

Store at  
-20°C

# PhosphoPlus® CaMKII (Thr286) Antibody Duet

#81902



Cell Signaling  
TECHNOLOGY®

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Entrez-Gene ID #815  
UniProt ID #Q9UQM7

New 04/18

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype
P-CaMKII (T286) (D21E4) Rabbit mAb	12716	100 µl	50, 60 kDa	Rabbit IgG
CaMKII (pan) (D11A10) Rabbit mAb	4436	100 µl	50, 60 kDa	Rabbit IgG

See [www.cellsignal.com](http://www.cellsignal.com) for individual component applications, species cross-reactivity, dilutions and additional application protocols.

**Description:** PhosphoPlus® Duets from Cell Signaling Technology (CST) provide a means to assess protein activation status. Each Duet contains an activation-state and total protein antibody to your target of interest. These antibodies have been selected from CST's product offering based upon superior performance in specified applications.

**Background:** CaMKII is an important member of the calcium/calmodulin-activated protein kinase family, functioning in neural synaptic stimulation and T cell receptor signaling (1,2). CaMKII has catalytic and regulatory domains. Ca<sup>2+</sup>/calmodulin binding to the CaMKII regulatory domain relieves autoinhibition and activates the kinase (3). The activated CaMKII further autophosphorylates at Thr286 to render the kinase constitutively active (3). The threonine phosphorylation state of CaMKII can be regulated through PP1/PKA. PP1 (protein phosphatase 1) dephosphorylates phospho-CaMKII at Thr286. PKA (protein kinase A) prevents phospho-CaMKII (Thr286) dephosphorylation through an inhibitory effect on PP1 (4).

**Specificity/Sensitivity:** CaMKII (pan) (D11A10) Rabbit mAb detects endogenous levels of total CaMKII protein. The peptide sequence used as the antigen is 100% conserved between CaMKII- $\alpha$ ,  $\gamma$ , and  $\delta$ , and 88% conserved in CaMKII- $\beta$ . Phospho-CaMKII (Thr286) (D21E4) Rabbit mAb recognizes endogenous levels of CaMKII- $\alpha$  protein only when phosphorylated at Thr286. This antibody also recognizes endogenous levels of CaMKII- $\beta$  and CaMKII- $\gamma$  protein only when phosphorylated at Thr287.

**Source/Purification:** Monoclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val184 of human CaMKII- $\alpha$  or a synthetic phosphopeptide corresponding to residues surrounding Thr287 of human CaMKII- $\beta$  protein.

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

For product specific protocols and a complete listing of recommended companion products please see the product web page at [www.cellsignal.com](http://www.cellsignal.com).

#### Background References:

- (1) Hughes, K. et al. (2001) *J Biol Chem* 276, 36008-13.
- (2) Barria, A. et al. (1997) *Science* 276, 2042-5.
- (3) Barkai, U. et al. (2000) *Mol Endocrinol* 14, 554-63.
- (4) Makhinson, M. et al. (1999) *J Neurosci* 19, 2500-10.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide Species Cross-Reactivity: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.