Product Datasheet

BMP-2 Antibody - BSA Free

NBP1-19751

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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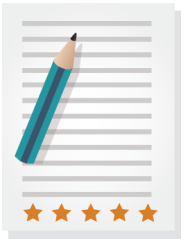
Updated 10/23/2024 v.20.1



NBP1-19751

BMP-2 Antibody - BSA Free

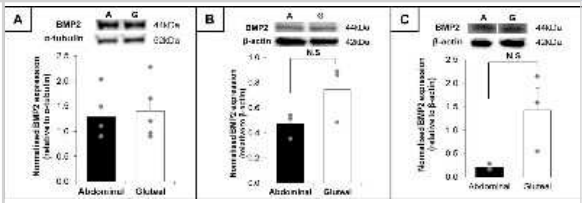
Product Information	
Unit Size	0.1 ml
Concentration	1 mg/ml
Storage	Store at 4C short term. Aliquot and store at -20C long term. Avoid freeze-thaw cycles.
Clonality	Polyclonal
Preservative	0.05% Sodium Azide
Isotype	IgG
Purity	Immunogen affinity purified
Buffer	PBS (pH 7.4)
Target Molecular Weight	44 kDa

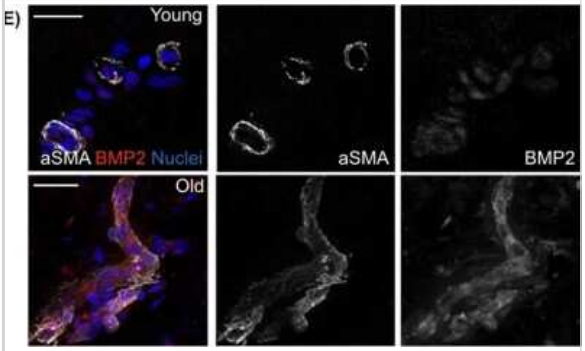
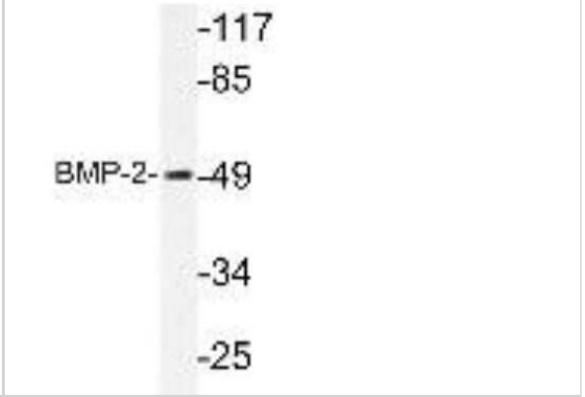
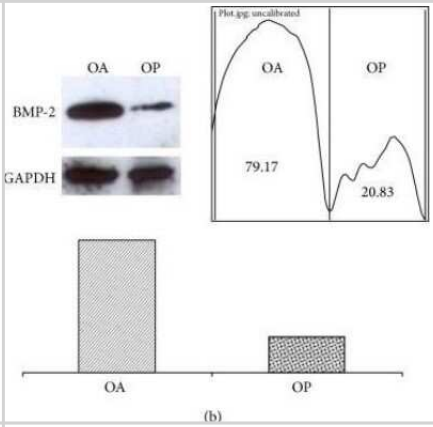
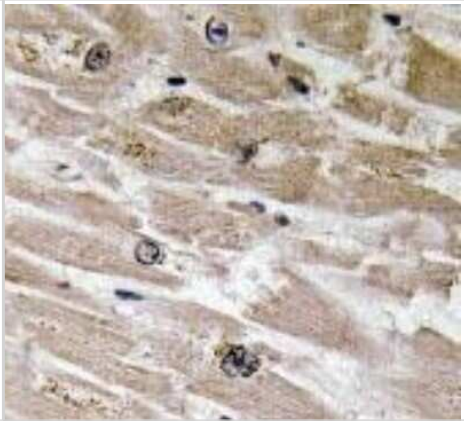
Product Description	
Host	Rabbit
Gene ID	650
Gene Symbol	BMP2
Species	Human, Mouse, Rat, Canine
Reactivity Notes	Use in Canine reported in scientific literature (PMID:34311726)
Immunogen	A synthetic peptide made to an internal region of human BMP2 (within residues 250-350) [Swiss-Prot# P12643]

Product Application Details	
Applications	Western Blot, Immunocytochemistry/ Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Paraffin
Recommended Dilutions	Western Blot 0.5 ug/ml, Immunohistochemistry 1:50-1:200, Immunocytochemistry/ Immunofluorescence reported in scientific literature (PMID 30700748), Immunohistochemistry-Paraffin 1:50-1:200
Application Notes	In Western Blot, a band is seen ~44 kDa. Prior to immunostaining paraffin tissues, antigen retrieval with sodium citrate buffer (pH 6.0) is recommended.

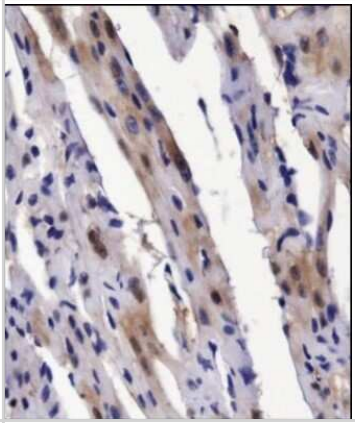
Images

Western Blot: BMP-2 Antibody - BSA Free [NBP1-19751] - Western blots and summary graphs of BMP2 and alpha-tubulin expression in abdominal (A; black) and gluteal (G; white) AT (A; n = 5 women; 37-44 years, BMI 24.1-27.1 kg/m2), and BMP2 and beta-actin expression in proliferating (b) and differentiated (c) immortalised preadipocytes (n = 3). Relative protein expression data presented as mean +/- SEM with individual data points overlaid (grey dots); data analysed by paired t-test. Image collected and cropped by CiteAb from the following publication (//pubmed.ncbi.nlm.nih.gov/31324879/) licensed under a CC-BY license.

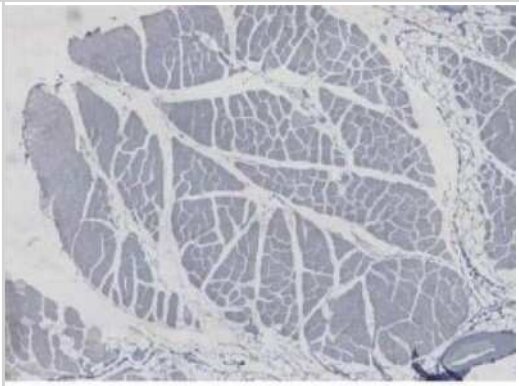


Immunohistochemistry: BMP-2 Antibody - BSA Free [NBP1-19751] - Vascular cells reprogrammed from young vs. old donors show gene expression and functional differences. Representative images of BMP2 from skin biopsies obtained from young vs. old donors. Scale bars: 50 um. Image collected and cropped by CiteAb from the following publication (//pubmed.ncbi.nlm.nih.gov/32896271/) licensed under a CC-BY license.	
Western Blot: BMP-2 Antibody - BSA Free [NBP1-19751] - Extracts from HUVEC cells.	
Western Blot: BMP-2 Antibody - BSA Free [NBP1-19751] - Protein expression analysis. Immunostaining for BMP-2, myostatin, and CD44 was evaluated by counting the number of positive fibers/cells on 25-high power field (HPF), whereas western blot for BMP-2 was evaluated by lines densitometry. Western blot lines show a higher expression of BMP-2 in OA patients compared to OP group. Image collected and cropped by CiteAb from the following publication (https://www.hindawi.com/journals/sci/2015/469459/), licensed under a CC-BY license.	
Immunohistochemistry-Paraffin: BMP-2 Antibody - BSA Free [NBP1-19751] - Paraffin-embedded human heart tissue.	

Immunohistochemistry: BMP-2 Antibody - BSA Free [NBP1-19751] - Analysis of BMP2 in mouse heart using DAB with hematoxylin counterstain.

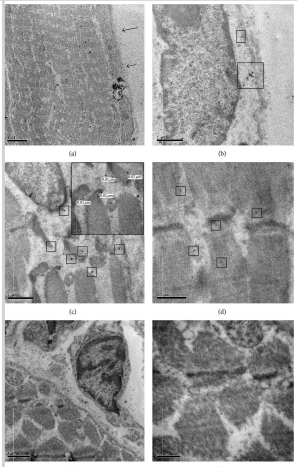


Immunohistochemistry-Paraffin: BMP-2 Antibody - BSA Free [NBP1-19751] - Molecular analysis of BMP-2 expression. In order to verify the correlation between BMP-2 and satellite cells activity we performed both western blot and immune-gold analysis. In muscle biopsies of OA patients we found several large satellite cells syncytium (arrows). High magnifications show immunolabeling for BMP-2 in perinuclear areas (squares) (40.000x). Image collected and cropped by CiteAb from the following publication (https://www.hindawi.com/journals/sci/2015/469459/), licensed under a CC-BY license.

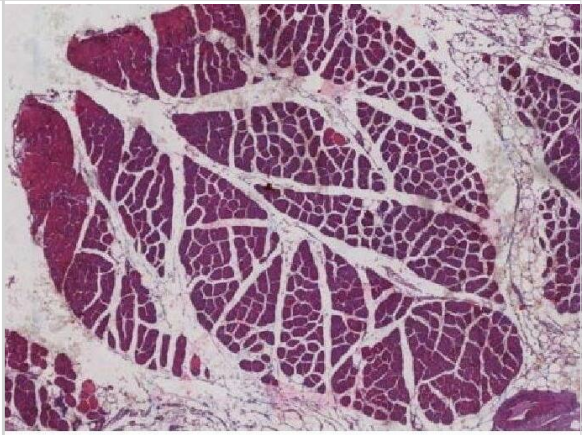


(d)

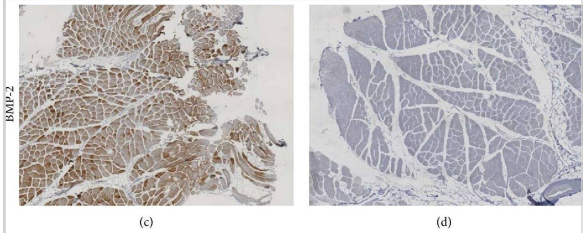
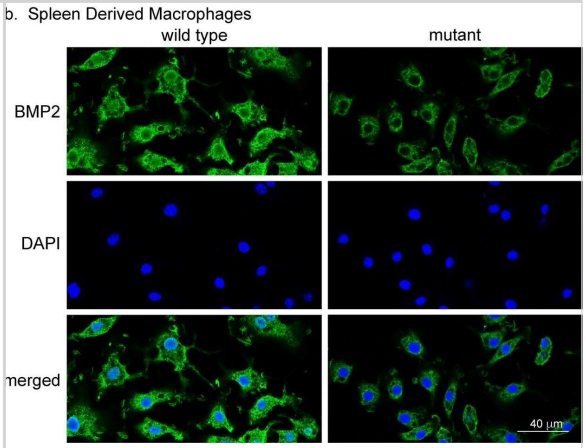
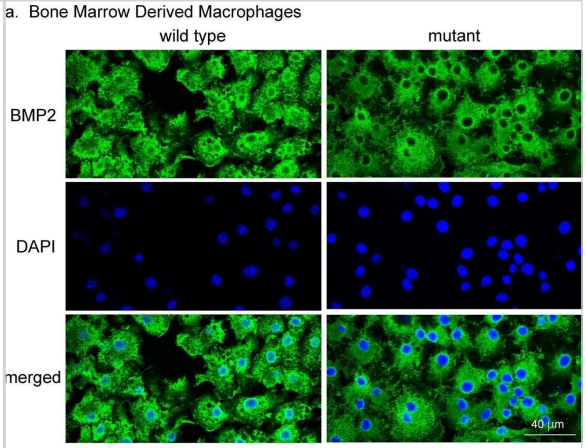
Immunohistochemistry: BMP-2 Antibody - BSA Free [NBP1-19751] - Molecular analysis of BMP-2 expression. In order to verify the correlation between BMP-2 & satellite cells activity we performed both western blot & immune-gold analysis. In muscle biopsies of OA patients we found several large satellite cells syncytium (arrows) (a). High magnifications show immunolabeling for BMP-2 in perinuclear areas (squares) (40.000x) (b). BMP-2 molecules were expressed in the satellite cells syncytium cytoplasm (squares) & next to mitochondria (insert) (40.000 & 60.000x) (c). Numerous BMP-2 molecules were found in the fiber body (40.000x) (d). OP patients do not express BMP-2 in satellite cells (10.000x & 40.000x) ((e)-(f)). Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/26101529), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



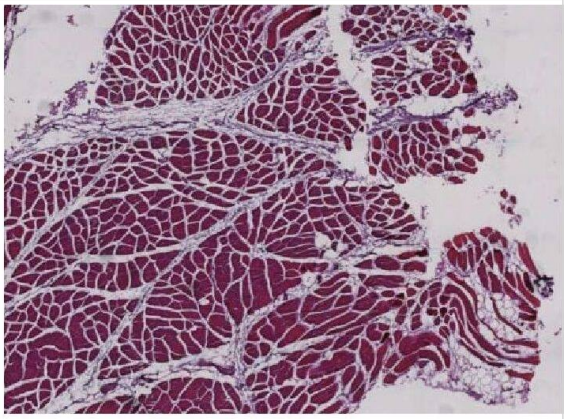
Immunohistochemistry-Paraffin: BMP-2 Antibody - BSA Free [NBP1-19751] - BMP-2 & satellite stem cells in muscle regenerations. ((a)-(b)) Hematoxylin & eosin sections of muscle biopsies showed a significant increase of fat tissue in OA (a) as compared to OP patients (b) (40x). (c) Image showed numerous BMP-2 positive fibers (40x). Often, in OP patients we did not observed BMP-2 expression (40x) (d). The Immunohistochemistry for myostatin was negative in OA muscle tissue (40x) (e). Muscle biopsies of OP group showed high/moderate expression of myostatin (40x) (f) inversely related to BMP-2 immunostain. Groups of satellite cells CD44 positive were focally dispersed in the tissue (200x) of OA patients (g) higher than that observed in OP patients (200x) (h). Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/26101529), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



(b)

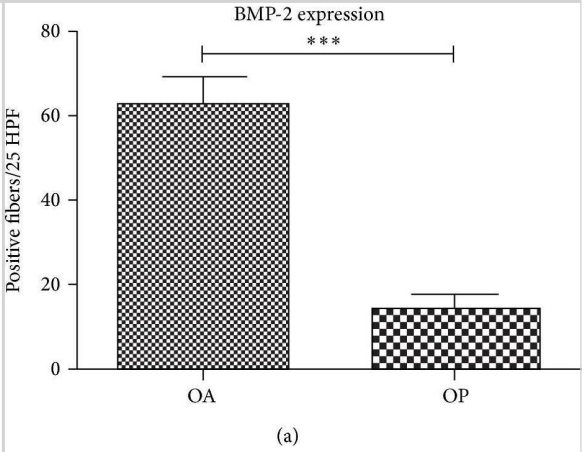
Immunohistochemistry: BMP-2 Antibody - BSA Free [NBP1-19751] - BMP-2 & satellite stem cells in muscle regenerations. ((a)-(b)) Hematoxylin & eosin sections of muscle biopsies showed a significant increase of fat tissue in OA (a) as compared to OP patients (b) (40x). (c) Image showed numerous BMP-2 positive fibers (40x). Often, in OP patients we did not observed BMP-2 expression (40x) (d). The Immunohistochemistry for myostatin was negative in OA muscle tissue (40x) (e). Muscle biopsies of OP group showed high/moderate expression of myostatin (40x) (f) inversely related to BMP-2 immunostain. Groups of satellite cells CD44 positive were focally dispersed in the tissue (200x) of OA patients (g) higher than that observed in OP patients (200x) (h). Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/26101529), licensed under a CC-BY license. Not internally tested by Novus Biologicals.	
Immunocytochemistry/ Immunofluorescence: BMP-2 Antibody - BSA Free [NBP1-19751] - BMD macrophages & splenic macrophages express nBMP2, which is decreased in the nuclei of nBmp2NLStm mutant macrophages. (a) BMD macrophages & (b) splenic macrophages were stained with anti-BMP2 antibody (green) & counterstained with DAPI (blue), demonstrating that nBMP2 is expressed & localized to the nucleus in wild type macrophages, & that nuclear translocation of nBMP2 is inhibited in mutant macrophages. BMP2 labeling within the cytoplasm is present in both wild type & mutant cells as expected, because the targeted mutation allows translation of nBMP2 in the cytoplasm but inhibits nuclear translocation, & it allows normal synthesis & secretion of conventional BMP2. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/30700748), licensed under a CC-BY license. Not internally tested by Novus Biologicals.	
Immunocytochemistry/ Immunofluorescence: BMP-2 Antibody - BSA Free [NBP1-19751] - BMD macrophages & splenic macrophages express nBMP2, which is decreased in the nuclei of nBmp2NLStm mutant macrophages. (a) BMD macrophages & (b) splenic macrophages were stained with anti-BMP2 antibody (green) & counterstained with DAPI (blue), demonstrating that nBMP2 is expressed & localized to the nucleus in wild type macrophages, & that nuclear translocation of nBMP2 is inhibited in mutant macrophages. BMP2 labeling within the cytoplasm is present in both wild type & mutant cells as expected, because the targeted mutation allows translation of nBMP2 in the cytoplasm but inhibits nuclear translocation, & it allows normal synthesis & secretion of conventional BMP2. Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/30700748), licensed under a CC-BY license. Not internally tested by Novus Biologicals.	

Immunohistochemistry-Paraffin: BMP-2 Antibody - BSA Free [NBP1-19751] - BMP-2 & satellite stem cells in muscle regenerations. ((a)-(b)) Hematoxylin & eosin sections of muscle biopsies showed a significant increase of fat tissue in OA (a) as compared to OP patients (b) (40x). (c) Image showed numerous BMP-2 positive fibers (40x). Often, in OP patients we did not observed BMP-2 expression (40x) (d). The Immunohistochemistry for myostatin was negative in OA muscle tissue (40x) (e). Muscle biopsies of OP group showed high/moderate expression of myostatin (40x) (f) inversely related to BMP-2 immunostain. Groups of satellite cells CD44 positive were focally dispersed in the tissue (200x) of OA patients (g) higher than that observed in OP patients (200x) (h). Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/26101529), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



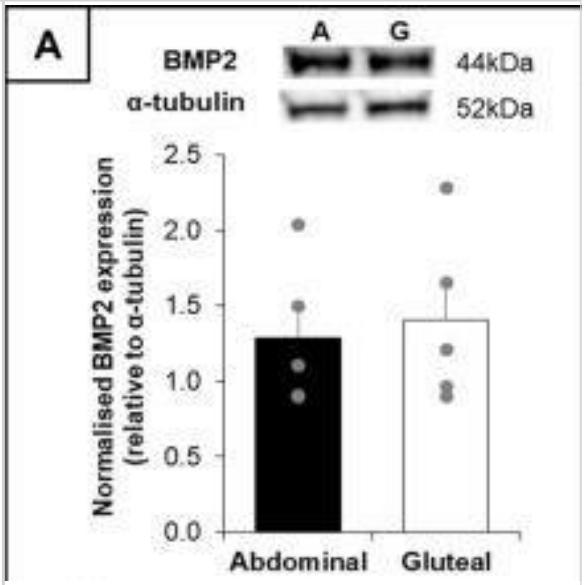
(a)

Western Blot: BMP-2 Antibody - BSA Free [NBP1-19751] - Protein expression analysis. Immunostaining for BMP-2, myostatin, & CD44 was evaluated by counting the number of positive fibers/cells on 25-high power field (HPF), whereas western blot for BMP-2 was evaluated by lines densitometry. (a) Notably, we found that OA muscle biopsies showed a significantly higher number of BMP-2-positive fibers (293.0 ± 35.4) as compared with muscle of OP patients (162.1 ± 33.7) ($p < 0.0001$). (b) Western blot lines show a higher expression of BMP-2 in OA patients compared to OP group. (c) The number of myostatin positive fibers in OP patients was significantly higher compared to OA group ($p < 0.0200$). (d) CD44 expression shows a significantly different rate of CD44 positive cells in OA group as compared with OP ($p < 0.0020$). Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/26101529), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



(a)

Western Blot: BMP-2 Antibody - BSA Free [NBP1-19751] - BMP2 is a paracrine factor in WAT & regulates adipogenic differentiation in a depot-specific manner. a, b, c Western blots & summary graphs of BMP2 & α-tubulin expression in abdominal (A; black) & gluteal (G; white) AT (A; n = 5 women; 37–44 years, BMI 24.1–27.1 kg/m2), & BMP2 & β-actin expression in proliferating (b) & differentiated (c) immortalised preadipocytes (n = 3). Relative protein expression data presented as mean ± SEM with individual data points overlaid (grey dots); data analysed by paired t-test. dBMP2 mRNA expression in primary abdominal (solid line) & gluteal (dashed line) preadipocytes during 3 days of proliferation (P) followed by 14 days of differentiation (d) (n = 8; 4 men, 4 women; age 32–44 years, BMI 20.5–26 kg/m2). mRNA expression normalised to PPIA. Data analysed by repeated measures ANOVA. e, f, g, h Proliferation analysis (e) in immortalised preadipocytes after 48 h culture in growth medium supplemented with BMP2 (n = 4). Triacylglycerol (TAG) accumulation (f) & PPARG2 (g) & ADIPOQ (h) mRNA expression in immortalised abdominal (black) & gluteal (white) preadipocytes after 14 day culture in BMP2-supplemented adipogenic medium (n = 3). mRNA expression normalised to 18 s. All data presented as mean fold change relative to vehicle ± SEM with individual data points overlaid (grey dots). Data analysed by ANOVA with Bonferroni post-hoc test (e, f, g, h); *p < 0.05, **p < 0.01, ***p < 0.001, compared to same depot vehicle; ‡p < 0.001, compared to same depot 5 ng/ml treatment Image collected & cropped by CiteAb from the following publication (https://pubmed.ncbi.nlm.nih.gov/31324879), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



Publications

David Ngai, Marsel Lino, Katheryn E. Rothenberg, Craig A. Simmons, Rodrigo Fernandez-Gonzalez, Michelle P. Bendeck DDR1 (Discoidin Domain Receptor-1)-RhoA (Ras Homolog Family Member A) Axis Senses Matrix Stiffness to Promote Vascular Calcification Arteriosclerosis, Thrombosis, and Vascular Biology 2020-06-04 [PMID: 32493168]

Li J, Yao H, Zhao F et al. Pycard deficiency inhibits microRNA maturation and prevents neointima formation by promoting chaperone-mediated autophagic degradation of AGO2/argonaute 2 in adipose tissue Autophagy 2023-11-14 [PMID: 37963060]

Details:
IHC-P Dilution 1:300; IP Dilution: 1?µg of antibody was added to 500?µg of cell lysate and incubated overnight at 4°C, and then incubated with protein A agarose beads for 4?h

Shirazi S, Huang CC, Kang M et al. Evaluation of nanoscale versus hybrid micro/nano surface topographies for endosseous implants Acta biomaterialia 2023-10-31 [PMID: 37918471] (ICC/IF, Mouse)

Liu J, Liu C, Qian C et al. Ginkgo Biloba Extract EGB761 Alleviates Warfarin-induced Aortic Valve Calcification Through the BMP2/Smad1/5/Runx2 Signaling Pathway Journal of Cardiovascular Pharmacology 2021-09-01 [PMID: 34132687]

Shirazi S Mesenchymal Stem Cell and Immune Cell Modulation by Nano-Scale Surface Topography of Dental Implants Thesis 2023-01-01 (WB, Mouse)

Li X, Zhou Q, Wu Y Et al. Enhanced bone regenerative properties of calcium phosphate ceramic granules in rabbit posterolateral spinal fusion through a reduction of grain size Bioact Mater 2021-12-23 [PMID: 34938915]

Zhang M, Li T, Tu Z et al. Both high glucose and phosphate overload promote senescence-associated calcification of vascular muscle cells International urology and nephrology [PMID: 35396645]

Mulangala J, Akers EJ, Solly EL et al. Pro-Calcific Environment Impairs Ischaemia-Driven Angiogenesis International journal of molecular sciences 2022-03-20 [PMID: 35328786] (WB, Human)

Eisa NH, Sudharsan PT, Herrero SM Et al. Age-associated changes in microRNAs affect the differentiation potential of human mesenchymal stem cells: Novel role of miR-29b-1-5p expression Bone 2021-08-14 [PMID: 34403754] (WB, Human)

Meurs KM, Montgomery K, Friedenberg SG et al. A defect in the NOG gene increases susceptibility to spontaneous superficial chronic corneal epithelial defects (SCCED) in boxer dogs BMC veterinary research 2021-07-26 [PMID: 34311726] (IHC-P)

Ngai D The Role of the Discoidin Domain Receptor-1 (DDR1) in Vascular Smooth Muscle Cell (VSMC) Mechanosensing Thesis 2021-01-01 (WB)

Ngai D The Role of the Discoidin Domain Receptor-1 (DDR1) in Vascular Smooth Muscle Cell (VSMC) Mechanosensing Thesis Jan 1 2021 12:00AM (WB)

More publications at http://www.novusbio.com/NBP1-19751

Procedures

Western Blot protocol specific for BMP2 antibody (NBP1-19751)

Western Blot Protocol

1. Perform SDS-PAGE on samples to be analyzed, loading 40 ug of total protein per lane.
2. Transfer proteins to membrane according to the instructions provided by the manufacturer of the membrane and transfer apparatus.
3. Stain according to standard Ponceau S procedure (or similar product) to assess transfer success, and mark molecular weight standards where appropriate.
4. Rinse the blot.
5. Block the membrane using standard blocking buffer for at least 1 hour.
6. Wash the membrane in wash buffer three times for 10 minutes each.
7. Dilute primary antibody in blocking buffer and incubate 1 hour at room temperature.
8. Wash the membrane in wash buffer three times for 10 minutes each.
9. Apply the diluted HRP conjugated secondary antibody in blocking buffer (as per manufacturers instructions) and incubate 1 hour at room temperature.
10. Wash the blot in wash buffer 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 manufacturers instructions.

**Note: Tween-20 can be added to the blocking or antibody dilution buffer at a final concentration of 0.05-0.2%.

Immunohistochemistry-Paraffin protocol for BMP-2 Antibody (NBP1-19751)
G
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.

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

Novus Biologicals USA
10730 E. Briarwood Avenue
Centennial, CO 80112
USA
Phone: 303.730.1950
Toll Free: 1.888.506.6887
Fax: 303.730.1966
nb-customerservice@bio-techne.com

Bio-Techne Canada
21 Canmotor Ave
Toronto, ON M8Z 4E6
Canada
Phone: 905.827.6400
Toll Free: 855.668.8722
Fax: 905.827.6402
canada.inquires@bio-techne.com

Bio-Techne Ltd
19 Barton Lane
Abingdon Science Park
Abingdon, OX14 3NB, United Kingdom
Phone: (44) (0) 1235 529449
Free Phone: 0800 37 34 15
Fax: (44) (0) 1235 533420
info.EMEA@bio-techne.com

General Contact Information
www.novusbio.com
Technical Support: nb-technical@bio-techne.com
Orders: nb-customerservice@bio-techne.com
General: novus@novusbio.com

Products Related to NBP1-19751

NB800-PC1	HeLa Whole Cell Lysate
HAF008	Goat anti-Rabbit IgG Secondary Antibody [HRP]
NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

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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