BOSTER BIOLOGICAL TECHNOLOGY
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Anti-CaMKII alpha/CAMK2A Antibody Picoband®

Catalog Number: A03241-2

About CAMK2A

Calcium/calmodulin-dependent protein kinase type II subunit alpha (CAMKIIalpha), a.k.a. Ca2+/calmodulin-dependent protein kinase II alpha, is a protein kinase (i.e., an enzyme which phosphorylates proteins) that in humans is encoded by the CAMK2A gene. It is mapped to 5q32. The product of this gene belongs to the serine/threonine protein kinases family, and to the Ca (2+)/calmodulin-dependent protein kinases subfamily. Calcium signaling is crucial for several aspects of plasticity at glutamatergic synapses. This calcium calmodulin-dependent protein kinase is composed of four different chains: alpha, beta, gamma, and delta. The alpha chain encoded by this gene is required for hippocampal long-term potentiation (LTP) and spatial learning. In addition to its calcium-calmodulin (CaM)-dependent activity, this protein can undergo autophosphorylation, resulting in CaM-independent activity. Several transcript variants encoding distinct isoforms have been identified for this gene.

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Overview

Product Name	Anti-CaMKII alpha/CAMK2A Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-CaMKII alpha/CAMK2A Antibody Picoband® catalog # A03241-2. Tested in ELISA, Flow Cytometry, IF, ICC, WB applications. This antibody reacts with Human, Mouse, Rat. The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance.
Application	ELISA, Flow Cytometry, IF, ICC, WB
Clonality	Polyclonal
Formulation	Each vial contains 4mg Trehalose, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.
Storage Instructions	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.
Host	Rabbit
Uniprot ID	Q9UQM7

Technical Details

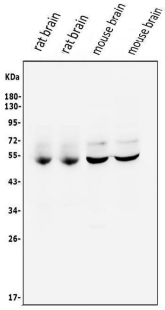
Immunogen	E.coli-derived human CaMKII alpha/CAMK2A recombinant protein (Position: M1-H478).

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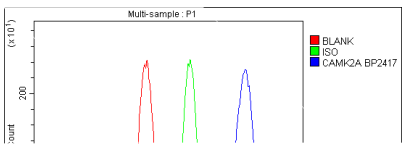
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-1) for ICC.
Cross Reactivity	No cross-reactivity with other proteins.
Isotype	Rabbit IgG
Form	Lyophilized
Concentration	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.
Purification	Immunogen affinity purified.
Suggested Dilutions	Western blot, 0.25-0.5ug/ml, Mouse, Rat Immunocytochemistry/Immunofluorescence, 5ug/ml, Human Immunofluorescence, 5ug/ml, Rat Flow Cytometry (Fixed), 1-3ug/1x10^6 cells, Human, Mouse, Rat ELISA, 0.1-0.5ug/ml, - Note: For flow cytometry (FCM), suitable for fixed cells only. Not suitable for FACS or surface flow cytometry using live cells.

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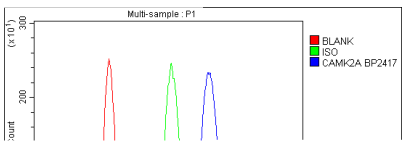
Anti-CaMKII alpha/CAMK2A Antibody Picoband® (A03241-2) Images



Western blot analysis of CaMKII alpha/CAMK2A using anti-CaMKII alpha/CAMK2A antibody (A03241-2). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions. Lane 1: rat brain tissue lysates, Lane 2: rat brain tissue lysates, Lane 3: mouse brain tissue lysates, Lane 4: mouse brain tissue lysates. After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-CaMKII alpha/CAMK2A antigen affinity purified polyclonal antibody (Catalog # A03241-2) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for CaMKII alpha/CAMK2A at approximately 54KD. The expected band size for CaMKII alpha/CAMK2A is at 54KD.

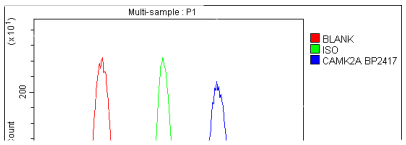


Flow Cytometry analysis of U87 cells using anti-CaMKII alpha/CAMK2A antibody (A03241-2). Overlay histogram showing U87 cells stained with A03241-2 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-CaMKII alpha/CAMK2A Antibody (A03241-2, 1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

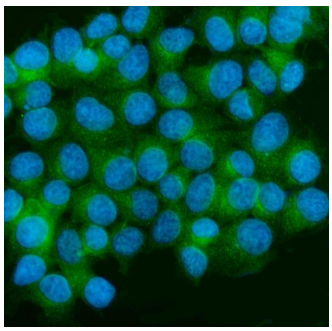


Flow Cytometry analysis of ANA-1 cells using anti-CaMKII alpha/CAMK2A antibody (A03241-2). Overlay histogram showing ANA-1 cells stained with A03241-2 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-CaMKII alpha/CAMK2A Antibody (A03241-2, 1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

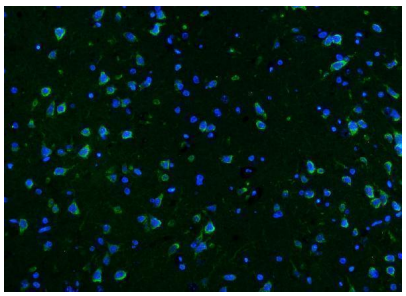
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Flow Cytometry analysis of NRK cells using anti-CaMKII alpha/CAMK2A antibody (A03241-2). Overlay histogram showing NRK cells stained with A03241-2 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-CaMKII alpha/CAMK2A Antibody (A03241-2, 1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



IF analysis of CaMKII alpha/CAMK2A using anti-CaMKII alpha/CAMK2A antibody (A03241-2). CaMKII alpha/CAMK2A was detected in immunocytochemical section of MCF-7 cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5ug/mL rabbit anti-CaMKII alpha/CAMK2A Antibody (A03241-2) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Rabbit IgG (BA1127) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



IF analysis of CaMKII alpha/CAMK2A using anti-CaMKII alpha/CAMK2A antibody (A03241-2). CaMKII alpha/CAMK2A was detected in a paraffin-embedded section of rat brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5 ug/mL rabbit anti-CaMKII alpha/CAMK2A Antibody (A03241-2) overnight at 4°C. Biotin conjugated goat anti-rabbit IgG (BA1003) was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using DyLight®488 Conjugated Avidin (BA1128). The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

3 Publications Citing This Product

1. PubMed ID: 10.3233/JAD-2012-120865, beta-Asarone Inhibits Neuronal Apoptosis via the CaMKII/CREB/Bcl-2 Signaling Pathway in an in vitro Model and AbetaPP/PS1 Mice

2. PubMed ID: -, Meng, X.,Fu, M.,Wang, S.,Chen, W.,Wang, J.,& Zhang, N.(2021). Naringin ameliorates memory deficits and exerts neuroprotective effects in a mouse model of Alzheimer's disease by regulating multiple metabolic pathways. Molecular Medicine Reports,23,332.https://doi.org/10.3892/mmr.2021.11971

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3. PubMed ID: 32174475, Ma L,Chen X,Zhao B,Shi Y,Han F.Enhanced apoptosis and decreased ampa receptors are involved in deficit in fear memory in rin1 knockout rats.J Affect Disord.2020 May 1;268:173-182.doi:10.1016/j.jad.2020.02.040. Epub 2020 Feb 27.PMID:32174475.

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Anti-CaMKII alpha/CAMK2A Antibody

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