BOSTER BIOLOGICAL TECHNOLOGY
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Anti-Cyclin A2/CCNA2 Antibody Picoband®

Catalog Number: PB9424

About CCNA2

Cyclin A2, known as CCNA2, is mapped to 4q27. The protein encoded by this gene belongs to the highly conserved cyclin family, whose members are characterized by a dramatic periodicity in protein abundance through the cell cycle. Cyclins function as regulators of CDK kinases. Different cyclins exhibit distinct expression and degradation patterns which contribute to the temporal coordination of each mitotic event. In contrast to cyclin A1, which is present only in germ cells, this cyclin is expressed in all tissues tested. This cyclin binds and activates CDC2 or CDK2 kinases, and thus promotes both cell cycle G1/S and G2/M transitions. And Cyclin A2 is synthesized at the onset of S phase and localizes to the nucleus, where the cyclin A2-CDK2 complex is implicated in the initiation and progression of DNA synthesis. Phosphorylation of CDC6 and MCM4 by the cyclin A2-CDK2 complex prevents re-replication of DNA during the cell cycle.

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Overview

Product Name	Anti-Cyclin A2/CCNA2 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-Cyclin A2/CCNA2 Antibody Picoband® catalog # PB9424. Tested in Flow Cytometry, IF, IHC, 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	Flow Cytometry, IF, IHC, ICC, WB
Clonality	Polyclonal
Formulation	Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4.
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	P20248

Technical Details

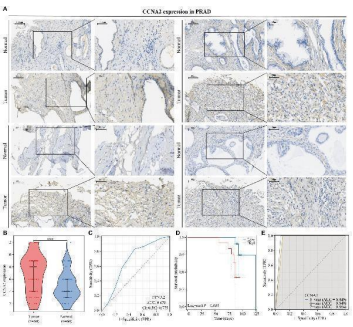
Immunogen	E.coli-derived human Cyclin A2 recombinant protein (Position: A10-K168). Human Cyclin A2 shares

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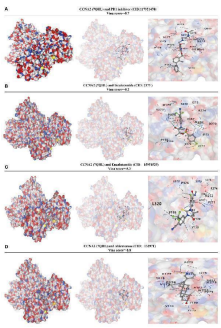
	74.5% amino acid (aa) sequence identity with mouse Cyclin A2.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-1) for IHC(P) and ICC.
Cross Reactivity	No cross-reactivity 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, 0.1-0.5ug/ml, Human, Mouse, Rat Immunohistochemistry (Paraffin-embedded Section), 2-5ug/ml, Human Immunocytochemistry/Immunofluorescence, 5ug/ml, Human Flow Cytometry (Fixed), 1-3ug/1x10^6 cells, Human 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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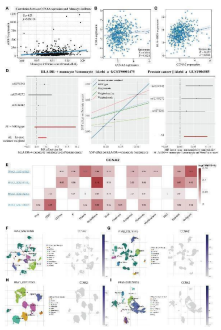
Anti-Cyclin A2/CCNA2 Antibody Picoband® (PB9424) Images



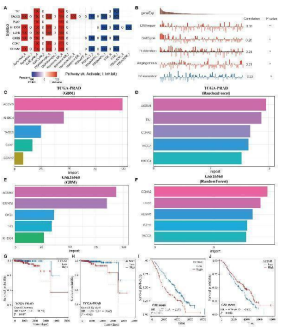
CCNA2 is highly expressed in PRAD and is associated with poor patient prognosis. (A, B) Differential expression of CCNA2 in PRAD. (C) Diagnostic predictive value of CCNA2 in PRAD. (D) KM curve of overall survival of CCNA2 in PRAD. (E) Prognostic predictive value of CCNA2 in PRAD.Index in PubMed under a CC BY license. PMID: 38947325



CCNA2 has a high binding capacity to PRAD-targeted drugs. (A) Analysis of the binding capacity of CCNA2 to PD1 inhibitors. (B) Analysis of the binding capacity of CCNA2 to bicalutamide. (C) Analysis of the binding capacity of CCNA2 to enzalutamide. (D) Analysis of the binding capacity of CCNA2 to abiraterone.Index in PubMed under a CC BY license. PMID: 38947325



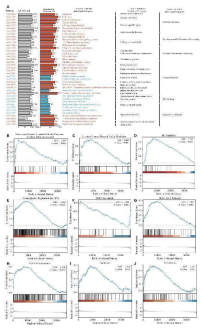
CCNA2 positively correlates with monocyte infiltration levels. (A) Correlation analysis of CCNA2 and monocyte infiltration levels. (B, C) Analysis of CCNA2 correlation with monocyte markers. (D) Mendelian randomization analysis of high HLA-DR expressing monocytes in relation to prostate cancer. (E–I) Single-cell analysis of the correlation between CCNA2 and immune cell infiltration.Index in PubMed under a CC BY license. PMID: 38947325

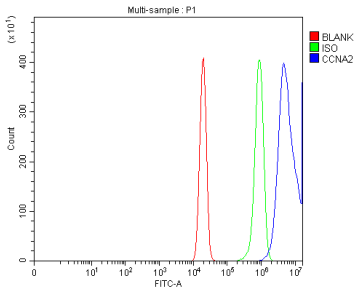


CCNA2 identified as the best prognostic gene among monocyte-associated genes. (A, B) Functional analysis of monocyte-related prognostic genes. (C, D) GBM and RandomForest algorithms to screen key prognostic genes in the TCGA-PRAD dataset. (E, F) GBM and RandomForest algorithms to screen key prognostic genes in the GSE16560 dataset. (G, H) KM curves of CCNA2 and ACSM3 in the TCGA-PRAD dataset. (I, J) KM curves of CCNA2 and ACSM3 in the GSE16560 dataset.Index in PubMed under a CC BY license. PMID: 38947325

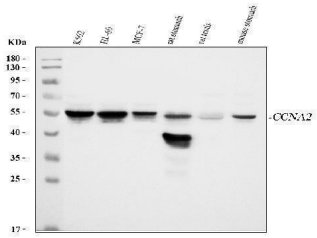
Functional analysis of CCNA2 in PRAD. (A) KEGG analysis of CCNA2 in PRAD. (B–J) GSEA analysis of CCNA2 in PRAD.Index in PubMed under a CC BY license. PMID: 38947325

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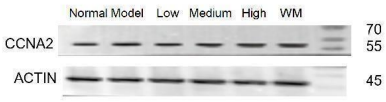




Flow Cytometry analysis of U20S cells using anti-Cyclin A2 antibody (PB9424). Overlay histogram showing U20S cells stained with PB9424 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-Cyclin A2 Antibody (PB9424, 1 ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10 ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1 ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



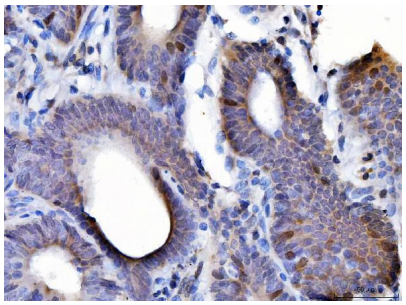
Western blot analysis of Cyclin A2 using anti-Cyclin A2 antibody (PB9424). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions. Lane 1: human K562 whole cell lysates, Lane 2: human HL-60 whole cell lysates, Lane 3: human MCF-7 whole cell lysates, Lane 4: rat stomach tissue lysates, Lane 5: rat testis tissue lysates, Lane 6: mouse stomach tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA 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-Cyclin A2 antigen affinity purified polyclonal antibody (Catalog # PB9424) 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 Cyclin A2 at approximately 55 kDa. The expected band size for Cyclin A2 is at 49 kDa.



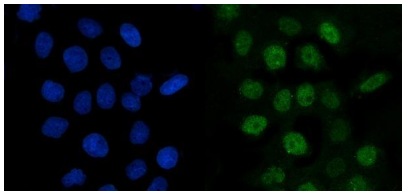
Western blot analysis of Cyclin A2 using anti-Cyclin A2 antibody (PB9424). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions. Lane 1: Normal group-rat colon tissue lysates, Lane 2: Model group-rat colon tissue lysates, Lane 3: Triditional Chinese medicine

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treatment (low dose)-rat colon tissue lysates, Lane 4: Triditional Chinese medicine treatment (medium dose)-rat colon tissue lysates, Lane 5: Triditional Chinese medicine treatment(high dose)-rat colon tissue lysates, Lane 6: Western medicine-rat colon tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA 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-Cyclin A2 antigen affinity purified polyclonal antibody (Catalog # PB9424) at 1:1000 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 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with ChemiDoc MP system. A specific band was detected for Cyclin A2 at approximately 55 kDa. The expected band size for Cyclin A2 is at 49 kDa.



IHC analysis of Cyclin A2 using anti-Cyclin A2 antibody (PB9424). Cyclin A2 was detected in a paraffin-embedded section of human colorectal adenocarcinoma 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 2 ug/ml rabbit anti-Cyclin A2 Antibody (PB9424) overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (Catalog # SV0002) with DAB as the chromogen.



IF analysis of Cyclin A2 using anti-Cyclin A2 antibody (PB9424). Cyclin A2 was detected in an immunocytochemical section of A431 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 5 ug/mL rabbit anti-Cyclin A2 Antibody (PB9424) 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.

8 Publications Citing This Product

1. PubMed ID: 10.1016/j.cbi.2017.07.020, Synergism between thioredoxin reductase inhibitor ethaselen and sodium selenite in inhibiting proliferation and inducing death of human non-small cell lung cancer cells

2. PubMed ID: 10.1016/j.cbi.2017.07.020, Synergism between thioredoxin reductase inhibitor ethaselen and sodium selenite in inhibiting proliferation and inducing death of human non-small cell lung cancer cells

3. PubMed ID: 31974617, Wang S,Zhang C,Zhang X.Downregulation of long non-coding RNA ANRIL promotes proliferation and migration in hypoxic human pulmonary artery smooth muscle cells.Mol Med Rep.2020 Feb;21(2):589-596.doi:10.3892/mmr.2019.10887.Epub 2019 Dec

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17.PMID:31974617; PMC

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