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antibody and ELISA experts

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Anti-Osteopontin/SPP1 Antibody Picoband®

Catalog Number: RP1080

About SPP1

Osteopontin (OPN), also known as secreted phosphoprotein 1 (SPP1), is a protein that in humans is encoded by the SPP1 gene (secreted phosphoprotein 1). The protein encoded by this gene is involved in the attachment of osteoclasts to the mineralized bone matrix. And the encoded protein is secreted and binds hydroxyapatite with high affinity. The osteoclast vitronectin receptor is found in the cell membrane and may be involved in the binding to this protein. Also, this protein is a cytokine that upregulates expression of interferon-gamma and interleukin-12. Several transcript variants encoding different isoforms have been found for this gene.

Overview

Product Name	Anti-Osteopontin/SPP1 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-Osteopontin/SPP1 Antibody catalog # RP1080. Tested in ELISA, 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, WB
Clonality	Polyclonal
Formulation	Each vial contains antibody formulated with stabilizing components, 0.9 mg NaCl, 0.2 mg Na2HPO4, and 0.05 mg NaN3. *This antibody is supplied in a stabilized formulation. Compatibility with conjugation reactions depends on the chemistry of the conjugation method used. For conjugation methods that are not compatible with the stabilizing components present in this formulation, a carrier-free antibody format is required.
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	P10451

Technical Details

Immunogen	A synthetic peptide corresponding to a sequence at the C-terminus of human Osteopontin, different from the related mouse sequence by eight amino acids, and from the related rat sequence by seven amino acids.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot.

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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, - ELISA, 0.1-0.5ug/ml, -

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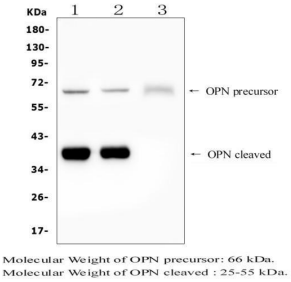
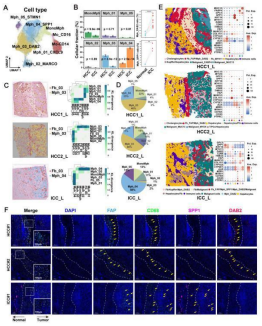
Anti-Osteopontin/SPP1 Antibody Picoband® (RP1080) Images



Molecular Weight of OPN precursor: 66 kDa.
Molecular Weight of OPN cleaved : 25-55 kDa.

Western blot analysis of Osteopontin using anti-Osteopontin antibody (RP1080). 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: mouse brain tissue lysates, Lane 3: human SHG-44 whole cell 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-Osteopontin antigen affinity purified polyclonal antibody (Catalog # RP1080) 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 1:10000 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 Osteopontin at approximately 66,25-55KD. The expected band size for Osteopontin is at 35KD.



Spatial co-localization of TAM with FAP + CAF. (A) UMAP shows the distribution of monocyte/macrophage subtypes. (B) Bar plot shows the relative proportions of macrophage subtypes in HCC and ICC samples (left); paired dot plot shows the relative proportions of DAB2 + / SPP1 + TAMs in tumor and adjacent liver paired samples (right). *, P < 0.05; **, P < 0.01; ***, P < 0.001; ****, P < 0.0001. (C) Distribution of DAB2 + TAMs and FAP + CAF in HCC boundary slides, and SPP1 + TAM and FAP + CAF in ICC boundary slides based on CellTrek deconvolution (left); heatmap shows the Kullback-Leibler (KL) divergence of FAP + CAF with different macrophage subtypes in ST slides, with the higher KL divergence representing the greater degree of co-localization of the two cell types (right). (D) Pie plots showing the relative proportions of different macrophage subtypes in the ST slides. (E) Unbiased clustering of ST spots and definition of cell types of each cluster (left); dot plot showing the expression of select marker genes of each cluster (right). (F) Multi-plex immunofluorescence images showing the aggregation of FAP + CAF with DAB2 + TAM at the tumor border in HCC and FAP + CAF with SPP1 + TAM at the tumor border and core in ICC. The scale bar is 200 um and 100 um.Index in PubMed under a CC BY license. PMID: 39239526

Mononuclear phagocytic system lineage analysis reveals the potential function of SPP1 + Mac enriched in LFH. (A) UMAP of MPs in human LF tissue, dyed according to the cell types. SPP1 + Mac are circled by the black dotted line. (B) Dot plot displaying marker gene expression in different mononuclear phagocyte subpopulations, with color indicating the scaled

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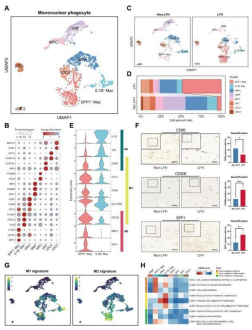
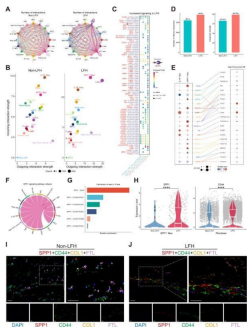


mean expression of genes. (C) UMAP of MPs from the non-LFH group and the LFH group, dyed according to the cell types. (D) Bar graph showing the proportion of each mononuclear phagocyte subpopulation in the non-LFH group and the LFH group. (E) Stacked violin plot showing the expression of common markers in SPP1 + Mac and IL1B + Mac, categorized into Mø, M1, and M2 types. (F) Representative IHC images showing the expression of CD86, CD206, and SPP1 in non-LFH and LFH samples. Scale bar, 50 um. Data quantification results are presented on the right, as mean ± SD, with * p



Deciphering the complex interactions among multiple cell lineages in the fibrotic microenvironment of LFH. (A) Circos plots showing potential interactions between High Ferro-score FB and 15 immune cell clusters in the non-LFH (left) and LFH groups (right). Edge width indicates the number of significant L-R pairs between cell types. (B) Interaction strengths for incoming and outgoing signaling events among all clusters in non-LFH and LFH groups. The horizontal axis represents outgoing interaction strength, while the vertical axis represents incoming interaction strength. (C) Bubble plot illustrating communication probabilities of L-R interactions between SPP1 + Mac or IL1B + Mac subclusters (sending signals) and High Ferro-score FB subcluster (receiving signals) in the up-regulated signaling pathways of the LFH group.Red characters represent ligands, and purple characters represent receptors. Bubble color and size represent calculated communication probabilities and p -values, respectively. (D) Comparison of the number and strength of inferred cellular interactions in the non-LFH and LFH groups. (E) Bubble connectivity plot displaying upregulated receptor-ligand pairs from signaling pathways in the LFH group, and their expression levels in corresponding cell clusters. The color of the bubble reflects the communication probability, and the bubble size indicates the percentage expression of L-R pairs. (F) Circle plot of inferred SPP1 signaling networks among SPP1 + Mac and other cell clusters. (G) Bar graph showing the distribution of L-R pairs between SPP1 + Mac and High Ferro-score FB. (H) Violin plots showing the expression difference of ligand SPP1 between SPP1 + Mac in non-LFH and LFH groups, and of receptor CD44 expression in High Ferro-score FB between non-LFH and LFH groups. **** p

10 Publications Citing This Product

1. PubMed ID: 33650080, Li X,Hu B,Wang L,Xia Q,Ni X. P2X7 receptor-mediated phenotype switching of pulmonary artery smooth muscle cells in hypoxia. Mol Biol Rep.2021 Mar 1.doi:10.1007/s11033-021-06222-2. Epub ahead of print.PMID:33650080.

2. PubMed ID: -, Caiyun Mu,Ye He,Yan Hu,Menghuan Li,Maowen Chen,Rong Wang,Yang Xiang, Zhong Luo,Kaiyong Cai,Construction of chemokine substance P-embedded biomimetic multilayer onto bioactive magnesium silicate-titanium implant for bone regeneration,Applied Materials Toda

3. PubMed ID: -, Chaowei Hu,Kun Zuo,Kuibao Li,Yuanfeng Gao,Mulei Chen,Roumu Hu,Ye Liu,Hongjie Chi,Hongjiang Wang,Yanwen Qin,Xiaoyan Liu,Jiuchang Zhong,Jun Cai,Xinchun Yang,Jing Li, "p38/JNK Is Required for the Proliferation and Phenotype Changes of Vascular Smooth Muscle

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