

CaMKII (pThr286 or 287) pAb IgG

Quality Control Certificate of Analysis

Catalogue No.: A010-50AP

Unit Size: 50 µl

Lot No.: 642106

Background: Ca²⁺/calmodulin-dependent kinase II (CaMKII) is a ubiquitous, multifunctional serine/threonine kinase involved in translating Ca²⁺-transient signals into cellular responses (Shulman & Braun, 1999). Four separate CaMKII genes are expressed in man (α, β, δ, γ) with isoforms within each gene. CaMKII δ and γ are abundant in the heart. CaMKII is activated by Ca²⁺/CaM binding, and becomes activated for prolonged periods of time following autophosphorylation of Thr-286 or Thr-287 (equivalent residues in different isoforms). This antibody recognizes the active, autophosphorylated enzyme (all isoforms) and thus can measure the abundance of active CaMKII. Prolonged activation of CaMKII is associated with a variety of vascular and cardiac diseases including stroke (Vest et al., 2010), atrial fibrillation (Dobrev & Wehrens, 2010) cardiac arrhythmia & sudden death (van Oort et al., 2010), cardiac apoptosis (Wang et al., 2004), and heart failure (Erickson et al., 2011).

Description: Affinity Purified **Rabbit** polyclonal antibody to CaMKII Phospho Threonine-286/287 (A010-50AP)

Immunogen: Synthetic peptide (M₂₈₁HRQET(PO₃H₂)VDC₂₈₉) corresponding to amino acids surrounding the phosphorylated threonine residue at position 286 or 287 of CaMKII, which was conjugated to keyhole limpet hemocyanin (KLH) by carbodiimide cross linkage.

Antibody Isotype: IgG.

Antibody Purity: Protein A affinity purified.

Specificity: The antibody recognises both of the α and β subunits of CaMKII when phosphorylated at Thr-286. Binding of the antibody to its target epitope is blocked in the presence of a phosphopeptide containing the CaMKII Phospho Thr-286 epitope.

Species Cross Reactivity: Reacts with rat. Not yet tested in other species. **However, from primary sequence analysis, the antibody will recognise Phospho Thr-286 (or 287) in all isoforms (α, β, γ and δ) from human, rat and mouse.** The antibody is also expected to react with various isoforms from chicken, cow, pig, rabbit, orangutan, zebrafish, ferret and *Xenopus laevis*.

Vial Constituents: Lyophilised affinity purified A010-50AP Ab (50µl) in 0.1M Tris-citrate pH 7.4 with 20%v/v stabiliser solution.

Storage Instructions: Lyophilised antibody is stable at 4°C when stored with desiccant. Reconstitute lyophilised powder in 50 µl of 18 MΩ H₂O, aliquot and store frozen at -80°C for 1 year. Avoid freeze - thaw cycles.

Tested Applications: **WB 1:1000.** Not yet tested in other applications, therefore, optimal dilutions/concentrations should be determined by the user.

	PO ₃ H ₂ Specific									
	280									290
Epitope	-	M	H	R	Q	E	T	V	D	C
Human		C	M	H	R	Q	E	T	V	D
Mouse		C	M	H	R	Q	E	T	V	D
Rat		M	M	H	R	Q	E	T	V	E
Xenopus		C	M	H	R	Q	E	T	V	D
Drosophila		V	V	H	R	Q	E	T	V	D

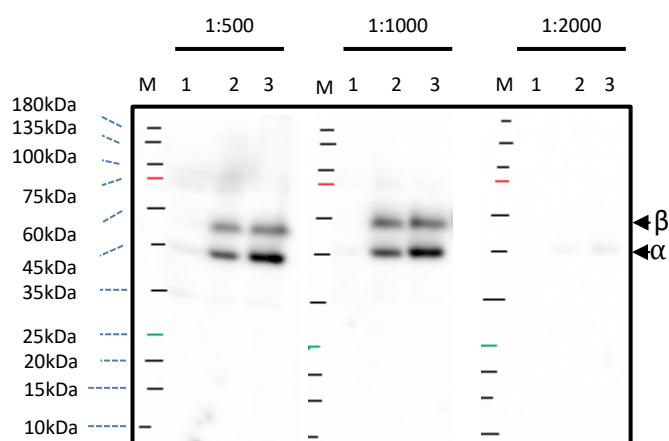


Image: Both α and β Phosphorylated forms of CaMKII Detected Using Badrilla's anti-CaMKII Phospho Thr – 286 (or 287) Antibody (A010-50AP, lot 642106).

Rat brain extract was phosphorylated for 1 minute using CaMKII under the following conditions; Ln 1: minus ATP; Ln 2: minus Calmodulin; Ln 3: Plus ATP, plus Calmodulin. A010-50AP, lot 642106 used at dilutions shown in image. SDS PAGE on 12% Gels; Blot developed on Syngene G:Box digital imaging system (1m exposure).

Related Products: CaMKII Phospho Thr-286 epitope peptide (P010-50).

Background References:

- Dobrev, D., & Wehrens, X.H.T. (2010) Trends in Cardio. Medicine 20, 30-34
- Erickson, J.R., He, B.J., Grumbach, I.M., & Anderson, M.E. (2011) CaMKII in the cardiovascular system: sensing redox states. Physiol. Rev. 91, 889-915.
- Van Oort, R.J. et al. (2010) Circulation 122, 2669-79
- Shulman, H. & Braun, A.P. (1999) in Carafoli E. & Klee, C. (Eds.) Calcium as a Cellular Regulator, Oxford University Press.
- Vest, R. S., O'Leary, H., Coltrap, S.J., Kindy, M.S., & Bayer, K.L. (2010) Effective post-insult neuroprotection by a novel Ca²⁺/Calmodulin-dependent protein kinase II (CaMKII) inhibitor. J. Biol. Chem. 285, 20675-82
- Wang, W., Zhu, W., Wang, S., Yang, D., Crow, M.T., Xiao, R-P. & Cheng, H. (2004) Sustained β1-adrenergic stimulation modulates cardiac contractility by Ca²⁺/calmodulin kinase signaling pathway. Circ. Res. 95, 798-806.