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antibody and ELISA experts

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Anti-Cathepsin K/CTSK Antibody Picoband®

Catalog Number: PB9856

About CTSK

Cathepsin K, abbreviated CTSK, is an enzyme that in humans is encoded by the CTSK gene. It is mapped to 1q21. The protein encoded by this gene is a lysosomal cysteine protease involved in bone remodeling and resorption. And this protein, which is a member of the peptidase C1 protein family, is expressed predominantly in osteoclasts. Additionally, the enzyme's ability to catabolize elastin, collagen, and gelatin allow it to break down bone and cartilage. This catabolic activity is also partially responsible for the loss of lung elasticity and recoil inemphysema. Cathepsin K inhibitors, such as odanacatib, show great potential in the treatment of osteoporosis. Cathepsin K is degraded by Cathepsin S, called Controlled Cathepsin Cannibalism.

Overview

Product Name	Anti-Cathepsin K/CTSK Antibody Picoband®
Reactive Species	Human
Description	Boster Bio Anti-Cathepsin K/CTSK Antibody Picoband® catalog # PB9856. Tested in IHC, WB applications. This antibody reacts with Human. 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	IHC, 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	P43235

Technical Details

Immunogen	E. coli-derived human Cathepsin K recombinant protein (Position: A115-M329). Human Cathepsin K shares 86.9% and 88.8% amino acid (aa) sequence identity with mouse and rat Cathepsin K, respectively.

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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 IHC(P).
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	Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human Western blot, 0.1-0.5ug/ml, Human

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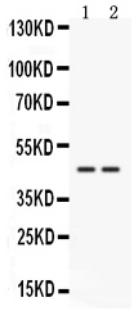
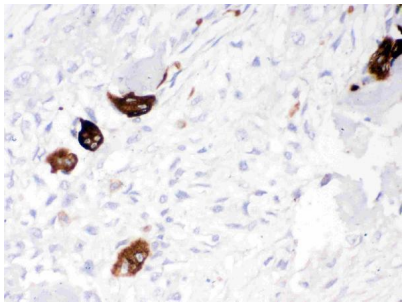
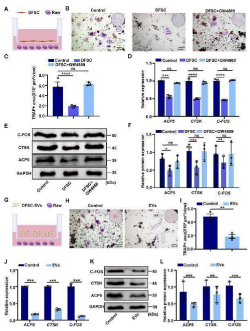
Anti-Cathepsin K/CTSK Antibody Picoband® (PB9856) Images



Western blot analysis of Cathepsin K using anti-Cathepsin K antibody (PB9856). 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: HELA whole cell lysates, Lane 2: 22RV1 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-Cathepsin K antigen affinity purified polyclonal antibody (Catalog # PB9856) 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 Cathepsin K at approximately 45 kDa. The expected band size for Cathepsin K is at 40 kDa.



IHC analysis of Cathepsin K using anti-Cathepsin K antibody (PB9856). Cathepsin K was detected in a paraffin-embedded section of human osteosarcoma 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 1 ug/ml rabbit anti-Cathepsin K Antibody (PB9856) 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.



DFSC-EVs regulated tooth eruption by inhibiting osteoclast differentiation. (A) Schematic illustration of RAW264.7 and DFSC co-culture system. (B) Representative images of TRAP staining. Scale bar = 200 um. (C) Quantitative analysis of TRAP-positive area. (D) The mRNA level of ACP5 , CTSK and CFOS in RAW264.7 cultured with DFSC. (E) The protein level of ACP5, CTSK and CFOS in RAW264.7 cultured with DFSC. (F) Western blotting quantification. (G) Schematic illustration of RAW264.7 and DFSC-EVs co-culture system. (H) Representative images of TRAP staining. Scale bar = 200 um. (I) Quantitative analysis of TRAP-positive area. (J) The mRNA level of ACP5 , CTSK and CFOS in RAW264.7 cultured with DFSC-EVs. (K) The protein level of ACP5, CTSK and CFOS in RAW264.7 cultured with DFSC-EVs. (L) Western blotting quantification. ns, not significant. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$. n = 3.Index in PubMed under a CC BY license. PMID: 39834384

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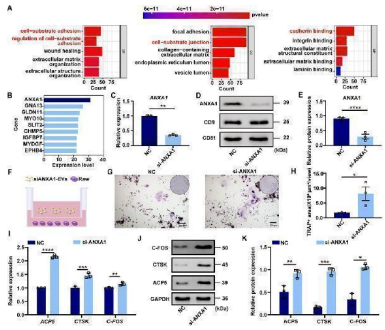
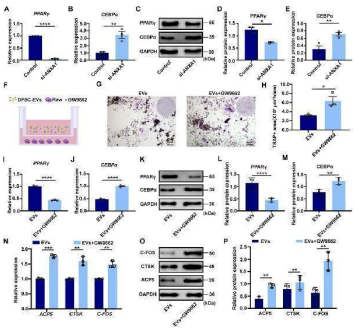
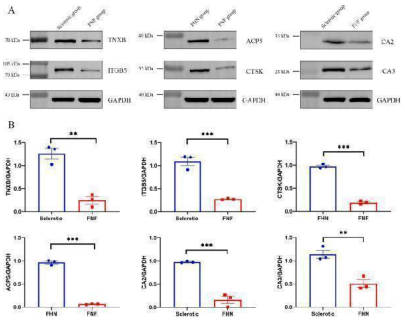


ANXA1 was the core factor of DFSC-EVs regulating osteoclast differentiation. (A) Gene ontology enrichment analysis of DFSC-EVs protein profiles. (B) The top proteins of Cadherin related to regulating osteoblast differentiation based on expression level. (C) The mRNA level of ANXA1 . (D) The protein level of ANXA1. (E) Western blotting quantification. (F) Schematic illustration of RAW264.7 and siANXA1-EVs co-culture system. (G) Representative images of TRAP staining. Scale bar = 200 um. (H) Quantitative analysis of TRAP-positive area. (I) The mRNA level of ACP5 , CTSK and CFOS in RAW264.7 cultured with siANXA1-EVs. (J) The protein level of ACP5, CTSK and CFOS in RAW264.7 cultured with siANXA1-EVs. (K) Western blotting quantification. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$. n = 3.Index in PubMed under a CC BY license. PMID: 39834384



ANXA1 mediated PPARgamma-CEBPalpha pathway to regulate osteoclast differentiation (A) The mRNA level of PPARgamma in RAW264.7 cultured with siANXA1-EVs. (B) The mRNA level of CEBPalpha in RAW264.7 cultured with siANXA1-EVs. (C) The protein level of PPARgamma and CEBPalpha in RAW264.7 cultured with siANXA1-EVs. (D) Quantitative analysis of PPARgamma protein expression. (E) Quantitative analysis of CEBPalpha protein expression. (F) Schematic illustration of PPARgamma inhibited RAW264.7 and DFSC-EVs co-culture system. (G) Representative images of TRAP staining. Scale bar = 200 um. (H) Quantitative analysis of TRAP-positive area. (I) PPARgamma inhibited RAW264.7 construction. (J) The mRNA level of CEBPalpha in PPARgamma inhibited RAW264.7. (K) The protein level of PPARgamma and CEBPalpha in PPARgamma inhibited RAW264.7. (L) Quantitative analysis of PPARgamma protein expression. (M) Quantitative analysis of CEBPalpha protein expression. (N) The mRNA level of ACP5 , CTSK and CFOS in PPARgamma inhibited RAW264.7. (O) The protein level of ACP5, CTSK and CFOS in PPARgamma inhibited RAW264.7. (P) Western blotting quantification. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$. n = 3.Index in PubMed under a CC BY license. PMID: 39834384



Western blot validation of proteomic data. (A) Elevated levels of ITGB5, TNXB , CA II, CA III were observed in the peri-implant sclerosis samples, while elevated levels of ACP5 and CTSK were observed in femoral head necrosis samples. (B) The ratio of TIGAR/GAPDH intensities in Western blot. GAPDH was used as a loading control, quantified and normalized to GAPDH using ImageJ. All experiments were performed in triplicate, * indicates significant expression level change compared to the control group, *P<0.05, **P<0.01. ***P<0.001. Index in PubMed under a CC BY license. PMID: 38851808

2 Publications Citing This Product

1. PubMed ID: 10.1016/j.trsl.2020.04.011, Cathepsin B deficiency ameliorates liver lipid deposition, inflammatory cell infiltration, and fibrosis after diet-induced nonalcoholic steatohepatitis

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2. PubMed ID: 28199984, Wang J, You H, Qi J, Yang C, Ren Y, Cheng H. Oncotarget. 2017 Mar 7;8(10):17012-17026. doi: 10.18632/oncotarget.15222. Autocrine and paracrine STIP1 signaling promote osteolytic bone metastasis in renal cell carcinoma

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