

# Product Datasheet

## MMP-12 Antibody - BSA Free NBP1-31225

Unit Size: 100 ul

Aliquot and store at -20C or -80C. Avoid freeze-thaw cycles.

[www.novusbio.com](http://www.novusbio.com)



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Updated 9/25/2025 v.20.1

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**NBP1-31225**

MMP-12 Antibody - BSA Free

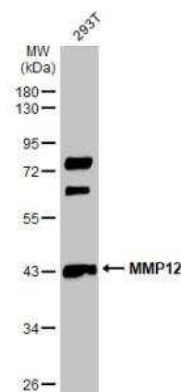
Product Information	
Unit Size	100 ul
Concentration	Concentrations vary lot to lot. See vial label for concentration. If unlisted please contact technical services.
Storage	Aliquot and store at -20C or -80C. Avoid freeze-thaw cycles.
Clonality	Polyclonal
Preservative	0.01% Thimerosal
Isotype	IgG
Purity	Antigen Affinity-purified
Buffer	0.1M Tris, 0.1M Glycine, 10% Glycerol
Target Molecular Weight	54 kDa

Product Description	
Description	Novus Biologicals Rabbit MMP-12 Antibody - BSA Free (NBP1-31225) is a polyclonal antibody validated for use in IHC, WB and ICC/IF. Anti-MMP-12 Antibody: Cited in 6 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
Host	Rabbit
Gene ID	4321
Gene Symbol	MMP12
Species	Human, Mouse, Rat
Reactivity Notes	Mouse reactivity reported from a verified customer review.
Immunogen	Carrier-protein conjugated synthetic peptide encompassing a sequence within the center region of human MMP12. The exact sequence is proprietary.

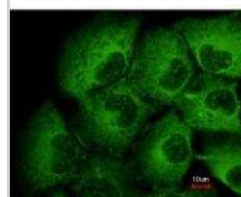
Product Application Details	
Applications	Western Blot, Immunohistochemistry-Paraffin, Immunocytochemistry/Immunofluorescence, Immunohistochemistry
Recommended Dilutions	Western Blot 1:500-1:3000, Immunohistochemistry 1:100-1:1000, Immunocytochemistry/ Immunofluorescence 1:100-1:1000, Immunohistochemistry-Paraffin 1:100-1:1000

**Images**

Western Blot: MMP-12 Antibody [NBP1-31225] - Whole cell extract (30 ug) was separated by 10% SDS-PAGE, and the membrane was blotted with MMP12 antibody [N3C1], Internal diluted at 1:1000. The HRP-conjugated anti-rabbit IgG antibody (NBP2-19301) was used to detect the primary antibody.



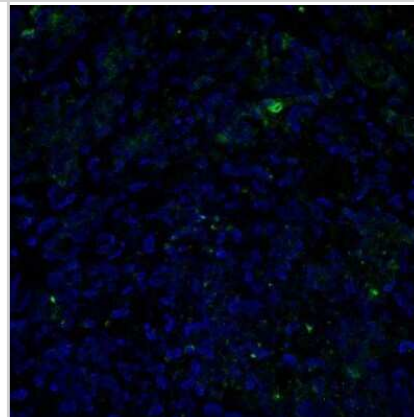
Immunocytochemistry/Immunofluorescence: MMP-12 Antibody [NBP1-31225] - Analysis of methanol-fixed H1299, using antibody at 1:500 dilution.



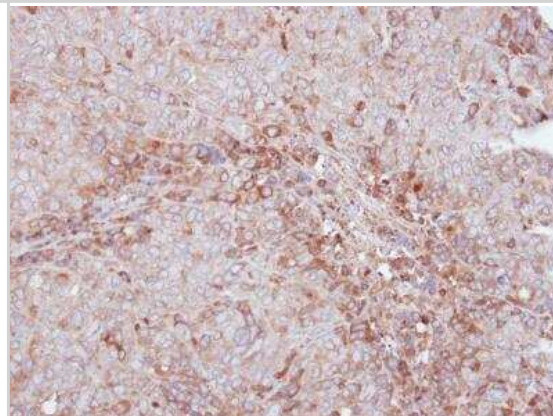
Costained with Hoechst 33342



Immunohistochemistry-Paraffin: MMP-12 Antibody [NBP1-31225] - Imaging of Human breast cancer tissue. MMP12 is stained by antibody (green) and nucleus is stained with DAPI (blue). Image submitted by a verified customer review.



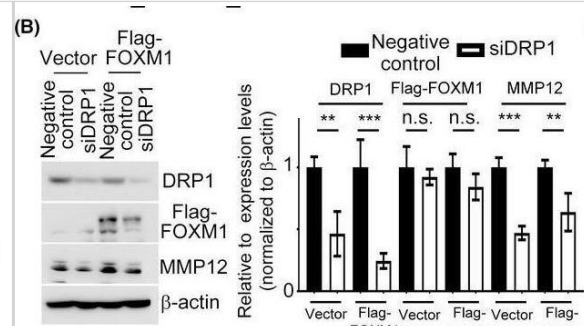
Immunohistochemistry-Paraffin: MMP-12 Antibody [NBP1-31225] - DLD1 xenograft, using MMP12 antibody at 1:500 dilution. Antigen Retrieval: Trilogy™ (EDTA based, pH 8.0) buffer, 15min.



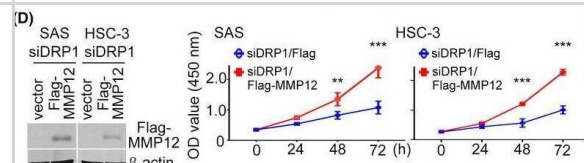
Immunohistochemistry-Paraffin: MMP-12 Antibody [NBP1-31225] - Human lung adenocarcinoma. MMP12 antibody [N3C1], Internal diluted at 1:500. Antigen Retrieval: Trilogy™ (EDTA based, pH 8.0) buffer, 15min.



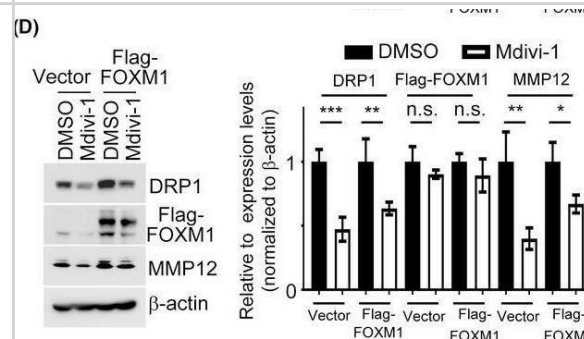
MMP12 expression is essential for DRP1/FOXM1 regulation in HNC cells. (A) The mRNA and protein expression levels of FOXM1 in siDRP1 cells were examined. Quantification of relative FOXM1 expression is shown. (B,C) Western blotting, QPCR and luciferase activity analysis of MMP12 were determined in SAS cells transfected with FOXM1 or vector control in combination with siDRP1 or negative control. Quantification of relative DRP1, Flag-FOXM1 and MMP12 expressions is shown. (D,E) Western blotting, QPCR and luciferase activity of MMP12 were analyzed in SAS cells transfected with FOXM1 or vector control in combination with Mdivi-1 treatment. Quantification of relative DRP1, Flag-FOXM1, and MMP12 expressions is shown. (F) IHC staining patterns of the HNC tumor tissues for DRP1, FOXM1 and MMP12. Scale bar: 100  $\mu$ m. All data presented as mean  $\pm$  SD of three independent experiments. Significance calculated using t-test. \*  $P < 0.05$ , \*\*  $P < 0.01$ , \*\*\*  $P < 0.001$ . Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/35313071>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



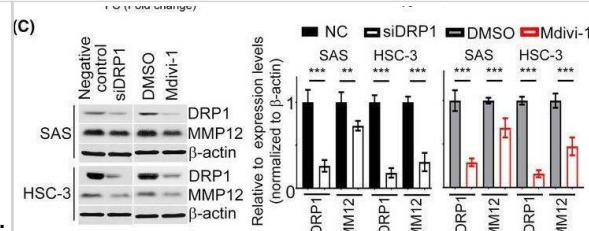
MMP12 is one of the targets of DRP1 in HNC cells. (A) Heatmap showing relative alteration of target genes belonging to EMT molecules using QPCR array analysis of SAS cell transfected with siDRP1 compared with the negative control. Red: upregulation; green: downregulation. (B) QPCR was analyzed to validate the expressions of target genes from (A). (C) Impact of DRP1 knockdown or Mdivi-1 on MMP12 protein expression were demonstrated in SAS and HSC-3 cells. Quantification of relative DRP1 and MMP12 expressions are shown. (D,E) Cell growth and motility were evaluated in DRP1-depleted cells transfected with MMP12 using MTT and Transwell assays. Quantification of relative Flag-MMP12 expression is shown. (F) Studies from GEPIA and Oncomine datasets present the increase of MMP12 mRNA in HNC samples. (G) A positive correlation between DRP1 mRNA and MMP12 mRNA was found in the Oncomine cohort (Peng database,  $n = 41$ ; Estil database,  $n = 31$ ). All data are presented as mean  $\pm$  SD of three independent experiments. Significance was calculated using t-test. In (D) (cell growth) and (F) (GEPIA), statistical analyses were performed using one-way ANOVA followed by Tukey's multiple comparison's test and Wilcoxon signed-rank test, respectively. \*  $P < 0.05$ , \*\*  $P < 0.01$ , \*\*\*  $P < 0.001$ . Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/35313071>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



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## Publications

Huang TL, Chang CR, Chien CY et al. DRP1 contributes to head and neck cancer progression and induces glycolysis through modulated FOXM1/MMP12 axis *Molecular Oncology* 2022-07-01 [PMID: 35313071] (Immunohistochemistry, Human)

Docs J, Kovacs G, Peterfi L. End-stage kidney disease: a never healing wound leading to another never healing wound, renal cancer *Journal of Nephrology* 2023-07-13 [PMID: 37439962] (Immunohistochemistry, Human)

Janos D VEgstadiumU vese: modell a progresszlv gyulladAsos mikrokOrnyezet Es tumorgenezis kapcsolatAra Thesis 2022-01-01

Beres B, Yusenko M, Peterfi L et al. Matrix metalloproteinase 12 is an independent prognostic factor predicting postoperative relapse of conventional renal cell carcinoma - a short report *Cellular oncology (Dordrecht)* 2021-12-11 [PMID: 34894337] (IF/IHC, Human)

Garrido-Martin EM, Mellows TWP, Clarke J et al. M1hot tumor-associated macrophages boost tissue-resident memory T cells infiltration and survival in human lung cancer *J Immunother Cancer* 2020-07-01 [PMID: 32699181]

Sarlos DP, Banyai D, Peterfi L et al. Embryonal Origin of Metanephric Adenoma and its Differential Diagnosis *Anticancer Res.* 2018-12-01 [PMID: 30504374] (IF/IHC, Human)

Damasdi M, Kovacs K, Farkas N et al. Down-regulation of Toll-like Receptor TLR4 Is Associated with HPV DNA Integration in Penile Carcinoma. *Anticancer Res.* 2017-10-01 [PMID: 28982864] (IF/IHC, Human)



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General: novus@novusbio.com

### **Products Related to NBP1-31225**

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NBP2-33376H	Blue Marker Antibody (6F4-F6) [HRP]
HAF008	Goat anti-Rabbit IgG Secondary Antibody [HRP]
NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

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### **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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