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antibody and ELISA experts

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Anti-Nucleolin/NCL Antibody Picoband®

Catalog Number: A00228-1

About NCL

Nucleolin is a protein that in humans is encoded by the NCL gene. It is mapped to 2q37.1. Nucleolin (NCL), a eukaryotic nucleolar phosphoprotein, is involved in the synthesis and maturation of ribosomes. It is located mainly in dense fibrillar regions of the nucleolus. Human NCL gene consists of 14 exons with 13 introns and spans approximately 11kb. The intron 11 of the NCL gene encodes a small nucleolar RNA, termed U20.

Overview

Product Name	Anti-Nucleolin/NCL Antibody Picoband®
Reactive Species	Human, Monkey, Mouse, Rat
Description	Boster Bio Anti-Nucleolin/NCL Antibody Picoband® catalog # A00228-1. Tested in ELISA, Flow Cytometry, IF, IHC, ICC, WB applications. This antibody reacts with Human, Monkey, 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, IHC, ICC, WB
Clonality	Polyclonal
Formulation	Each vial contains 4mg Trehalose, 0.9mg NaCl and 0.2mg 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	P19338

Technical Details

Immunogen	E.coli-derived human Nucleolin/NCL recombinant protein (Position: K219-A629).
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.

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Suggested Dilutions	Western blot, 0.25-0.5ug/ml Immunohistochemistry (Paraffin-embedded Section), 1-2ug/ml Immunocytochemistry/Immunofluorescence, 2ug/ml, Human Flow Cytometry (Fixed), 1-3ug/1x10^6 cells ELISA, 0.1-0.5ug/ml

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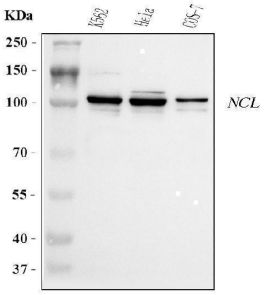
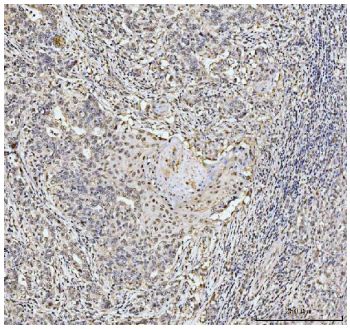
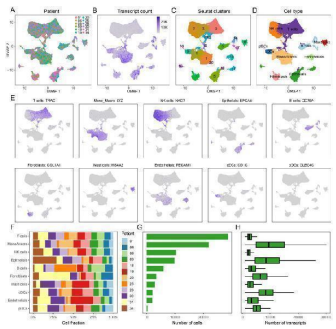
Anti-Nucleolin/NCL Antibody Picoband® (A00228-1) Images



Western blot analysis of NCL using anti-NCL antibody (A00228-1). 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 Hela whole cell lysates, Lane 3: monkey COS-7 whole cell 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-NCL antigen affinity purified polyclonal antibody (Catalog # A00228-1) 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 NCL at approximately 100-110 kDa. The expected band size for NCL is at 63 kDa.



IHC analysis of NCL using anti-NCL antibody (A00228-1). NCL was detected in a paraffin-embedded section of human metaplasia of squamous cells of the renal pelvis 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-NCL Antibody (A00228-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1022) with DAB as the chromogen.



Annotation Results of scRNA-seq for LUAD. (A) Sample origin of the single-cell data, 12 samples were identified without batch effect. (B) Transcript counts in the single-cell dataset. (C) Clustering results of the single-cell data, totally 21 clusters were presented. (D) Cell type annotation based on marker gene expression, including T cells, monocyte-macrophages, NK cells, epithelial cells, B cells, fibroblasts, mast cells, endothelial cells, conventional dendritic cells (cDCs) and plasmacytoid dendritic cells (pDCs). (E) Expression profiles of representative markers for ten distinct cell types. (F) Proportion of each cell type across samples. (G) Total number of cells for each identified cell type. (H) Transcript counts per cell type, reflecting transcriptional activity at the single-cell level.Index in PubMed under a CC BY license. PMID: 40396179

Single-cell communication networks. (A) Incoming communication patterns of target cells, showing pathways to

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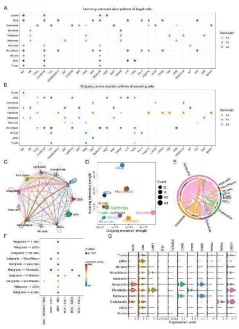
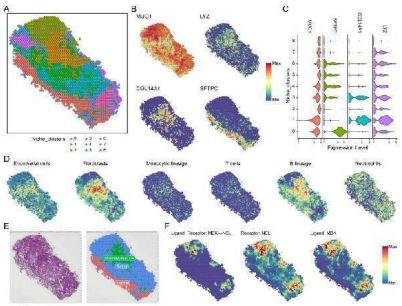
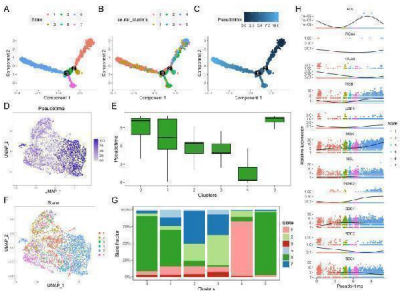


which each cell type responds. (B) Outgoing communication patterns of secreting cells, illustrating the pathways through which cells send signals, MIF, MK and CXCL pathway exhibit high activity. (C) Network diagram showing the strength of intercellular communication, with connections between various cell types. (D) Scatter plot comparing outgoing and incoming communication strengths across cell populations, with bubble size indicating the number of interactions, malignant cells have higher strength of intercellular communication. (E) Chord diagram depicting communication via the MK pathway between different cell types. (F) Ligand-receptor interaction probabilities within the MK pathway between malignant and other cell types. Dot size represents significance (P-value), and color represents communication probability highlighting the MDK-NCL signaling pathway. (G) Violin plots of MK pathway gene expression levels across cell types, showing gene activity variations, MDK has advancer expression level in malignant cells.Index in PubMed under a CC BY license. PMID: 40396179



Spatial transcriptomics and MDK-NCL signal communication. (A) Niche clustering in spatial transcriptomics samples, identifying distinct ecological zones. (B) Spatial expression of representative markers in key regions: MUC1 (tumor region), LYZ (immune region), COL14A1 (stromal region), and SFTPC (normal region). (C) Violin plots displaying the expression of MUC1, LYZ, COL14A1, and SFTPC across different niches. (D) MCPcounter analysis showing the infiltration of six cell types (e.g., endothelial cells, fibroblasts, immune lineages) across spatial regions. (E) Spatial niche classification, distinguishing tumor, immune-stromal, and normal regions. (F) MDK-NCL ligand-receptor interaction analysis, spatially mapping MDK ligands, NCL receptors, and their binding regions.Index in PubMed under a CC BY license. PMID: 40396179



Single-cell pseudotime analysis. (A) Pseudotime trajectory analysis showing the 6 differentiation states of cells. (B) Subtype classification of malignant cells along the pseudotime trajectory. (C) Pseudotime scores mapped along the differentiation trajectory. (D) UMAP plot visualizing pseudotime scores across individual cells. (E) Box plots comparing pseudotime scores across different malignant cell clusters, cluster 0, 1, and 5 had higher pseudotime scores. (F) UMAP plot of differentiation states, with colors representing distinct states. (G) Stacked bar plots showing the proportion of differentiation states within each malignant cell cluster, cluster 0, 1, and 5 have larger proportion of state 6. (H) Expression dynamics of MK pathway genes (e.g., MDK, NCL, ITG genes) along the pseudotime trajectory, highlighting gene expression changes during differentiation, MDK and NCL express more in the later time.Index in PubMed under a CC BY license. PMID: 40396179

Association of MDK-NCL with the immune microenvironment. (A) Boxplot shows the expression levels of MDK and NCL genes in tumor and control groups, it exhibit higher activity

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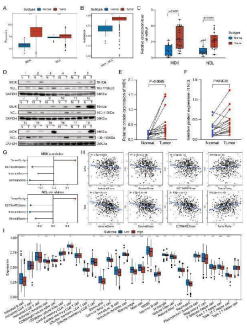
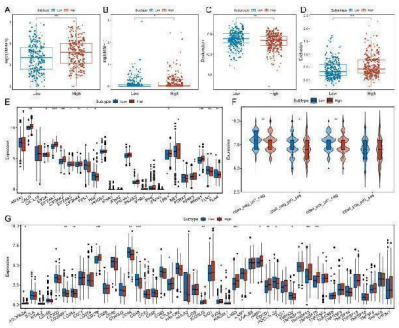
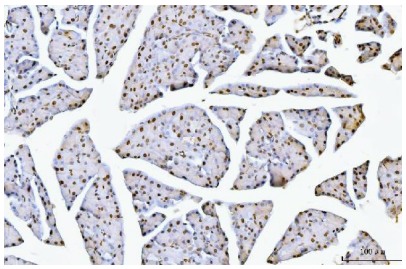


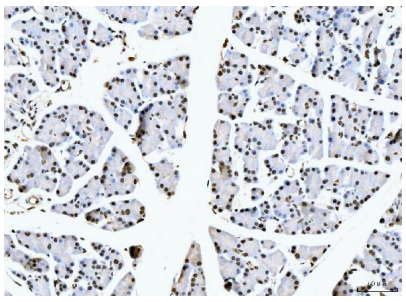
in tumor group. (B) MDK-NCL enrichment scores in tumor and control groups. (C) Relative mRNA expression levels of MDK and NCL in tumor and control groups from in-house data. (D) Relative protein expression levels of MDK and NCL in tumor and control groups from in-house data. (E) Comparison of MDK protein expression levels between tumor and control groups. (F) Comparison of NCL protein expression levels between tumor and control groups. (G) Correlation of MDK and NCL expression with ImmuneScore, StromalScore, ESTIMATEScore, and TumorPurity. (H) Scatter plots depicting the relationship between MDK and NCL expression and immune-related scores (ImmuneScore, StromalScore, ESTIMATEScore) as well as TumorPurity. (I) Comparison of immune cell infiltration scores across high and low MDK-NCL expression groups for 28 immune cell types. *P < 0.05, **P < 0.01, ***P < 0.001.Index in PubMed under a CC BY license. PMID: 40396179



Association of MDK-NCL with immunotherapy response. (A) Comparison of tumor mutation burden (TMB) between high and low MDK-NCL expression groups. (B) Comparison of microsatellite instability (MSI) between high and low MDK-NCL groups. (C) Comparison of dysfunction scores between high and low MDK-NCL groups. (D) Comparison of exclusion scores between high and low MDK-NCL groups. (E) Expression of immunogenic cell death (ICD)-related genes in high and low MDK-NCL groups. (F) Expression levels of CTLA4 and PD1 in high and low MDK-NCL groups. (G) Comparison of immune checkpoint gene expression between high and low MDK-NCL expression groups. *P < 0.05, **P < 0.01, ***P < 0.001.Index in PubMed under a CC BY license. PMID: 40396179



IHC analysis of NCL using anti-NCL antibody (A00228-1). NCL was detected in a paraffin-embedded section of mouse pancreas 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-NCL Antibody (A00228-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1022) with DAB as the chromogen.



IHC analysis of NCL using anti-NCL antibody (A00228-1). NCL was detected in a paraffin-embedded section of rat pancreas 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-NCL Antibody (A00228-1) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) (Catalog # SA1022) with DAB as the chromogen.

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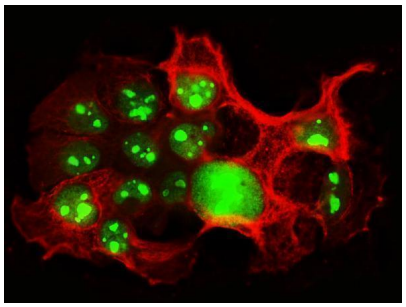
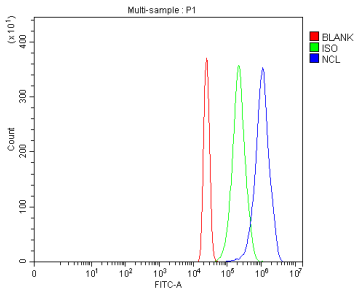


IF analysis of NCL using anti-NCL antibody (A00228-1) and anti-Tubulin beta antibody (M05613-4). NCL was detected in immunocytochemical section of A431 cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 2ug/mL rabbit anti-NCL Antibody (A00228-1) and mouse anti-Tubulin beta Antibody (M05613-4) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Rabbit IgG (BA1127) and DyLight®594 Conjugated Goat Anti-Mouse IgG (BA1141) were used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Flow Cytometry analysis of HL-60 cells using anti-NCL antibody (A00228-1). Overlay histogram showing HL-60 cells stained with A00228-1 (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-NCL Antibody (A00228-1, 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.

Anti-Nucleolin/NCL Antibody

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