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antibody and ELISA experts

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Anti-Heparanase 1/HPSE Antibody Picoband®

Catalog Number: PB9427

About HPSE

Heparanase, also known as HPSE, is an enzyme that acts both at the cell-surface and within the extracellular matrix to degrade polymeric heparan sulfate molecules into shorter chain length oligosaccharides. Heparanase is an endo-beta-D-glucuronidase capable of cleaving heparan sulfate and has been implicated in inflammation and tumor angiogenesis and metastasis. The successful penetration of the endothelial cell layer that lines the interior surface of blood vessels is an important process in the formation of blood borne tumour metastases. Heparan sulfate proteoglycans are major constituents of this layer and it has been shown that increased metastatic potential corresponds with increased heparanase activity for a number of cell lines.

Overview

Product Name	Anti-Heparanase 1/HPSE Antibody Picoband®
Reactive Species	Human, Rat
Description	Boster Bio Anti-Heparanase 1/HPSE Antibody Picoband® catalog # PB9427. Tested in WB applications. This antibody reacts with Human, 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	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	Q9Y251

Technical Details

Immunogen	A synthetic peptide corresponding to a sequence in the middle region of human Heparanase 1, different from the related mouse and rat sequences by eight amino acids.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western blot.
Cross Reactivity	No cross-reactivity with other proteins
Isotype	Rabbit IgG

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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, Rat

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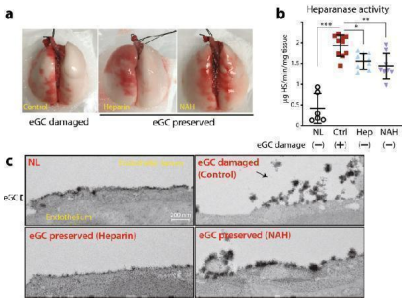
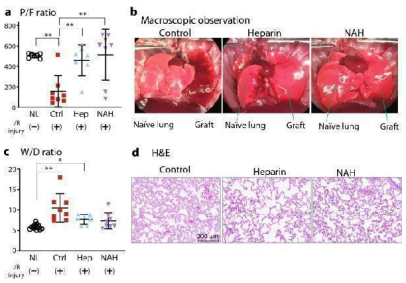
Anti-Heparanase 1/HPSE Antibody Picoband® (PB9427) Images

Western blot analysis of Heparanase 1 using anti-Heparanase 1 antibody (PB9427). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. Lane 1: Rat Liver Tissue Lysate at 50ug, Lane 2: Human Placenta Tissue Lysate at 50ug, Lane 3: A549 Whole Cell Lysate at 40ug. 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-Heparanase 1 antigen affinity purified polyclonal antibody (Catalog # PB9427) 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 Heparanase 1 at approximately 61 kDa. The expected band size for Heparanase 1 is at 61 kDa.

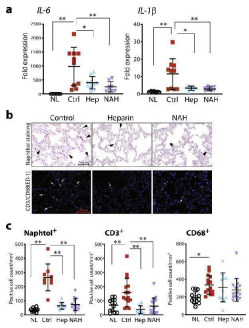


(a) Representative images of rat lungs after procurement. (b) Heparanase activity was detected in tissue after procurement following 1 h of warm ischemia. (c) Ultrastructural images of the endothelial glycocalyx (eGC) from lung grafts after 1 h of warm ischemia obtained using transmission electron microscopy. The labeled glycocalyx appears as the darker cell surface layer; black arrow indicates glycocalyx desquamated from the surface of an endothelial cell. *p<0.05, **p<0.01. NL native lungs, Ctrl control lungs with eGC damage induced by 1 h of ischemia, Hep lungs with eGC preserved by heparin administration prior to 1 h of ischemia, NAH lungs with intact eGC preserved by N-acetyl heparin administration prior to 1 h of ischemia. Index in PubMed under a CC BY license. PMID: 34112915

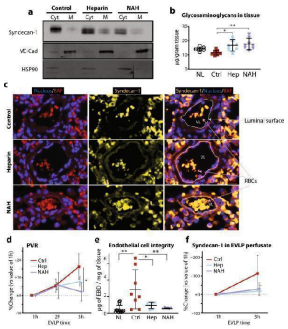


The effect of eGC damage in the lung grafts on the posttransplant graft function and quality. Grafts were evaluated 2 h after transplantation for (a) PaO2/FiO2 (P/F ratio), (b) macroscopic morphology (representative samples are shown), (c) Wet-to-dry (W/D) ratio, and (d) microscopic morphology (representative H&E stained samples are shown). *p<0.05, **p<0.01. NL native lungs, Ctrl control lungs with eGC damage prior to transplant, Hep lungs with eGC preserved by heparin prior to transplant, NAH lungs with eGC preserved by N-acetyl heparin prior to transplant, I/R injury ischemia reperfusion injury. Index in PubMed under a CC BY license. PMID: 34112915

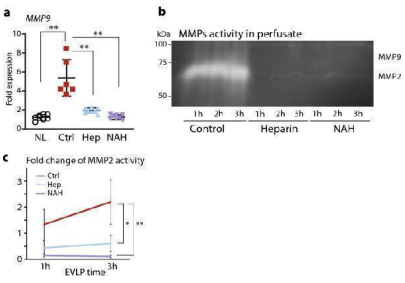
Endothelial glycocalyx influences the inflammation and inflammatory cell migration in lung grafts after transplantation. (a) Real-time RT-PCR for the mRNA of



proinflammatory cytokines interleukin (IL)-6 and IL-1beta . (b) The extravasation of neutrophils, T cells, and monocytes in the transplanted grafts were evaluated by specific staining of polymorphonuclear neutrophils (naphthol staining, positive cells indicated by black arrow heads), T cells (CD3 + -positive, indicated by white arrows) and macrophages (CD68 + -positive, purple staining), and (c) quantitated. *p<0.05, **p<0.01. NL native lungs, Ctrl control lungs with eGC damage prior to transplant, Hep lungs with eGC preserved by heparin prior to transplant, NAH lungs with eGC preserved by N-acetyl heparin prior to transplant. Index in PubMed under a CC BY license. PMID: 34112915



Assessment of endothelial glycocalyx and microvascular integrity in lung grafts after reperfusion. (a) Western blot of syendecan-1 in fractionated lung tissue 2 h after transplantation. Gel image depicts a single representative sample from each treatment group. Vascular endothelial cadherin (VE-Cad) and heat shock protein 90 (HSP90) were blotted as loading markers for the plasma membrane and cytosolic protein fractions, respectively. A full-length image of this blot and the blots showing multiple samples for each treatment group are shown in Supplemental Figs. – . Cyt cytosol protein fraction, M membrane protein fraction. (b) Glycosaminoglycan (GAG) content in the grafts 2 h after transplantation. (c) Syndecan-1 staining (yellow) in the peripheral vasculature (phi ~ 50 mm) of the grafts 2 h after transplantation. The endothelial luminal surface is indicated as a white line in the merged images (right column). Nuclei were stained using Hoechst 33342. BAF background autofluorescence, RBCs red blood cells, VL vascular lumen. (d) Pulmonary vascular resistance (PVR) of lung grafts during ex vivo lung perfusion (EVLP). Time-dependent fold changes from the values at 1 h are shown. n = 4–5 for each group. (e) Endothelial barrier integrity after EVLP was assessed by measuring the amount of Evans blue dye (EBD) retained in the tissue. (f) Time-dependent changes of syndecan-1 in the perfusate during EVLP. *p<0.05, **p<0.01. NL native lungs, Ctrl control lungs with eGC damage prior to transplant/EVLP, Hep lungs with eGC preserved by heparin treatment prior to transplant or EVLP, NAH lungs with eGC preserved by N-acetyl heparin treatment prior to transplant or EVLP. Index in PubMed under a CC BY license. PMID: 34112915



The effects of heparanase inhibition on MMP-2 and MMP-9 activity. (a) The mRNA expression of metalloprotease (MMP)-9 in lung grafts 2 h after transplantation. (b) Representative gelatin zymography of time-dependent changes in activity of secreted MMP-2 and MMP-9 in EVLP perfusate. Full length of gels and replications are shown in Supplemental Fig. . (c) MMP-2 activity quantitated and shown as fold change. *p<0.05, **p<0.01. NL native lungs, Ctrl control, Hep heparin, NAH N-acetyl heparin. Index in PubMed under a CC BY license. PMID: 34112915

Viability analysis of Ana-1 macrophages after treatment with

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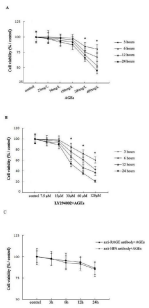
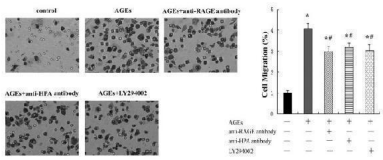
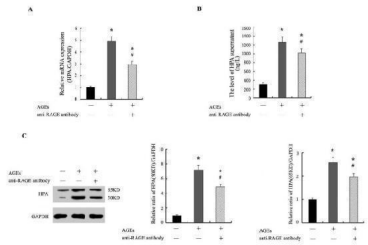


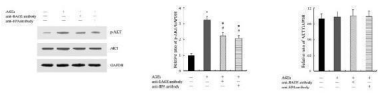
AGEs, LY294002, anti-RAGE or HPA antibody. Cell viability assay is performed using MTT assay. A , Cells (5 × 10 4) were treated with AGEs (0, 25, 50, 100, 200 and 400 mg/L) for 3, 6, 12, 24 h. B , Cells (5 × 10 4) were pretreated with LY294002 (7.5-120 uM) for 1 h before culture with 100 mg/L AGEs for 3, 6, 12, 24 h. C , Cells (5 × 10 4) were pretreated with anti-RAGE or HPA antibody for 1 h before culture with 100 mg/L AGEs for 3, 6, 12, 24 h. The results represent the mean of six culture wells (mean ± SEM). *p<0.05, as compared to the control group. All of the experiments were performed independently in triplicate. Index in PubMed under a CC BY license. PMID: 23442498



HPA, RAGE and PI3K/AKT pathway correlate with AGEs-induced macrophage migration. Cells were cultured with AGEs for 24 h with or without pre-treatment with LY294002, anti-HPA or RAGE antibody for 1 h. The migration was measured by transswell assays. Results were normalized to the number of macrophages that migrated in control group. The results represent the mean of six culture wells (mean ± SEM). *p<0.05 compared to control and #p



AGEs up-regulates HPA mRNA, protein expression and secretion in macrophages via RAGE. Cells were cultured with AGEs for 24 h with or without pre-treatment with antibody against RAGE for 1 h. A , The levels of HPA mRNA were assessed with real time quantitative RT-PCR. B , The secretion of HPA in supernatant was measured by enzyme-linked immunosorbent assay (ELISA). C , The expression of HPA protein in macrophages was determined by Western blotting. The results represent the mean of six culture wells (mean ± SEM). *p<0.05 compared to control and #p



The expression of AKT protein in AGEs-induced macrophages. Cells were cultured with AGEs or pretreated with antibody against RAGE or HPA for 1 h before exposed to AGEs for 24 h. AKT and p-AKT protein expression is determined by Western blot analysis using anti-AKT and p-AKT antibody. The results represent the mean of six culture wells (mean ± SEM). * P<0.05 compared to control and # P

5 Publications Citing This Product

1. PubMed ID: 10.1016/j.carbpol.2018.10.071, Polymeric fluorescent heparin as one-step FRET substrate of human heparanase

2. PubMed ID: 34112915, Noda K,Philips BJ,Snyder ME,Phillippi JA,Sullivan M,Stolz DB,Ren X,Luketich JD,Sanchez PG.Heparanase inhibition preserves the endothelial glycocalyx in lung grafts and improves lung preservation and transplant outcomes.Sci Rep.2021 Jun 10;11(1):12265.doi:10.1038/s41598-021-91777-0.PMID:34112915.

3. PubMed ID: 24235832, Inhibition of choriocarcinoma by Fe3O4-dextran-anti-?-human chorionic gonadotropin nanoparticles containing antisense oligodeoxynucleotide of heparanase

Visit bosterbio.com/anti-heparanase-1-picoband-trade-antibody-pb9427-boster.html to see all 5 publications.

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