abcam

# ab124715

# Anti-BMP4 antibody [EPR6211]

Recombinant | RabMAb | 20ul selling size

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Clone number** | EPR6211 |
| **Purification technique** | Affinity purification Protein A |
| **Dissociation constant** | 1.94 x $10^{-10}$ M |
| **Concentration** | 0.945 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/400 |
| **Notes** | **For unpurified use at 1/100 - 1/250.** |

| | |
|---|---|
| | Perform heat-mediated antigen retrieval before commencing with IHC staining protocol. |

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/10 - 1/100 |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/10000 - 1/50000 |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | **For unpurified use at 1/50 - 1/100.** |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/100 - 1/500 |
| **Notes** | ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

# Target data

See full target information BMP4

| | |
|---|---|
| **Function** | Growth factor of the TGF-beta superfamily that plays essential roles in many developmental processes, including neurogenesis, vascular development, angiogenesis and osteogenesis (PubMed:31363885). Acts in concert with PTHLH/PTHRP to stimulate ductal outgrowth during embryonic mammary development and to inhibit hair follicle induction (By similarity). Initiates the canonical BMP signaling cascade by associating with type I receptor BMPR1A and type II receptor BMPR2 (PubMed:25868050, PubMed:8006002). Once all three components are bound together in a complex at the cell surface, BMPR2 phosphorylates and activates BMPR1A. In turn, BMPR1A propagates signal by phosphorylating SMAD1/5/8 that travel to the nucleus and act as activators and repressors of transcription of target genes (PubMed:25868050, PubMed:29212066). Positively regulates the expression of odontogenic development regulator MSX1 via inducing the IPO7-mediated import of SMAD1 to the nucleus (By similarity). Required for MSX1-mediated mesenchymal molar tooth bud development beyond the bud stage, via promoting Wnt signaling (By similarity). Acts as a positive regulator of odontoblast differentiation during mesenchymal tooth germ formation, expression is repressed during the bell stage by MSX1-mediated inhibition of CTNNB1 signaling (By similarity). Able to induce its own expression in dental mesenchymal cells and also in the neighboring dental epithelial cells via an MSX1-mediated pathway (By similarity). Can also signal through non-canonical BMP pathways such as ERK/MAP kinase, PI3K/Akt, or SRC cascades (PubMed:31363885). For example, induces SRC phosphorylation which, in turn, activates VEGFR2, leading to an angiogenic response (PubMed:31363885). |

## Storage

| | |
|---|---|
| **Shipped at conditions** | Conditional Ambient |
| **Appropriate short-term storage duration** | 1-2 weeks |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | -20°C |
| **Aliquoting information** | Upon delivery aliquot |
| **Storage information** | Avoid freeze / thaw cycle |

## Notes

**Species reactivity**
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

**Patented technology**
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

## Product promise

**Tested**

We have tested this species and application combination and it works. It is covered by our product promise.

**Expected**

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

**Predicted**

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

**Not recommended**

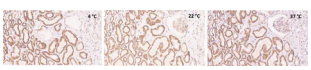
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

## 11 product images

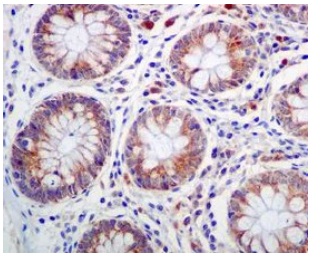


### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human kidney tissue using rabbit Anti-BMP4 antibody

The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Paraffin embedded human kidney tissue slides were dewaxed, followed by heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, Epitope Retrieval ER2 Solution) for 20 mins. Endogenous peroxidase activity was blocked with 3% H2O2 for 10 mins. The sections were then incubated with ab124715 (1/400) at room temperature for 30 mins, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). The sections were counterstained with Hematoxylin. The images were taken with a Leica Aperio AT2.

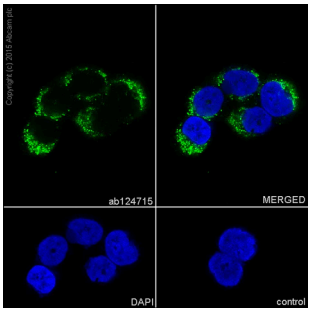
ab124715 was stored at a range of temperatures (+4°C, +22°C, +37°C) for 1 week before being tested in IHC-P. The image shows the staining intensity remains relatively constant across all storage temperatures, demonstrating that antibody activity is not affected under these conditions. This data was generated as part of a structured antibody stability study supporting Abcam’s transition from cold chain to ambient shipping.



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-BMP4 antibody

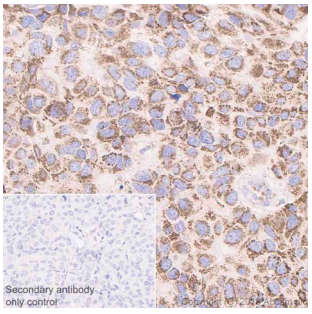
Unpurified ab124715 at 1/100 staining BMP4 in paraffin embedded Human colon tissue by Immunohistochemistry.
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.




## Immunocytochemistry/ Immunofluorescence - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-BMP4 antibody

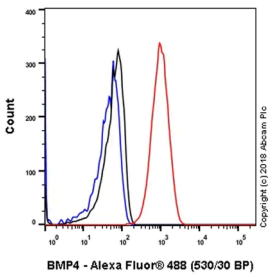
Immunocytochemistry/Immunofluorescence analysis of A549 (human lung carcinoma) cells labelling BMP4 with purified ab124715 at 1/500. Cells were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077 Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. Nuclei were counterstained with DAPI (blue). Secondary Only Control: PBS was used instead of the primary antibody as the negative control.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-BMP4 antibody

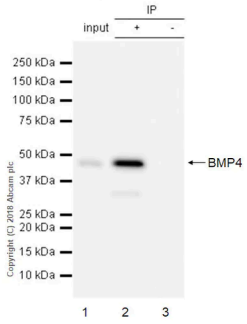
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human breast cancer tissue sections labeling BMP4 with Purified ab124715 at 1:400 dilution (2.44 µg/ml). Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use)was used as the secondary antibody.Negative control:PBS instead of the primary antibody.Hematoxylin was used as a counterstain.




## Flow Cytometry (Intracellular) - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Flow Cytometry (Intracellular) staining using rabbit Anti-BMP4 antibody

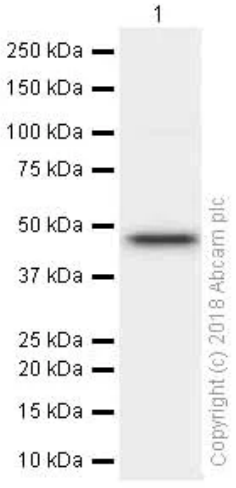
Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling BMP4 with purified ab124715 at 1/120 dilution (10 µg/ml) (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluor® 488) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).




## Immunoprecipitation - Anti-BMP4 antibody [EPR6211] (ab124715)

ab124715 (purified) at 1:60 dilution (2µg) immunoprecipitating BMP4 in A549 whole cell lysate.
Lane 1 (input): A549 (Human lung carcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab124715 & A549 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab124715 in A549 whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-BMP4 antibody [EPR6211] (ab124715)

Predicted band size: 47 kDa




## Western blot - Anti-BMP4 antibody [EPR6211] (ab124715)

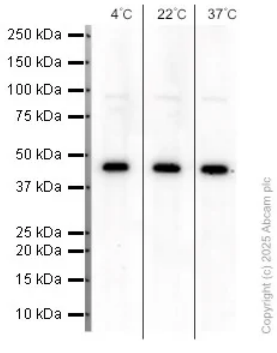
Blocking and diluting buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-BMP4 antibody [EPR6211] (ab124715) at 0.05 µg/mL

All lanes:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 47 kDa




## Western blot - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Western blot staining of HeLa whole cell lysate using rabbit Anti-BMP4 antibody

This blot was produced using 4-20% SDS-PAGE containing 15 µg of HeLa whole cell lysate per lane at 150V for 1hr before being transferred onto a 0.45 µm PVDF membrane at 75V for 1hr. The membrane was then blocked for 1hr using 5% NFDM/TBST, then incubated with ab124715 (1/20,000) at room temperature for 1hr. After being washed three times in TBST, the membrane was incubated with Peroxidase conjugated goat anti-rabbit IgG (H+L) (ab97051) at 1/20,000 dilution for 1hr at room temperature. The membrane was washed three times again. Then the signal was developed using the ECL technique.

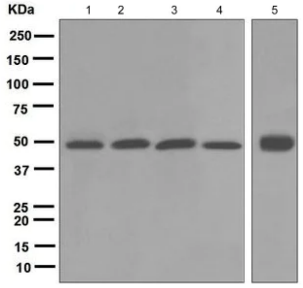
ab124715 was stored at a range of temperatures (+4°C, +22°C, +37°C) for 1 week before being tested in WB. The image shows the band intensity remains relatively constant across all storage temperatures, demonstrating that antibody activity is not affected under these conditions. This data was generated as part of a structured antibody stability study supporting Abcam’ s transition from cold⊠chain to ambient shipping.
All lanes:
Western blot - Anti-BMP4 antibody [EPR6211] (ab124715) at 1/20000 dilution

All lanes:
HeLa whole cell lysate at 15 µg with NDFM/TBST

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Exposure time: 40s




## Western blot - Anti-BMP4 antibody [EPR6211] (ab124715)

All lanes:
Western blot - Anti-BMP4 antibody [EPR6211] (ab124715) at 1/10000 dilution

Lane 1:
Human fetal liver lysate at 10 µg

Lane 2:
A549 lysate at 10 µg

Lane 3:
HeLa lysate at 10 µg

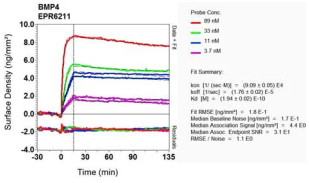
Lane 4:
A431 lysate at 10 µg

Lane 5:
Human heart lysate at 10 µg

Secondary

All lanes:
HRP labelled goat anti-rabbit at 1/2000 dilution

Predicted band size: 47 kDa




## OI-RD Scanning - Anti-BMP4 antibody [EPR6211] (ab124715)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

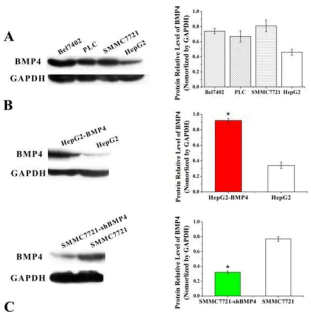



Image collected and cropped by CiteAb under a CC-BY license from the publication

# Western blot - Anti-BMP4 antibody [EPR6211] (ab124715)

BMP4 Western blot staining using rabbit Anti-BMP4 antibody

BMP4 western blot using anti-BMP4 antibody [EPR6211] ab124715. Publication image and figure legend from Li, X., Sun, B., et al., 2020, J Cancer, PubMed 32201526.

ab124715 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab124715 please see the product overview.

(A) The expression of BMP4 in four HCC cell types was evaluated according to western blot analysis. (B, C) BMP4 protein level was up-regulated in BMP4-overexpressing HepG2 cells; the up-regulation efficiency was validated through western blot and immunofluorescence. BMP4 was knocked down in SMMC7721 cells using shRNA interference; the down-regulation efficiency was also validated through western blot and immunofluorescence. Green: target protein; blue: DAPI-stained nuclear DNA. *p<0.05, scale bar=50μm.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.