain based on its ability to phosphorylate the synaptic vesicle protein, synapsin I at site 1. CaM kinase I is similar to other known protein kinases with respect to presence of all nine invariant amino acids conserved in the catalytic domain of this class of enzymes. Rat, human and mouse cDNA clones were then isolated and expressed in various host cell lines. The rat Ca/Calmodulin-dependent kinase cDNA encodes a protein of 331 amino acids with a calculated Mr. Wt. of 37,545. Human Ca(2+)-calmodulin (CaM) dependent protein kinase I (CaMK-I) encodes a 370 amino acid protein with a calculated Mr. Wt. of 41,337. The mRNA for CaMK-1 (1.5 kb) is expressed in many different human tissues and is derived from a single gene located on human chromosome 3. CaMK-I activity is directly regulated (increases) by calcium and calmodulin. Various truncation studies revealed that residues 295-306 are sufficient to maintain CaMKI in an auto-inhibited state (2). CaMKI was phosphorylated on Thr177 and its activity enhanced approximately 25-fold by CaMKI kinase in a Ca(2+)-CaM dependent manner (3). Three subtype variants have been isolated for CaMK-1, alpha, beta and gamma. High concentrations of the kinase mRNA were found in all regions of the brain with frontal cortex showing the greatest level (2).

Three Anti-CaMK-1-selective antibodies were generated using a GST fusion protein and 2 peptide sequences from the caMK-1 gene. The CaMK-1-selective antibodies were affinity purified against immobilized antigen based affinity chromatography and are represented as pure IgG fractions stabilized in antibody stabilization buffer. The polyclonal antibodies strongly label a 36-38 kDa protein in Calmodulin kinase 1 gamma Western blot positive control sample. The CaMK-1 antibodies are also available as HRP conjugate for confocal, Western blotting and immunocytochemical analyses as special order item. *FabGennix Inc.* will also conjugate antibodies with fluorescent probes upon request at extra charge. *FabGennix Inc.* also provides antibodies against other protein kinases including MER Tyrosine kinase proteins (MERTK), CD3, Auto Activated protein kinases, Casein Kinase 2, Myelin Basic Protein kinase 1, Myelin Basic Protein Kinase 2, p65<sup>PAK</sup> and Cytosolic Protamine Kinase. These antibodies are available from FabGennix Int, Inc., as affinity purified form in 100 ug packing. *FabGennix, Inc.*, will also provide Western blot positive controls for most of these antibodies in ready-to-use buffer for easy identification of respective proteins. Limited quantities of antigens are also available. Please enquire for their availability before ordering.

Catalog #	Host Species	Nature	Cross reactivity	Quantity	Price
CaMK-301AP	Rabbit	Affinity purified Antibody	R, M, H	100 µg	205
CaMK-312AP	Rabbit	Affinity purified Antibody N-terminal	R, M, H	100 µg	205
CaMK-321AP	Rabbit	Affinity purified Antibody C-terminal	R, M, H	100 µg	205
P-CaMK312	n/a	Antigenic blocking peptide	n/a	250 ug	98
P-CaMK321	n/a	Antigenic blocking peptide	n/a	250 ug	98

R = rat; M = mouse; H = human; C = chicken; monk = monkey ; \* not all variants are labeled equally

- Immunogen:** Recombinant GST-fusion protein of Calcium/Calmodulin-Dependent kinase 1 gamma and 2 peptides  
**Concentration:** CaMK-301AP; CaMK-312AP and CaMK-321AP = 0.75-1.2 mg/ml of antibody stabilization buffer  
**Applications:** Antibody CaMK-101AP is ideal for immunoprecipitation, western blotting, and immunocytochemistry/immunohistochemistry assays. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay in his/her laboratory. Calcium calmodulin-dependent protein kinase I gamma antibodies (CaMK-301AP) work well in Western analyses and immunoprecipitation, immunohistochemistry applications. Other applications have not been tested.  
 Suggested Dilutions: Western blotting: > 1:500; Immunoprecipitation & i.p pull-down assays: 1> 1:200  
**Protocols:** Standard protocol for various applications (Western blot; immunoprecipitation and immunohistochemistry) of this antibody is provided with the product specification sheet, however, *FabGennix Inc.* strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

#### References:

- Nairn, A. C., and Greengard, P. (1987) *J. Biol. Chem.* 262, 7273-7281
- Piccioletto M. R., Czernik A.J., Narin A. C. Calcium/calmodulin-dependent protein kinase I. cDNA cloning and identification of autophosphorylation site. *J. Biol. Chem.* 268, 26512-265121; 1993. Erratum in *J. Biol. Chem.* 270, 10358 1995.
- Haribabu B, Hook SS, Selbert MA, Goldstein EG, Tomhave ED, Edelman AM, Snyderman R, Means AR. *EMBO J.* 14, 3679-3686, 1995.

\* For users who may require large amounts of CaMK-301AP, please enquire about bulk material discounts.

This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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