Product Datasheet

MMP-9 Antibody (4A3) - BSA Free
NBP2-13173

Unit Size: 0.1 ml

Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.

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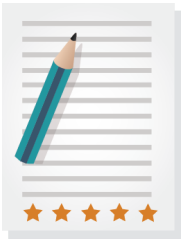
Updated 9/9/2025 v.20.1



NBP2-13173

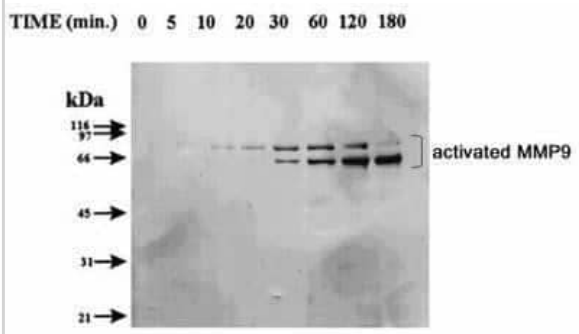
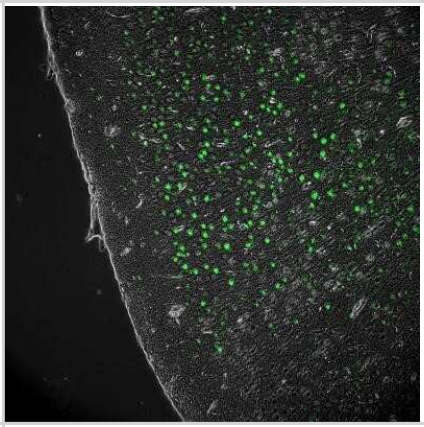
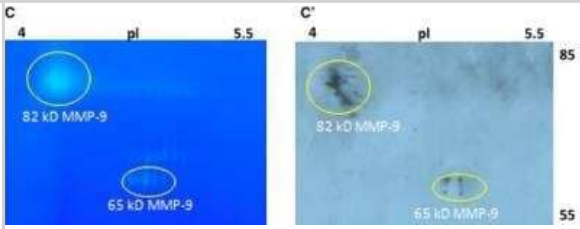
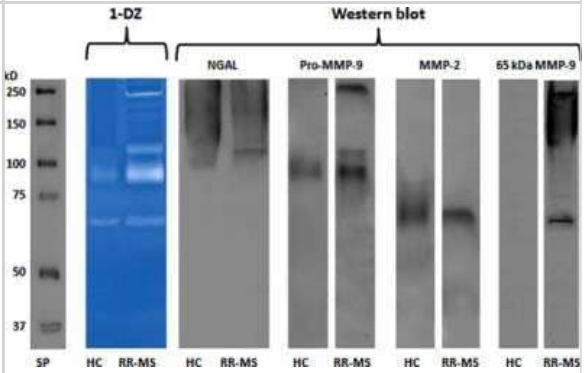
MMP-9 Antibody (4A3) - BSA Free

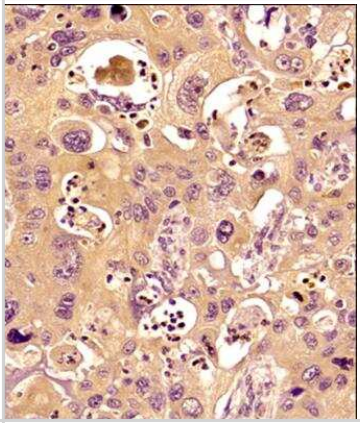
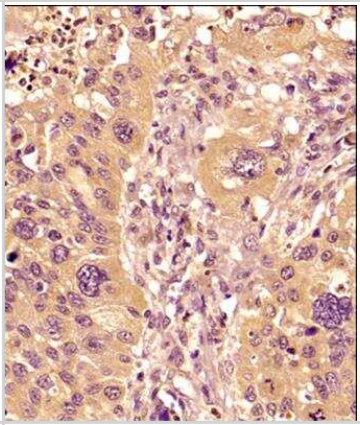
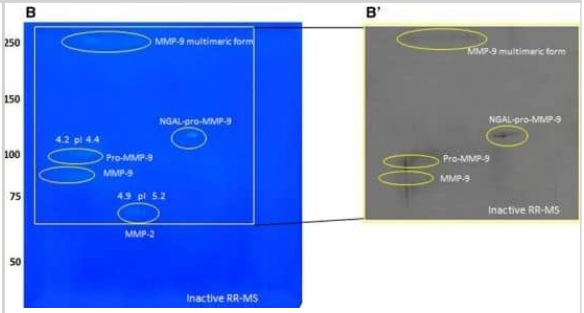
Product Information	
Unit Size	0.1 ml
Concentration	1.0 mg/ml
Storage	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
Clonality	Monoclonal
Clone	4A3
Preservative	0.02% Sodium Azide
Isotype	IgG1 Kappa
Purity	Protein G purified
Buffer	PBS

Product Description	
Description	Novus Biologicals Mouse MMP-9 Antibody (4A3) - BSA Free (NBP2-13173) is a monoclonal antibody validated for use in IHC, WB and ELISA. Anti-MMP-9 Antibody: Cited in 34 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
Host	Mouse
Gene ID	4318
Gene Symbol	MMP9
Species	Human, Mouse, Rat
Reactivity Notes	Rat reactivity reported in scientific literature (PMID:32725911). Mouse reactivity reported in scientific literature (PMID: 30772382). .
Specificity/Sensitivity	Active MMP9. It does not react with the MMP9 proenzyme or the active and proenzyme forms of MMP2.
Immunogen	Synthetic peptide from the N-terminus of human MMP9 [Swiss-Prot# P14780]

Product Application Details	
Applications	Western Blot, Immunohistochemistry-Paraffin, ELISA, Immunohistochemistry
Recommended Dilutions	Western Blot 1:500-1:1000, ELISA 1:100 - 1:2000, Immunohistochemistry 1:100-1:200, Immunohistochemistry-Paraffin 1:100-1:200
Application Notes	In Western blot a band can be seen at 82 or 63 kDa, representing the active forms of MMP9. In IHC, cytoplasmic and extracellular staining was observed in HeLa cells. Prior to immunostaining paraffin tissues, antigen retrieval with sodium citrate buffer (pH 6.0) is recommended.

Images

Western Blot: MMP-9 Antibody (4A3) [NBP2-13173] - Analysis of activated MMP9 expression in MMP9 proenzyme incubated with trypsin for various times.	
Immunohistochemistry: MMP-9 Antibody (4A3) [NBP2-13173] - MMP-9 (green) was detected in murine brain (cortex) using MMP-9-DyLight 488 (4A3) with a concentration of 1:20 in PBS for 2 hours. MMP9-Signals are overlaped with the corresponding phase contrast image. Image from verified customer review. Image using the FITC format of this antibody.	
Western Blot: MMP-9 Antibody (4A3) [NBP2-13173] - Identification of gelatinases by Western blot analysis. A pool of sera from 10 patients with inactive RR-MS was used. For 2-DZ, pooled sera were concentrated 10-fold and 40 ug of total proteins were applied (left panels). For Western blot analysis pooled sera were concentrated 40-fold and 160 ug of total proteins were subjected to 2-DE (right panels). 2-DE gels were cut and the corresponding nitrocellulose membranes were treated with anti-NGAL Ab (A'), anti-MMP-2 Ab (B') and Anti-MMP-9 (4A3) Ab, recognizing the 65 kD and the 82 kD activated forms (C'); Gel C show the region with isoelectric point between pH 4-5.5 and molecular mass between 85 and 55 kD, analysed by Western blot in C', respectively. Image collected and cropped by CiteAb from the following publication (null), licensed under a CC-BY license.	
Western Blot: MMP-9 Antibody (4A3) [NBP2-13173] - 1-DZ analysis and identification of gelatinases by Western blot. 1.5 ul of serum from healthy control (HC) or from a patient with inactive RR-MS were loaded on a 7.5% polyacrylamide gel copolymerized with 0.1% (w/v) gelatin (1-DZ). For Western blot analysis, 2 ul of fivefold concentrated (Vivaspin 500, MWCO 50,000; GE Healthcare) serum samples (the same as in 1-DZ) were separated on a 7.5% polyacrylamide gel without gelatin (1-DE), transferred on nitrocellulose membranes and incubated with the following primary antibodies: Anti-NGAL Antibody (5G5) at concentration of 2.0 ug/ml; Anti-MMP-9 (Ab-8) Mouse mAb (IA5) at concentration of 2.66 ug/ml; Anti-MMP-2 (Ab-4) Mouse mAb (75-7F7) at concentration of 1.0 ug/ml and Anti-MMP-9 Ab (4A3) at concentration of 2.0 ug/ml. Image collected and cropped by CiteAb from the following publication (null), licensed under a CC-BY license.	

Immunohistochemistry-Paraffin: MMP-9 Antibody (4A3) [NBP2-13173] - Analysis of a FFPE tissue section of human esophageal cancer using MMP9 antibody (clone 4A3) at 1:200. The staining was developed with HRP-labelled secondary antibody and DAB reagent followed by hematoxylin counterstaining. This antibody generated a specific extracellular and cytoplasmic staining primarily in the cancer cells while the signal was pretty weak in the tumor stroma.	
Immunohistochemistry-Paraffin: MMP-9 Antibody (4A3) [NBP2-13173] - Analysis of a FFPE section of human esophageal cancer using MMP9 antibody (clone 4A3) at 1:200. The staining was developed with HRP-labelled secondary antibody and DAB reagent followed by hematoxylin counterstaining. This antibody clone generated an extracellular and cytoplasmic staining mainly in the cancer cells while the signal was very weak in the stromal cells of the tumor.	
Western Blot: MMP-9 Antibody (4A3) [NBP2-13173] - 2-DZ analysis & identification of MMP-9 by Western blot. Left panels (A & B): 2-D zymography (2-DZ) of serum samples from healthy control (A) & from an inactive RR-MS patient not subjected to therapy (same patient as in Fig. 2; B). For 2-DZ, aliquots of 35 µl of serum were resuspended in the rehydration solution & subjected to isoelectrofocusing (IEF; 1st dimension) on IPG Dry-Strips of 13 cm in a linear pH gradient of 4–7. After IEF, IPG strips were equilibrated & then applied for the 2nd dimension in a 8.5% (w/v) polyacrylamide gel copolymerized with 0.1% (w/v) gelatin. The isoforms & charge variants of MMP-2 & MMP-9 appear as clear spots of digestion on the dark background of the gel. Right panels (A' & B') represent Western blot analysis of the same sera shown in A & B. Aliquots of 35 µl of serum samples (instead of the usual 20 µl) were subjected to 2D electrophoresis (2-DE) by using 8.5% (w/v) polyacrylamide gels without gelatin. After transfer of the proteins, the nitrocellulose membranes were incubated with an anti MMP-9 (Ab-8) Mouse mAb (IA5) at concentration of 2.66 µg/ml. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/24616914), licensed under a CC-BY license. Not internally tested by Novus Biologicals.	

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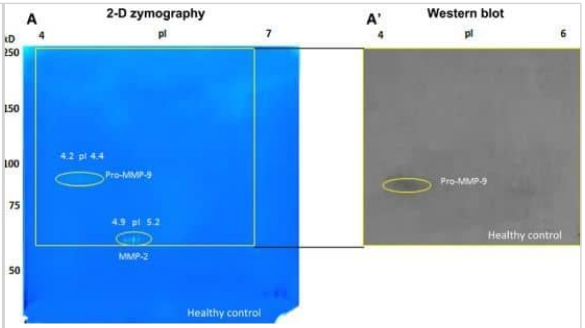
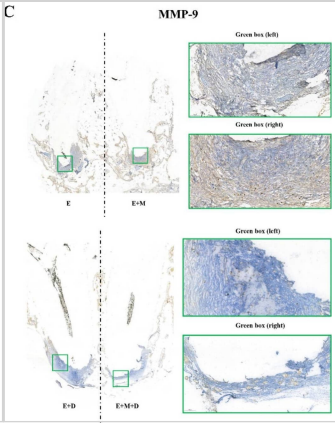


Histological and immunohistochemistry results of periapical lesions in each group. (A) Representative histopathological images in periapical areas after root canal filling; (B) The inflammation grade evaluation of periapical lesions (n = 10); (C) Representative immunohistochemistry (IHC) staining of MMP-9 in periapical areas after root canal filling. Green boxes indicate peripheral periodontal tissue; (D) Representative immunohistochemistry (IHC) staining of TNF-α in periapical areas after root canal filling. Green boxes indicate peripheral periodontal tissue. ns $p > 0.05$, not significant, * $p < 0.05$, ** $p < 0.01$. Image collected and cropped by CiteAb from the following open publication (https://pubmed.ncbi.nlm.nih.gov/36361925), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Publications

Damerell V, Ambele MA, Salisbury S et al. The c-Myc/TBX3 Axis Promotes Cellular Transformation of Sarcoma-Initiating Cells Frontiers in Oncology 2022-01-25 [PMID: 35145908] (Western Blot, Immunohistochemistry-Paraffin, Human)

X Chen, S Wang, W Xu, M Zhao, Y Zhang, H Xiao Metformin Directly Binds to MMP-9 to Improve Plaque Stability Journal of cardiovascular development and disease, 2023-01-30;10(2):. 2023-01-30 [PMID: 36826550] (Western Blot, Immunohistochemistry-Paraffin, Human)

Pambianchi E, Hagenberg Z, Pecorelli A et al. Tension as a key factor in skin responses to pollution Sci Rep 2023-09-25 [PMID: 37749125] (Western Blot, Immunohistochemistry-Paraffin, Human)

Hoskin R, Pambianchi E, Pecorelli A et al. Novel Spray Dried Algae-Rosemary Particles Attenuate Pollution-Induced Skin Damage Molecules 2021-06-22 [PMID: 34206295] (Western Blot, Immunohistochemistry-Paraffin, Human)

Sun DP, Huang HY, Chou CL et al. Punicalagin is cytotoxic to human colon cancer cells by modulating cell proliferation, apoptosis, and invasion Human & experimental toxicology 2023-11-07 [PMID: 37933160]

Francesca Ferrara, Xi Yan, Alessandra Pecorelli, Anna Guiotto, Sante Colella, Arianna Pasqui, John Ivarrson, Stephen Lynch, Sara Anderias, Hina Choundhary, Stacy White, Giuseppe Valacchi Combined exposure to UV and PM affect skin oxinflammatory responses and it is prevented by antioxidant mix topical application: Evidences from clinical study. Journal of cosmetic dermatology 2024-04-08 [PMID: 38590207]

Elisabetta Esposito, Francesca Ferrara, Markus Drechsler, Olga Bortolini, Daniele Ragno, Sofia Toldo, Agnese Bondi, Alessandra Pecorelli, Rebecca Voltan, Paola Secchiero, Giorgio Zauli, Giuseppe Valacchi, Ramón Cacabelos Nutlin-3 Loaded Ethosomes and Transethosomes to Prevent UV-Associated Skin Damage Life 2024-01-21 [PMID: 38276284]

Liu D, Wang T, Wang Q et al. Identification of key genes in sepsis-induced cardiomyopathy based on integrated bioinformatical analysis and experiments in vitro and in vivo PeerJ 2023-11-21 [PMID: 38025678] (WB, Mouse)

Abbaszadeh F, Jorjani M, Joghataei MT et al. Astaxanthin ameliorates spinal cord edema and astrocyte activation via suppression of HMGB1/TLR4/NF-?B signaling pathway in a rat model of spinal cord injury Naunyn-Schmiedeberg's archives of pharmacology 2023-05-05 [PMID: 37145127] (WB, Rat)

Esposito E, Ferrara F, Drechsler M et al. Nanovesicles for Nutlin-3 Transdermal Delivery to Prevent Skin Damage Available at SSRN 2023-05-15 (Immunohistochemistry-Paraffin, Human)

Details:
1:100 IHC-P

Najjar R Raspberry Polyphenols Target Molecular Pathways of Heart Failure Thesis 2023-01-01

Cheng Y, Li J, Zhang X et al. Protective Effect of Qingchang Wenzhong Decoction on Colitis and Colitis-Related Carcinogenesis by Regulating Inflammation and Intestinal Fibrosis Journal of inflammation research 2023-04-07 [PMID: 37056910] (IHC-P, Mouse)

More publications at http://www.novusbio.com/NBP2-13173

Procedures

Immunohistochemistry-Paraffin Protocol for MMP-9 Antibody (NBP2-13173)
Immunohistochemistry-Paraffin Embedded Sections

Antigen Unmasking:
Bring slides to a boil in 10 mM sodium citrate buffer (pH 6.0) then maintain at a sub-boiling temperature for 10 minutes. Cool slides on bench-top for 30 minutes (keep slides in the sodium citrate buffer at all times).

Staining:
1. Wash sections in deionized water three times for 5 minutes each.
2. Wash sections in PBS for 5 minutes.
3. Block each section with 100-400 ul blocking solution (1% BSA in PBS) for 1 hour at room temperature.
4. Remove blocking solution and add 100-400 ul diluted primary antibody. Incubate overnight at 4 C.
5. Remove antibody solution and wash sections in wash buffer three times for 5 minutes each.
6. Add 100-400 ul HRP polymer conjugated secondary antibody. Incubate 30 minutes at room temperature.
7. Wash sections three times in wash buffer for 5 minutes each.
8. Add 100-400 ul DAB substrate to each section and monitor staining closely.
9. As soon as the sections develop, immerse slides in deionized water.
10. Counterstain sections in hematoxylin.
11. Wash sections in deionized water two times for 5 minutes each.
12. Dehydrate sections.
13. Mount coverslips.

Western Blot Protocol for MMP-9 Antibody (NBP2-13173)
Western Blot Protocol

1. Perform SDS-PAGE on samples to be analyzed, loading 10-25 ug of total protein per lane.
2. Transfer proteins to PVDF membrane according to the instructions provided by the manufacturer of the membrane and transfer apparatus.
3. Stain the membrane with Ponceau S (or similar product) to assess transfer success, and mark molecular weight standards where appropriate.
4. Rinse the blot TBS -0.05% Tween 20 (TBST).
5. Block the membrane in 5% Non-fat milk in TBST (blocking buffer) for at least 1 hour.
6. Wash the membrane in TBST three times for 10 minutes each.
7. Dilute primary antibody in blocking buffer and incubate overnight at 4C with gentle rocking.
8. Wash the membrane in TBST three times for 10 minutes each.
9. Incubate the membrane in diluted HRP conjugated secondary antibody in blocking buffer (as per manufacturer's instructions) for 1 hour at room temperature.
10. Wash the blot in TBST three times for 10 minutes each (this step can be repeated as required to reduce background).
11. Apply the detection reagent of choice in accordance with the manufacturer's instructions.

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Products Related to NBP2-13173

NBP2-33376H	Blue Marker Antibody (6F4-F6) [HRP]
HAF007	Goat anti-Mouse IgG Secondary Antibody [HRP]
NB7539	Goat anti-Mouse IgG (H+L) Secondary Antibody [HRP]
NBP1-43319-0.5mg	Mouse IgG1 Kappa Isotype Control (P3.6.2.8.1)

Limitations
This product is for research use only and is not approved for use in humans or in clinical diagnosis. Primary Antibodies are guaranteed for 1 year from date of receipt.

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