abcam

ab226090

Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR6599
Purification technique	Affinity purification Protein A
Dissociation constant	3.9 x 10^{-12} M
Concentration	0.994 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse

Dilution info	-
Notes	Heat up to 98°C, below boiling, and then let cool for 10-20 min.

Species	Rat
Dilution info	-
Notes	Heat up to 98°C, below boiling, and then let cool for 10-20 min.

Species	Human
Dilution info	-
Notes	Heat up to 98°C, below boiling, and then let cool for 10-20 min.

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information IGF2R

Function	Mediates the transport of phosphorylated lysosomal enzymes from the Golgi complex and the cell surface to lysosomes (PubMed:18817523, PubMed:2963003). Lysosomal enzymes bearing phosphomannosyl residues bind specifically to mannose-6-phosphate receptors in the Golgi apparatus and the resulting receptor-ligand complex is transported to an acidic prelysosomal compartment where the low pH mediates the dissociation of the complex (PubMed:18817523, PubMed:2963003). The receptor is then recycled back to the Golgi for another round of trafficking through its binding to the retromer (PubMed:18817523). This receptor also binds IGF2 (PubMed:18046459). Acts as a positive regulator of T-cell coactivation by binding DPP4 (PubMed:10900005).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab226090 is the carrier-free version of ab124767.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The cation-independent mannose 6-phosphate receptor (M6PR) is an important player in cellular transport mechanisms. Also known as the insulin-like growth factor 2 receptor (IGF2R) this protein weighs approximately 300 kDa. M6PR is present on the membrane of lysosomes and works as a lysosome membrane marker. It functions as a sorting receptor in the Golgi apparatus and endosomes facilitating the transport of lysosomal enzymes from the Golgi to lysosomes and back for function and degradation.
Biological function summary	The M6PR enables essential cellular processes by mediating the trafficking of enzymes important to lysosomal function. This receptor takes part in recognizing and binding proteins tagged with mannose 6-phosphate signals allowing their transport to lysosomes. IGF2R engages in forming transient complexes with these enzymes within the cellular trafficking circuitry therefore ensuring the proper delivery of enzyme cargo to its target destination.
Pathways	M6PR fits importantly within lysosomal enzyme transport and the insulin-like growth factor (IGF) pathway. It partially regulates the homeostasis of IGF2 by facilitating its degradation modulating cell proliferation growth and development. Steric interactions with IGF2 and other proteins like mannose receptor homologs and IGF-binding proteins outline its influence within these pathways highlighting its multifunctionality.
Associated diseases and disorders	M6PR connects to certain cancers and lysosomal storage disorders. Dysfunctional pathway interactions or mutations within IGF2R often relate with types of cancer such as breast and liver cancers due to its influence on IGF2 regulation and cell proliferation. Additionally it associates with lysosomal storage diseases as lysosome-related pathologies emerge from impaired enzyme transport reflecting the M6PR's intricate role in cellular homeostasis.

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.

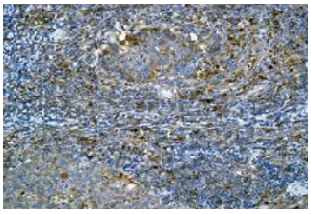
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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11 product images

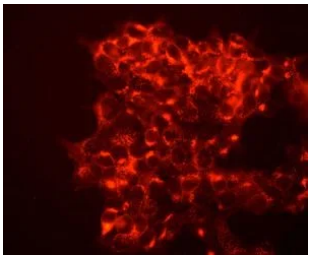


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-M6PR (cation independent) antibody

This IHC data was generated using the same anti-M6PR antibody clone, EOR6599, in a different buffer formulation (cat# ab124767).
Immunohistochemical analysis of formalin fixed, paraffin embedded Human tonsil tissue section labelling Mannose 6 Phosphate Receptor (Cation independent) with unpurified ab124767 at dilution of 1/250.

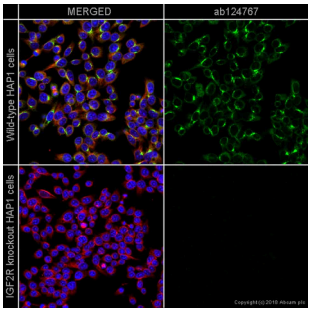
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-M6PR (cation independent) antibody

Immunocytochemistry/immunofluorescence analysis of 293T cells labelling Mannose 6 Phosphate Receptor (Cation independent) with unpurified ab124767 at dilution of 1/100.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).



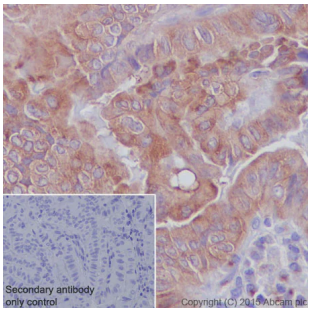
Immunocytochemistry/ Immunofluorescence - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-M6PR (cation independent) antibody

ab124767 staining M6PR in wild-type HAP1 cells (top panel) and IGF2R knockout HAP1 cells (bottom panel). The cells were fixed with 100% MeOH for 5 min. , permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab124767 at 1µg/ml and ab195889 (Mouse monoclonal [DM1A] to alpha Tubulin - Microtubule Marker (Alexa Fluor® 594)) at 1/250 dilution (shown in pseudocolour red) overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green). Nuclear DNA was labelled in blue with DAPI.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

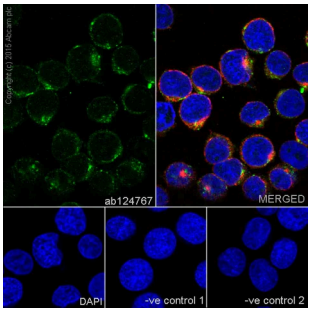
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-M6PR (cation independent) antibody

Immunohistochemical staining of paraffin embedded human thyroid carcinoma tissue section labelling M6PR with purified ab124767 at dilution of 1/500. The secondary antibody used was ab97051 Goat Anti-Rabbit IgG H&L (HRP), at a dilution of 1/500. The sample was counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control and is shown in the inset.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).

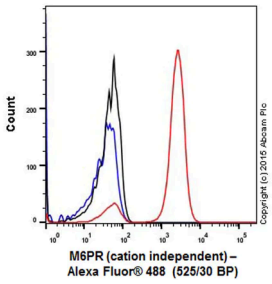


Immunocytochemistry/ Immunofluorescence - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-M6PR (cation independent) antibody

Immunocytochemistry/Immunofluorescence analysis of Jurkat (human acute T cell leukemia) cells labelling M6PR with purified ab124767 at 1/100. 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. The cells were co-stained with ab7291, a mouse anti-tubulin antibody (1/1000) using ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000) as the secondary. Nuclei couterstained with DAPI (blue).
For negative control 1, rabbit primary antibody was used, followed by anti-mouse secondary antibody (ab150120). For negative control 2, mouse primary antibody (ab7291) was used followed by anti-rabbit secondary antibody (ab150077).

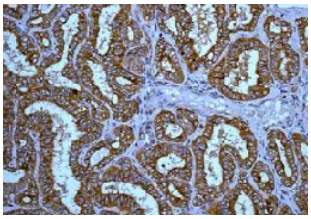
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).



Flow Cytometry (Intracellular) - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Flow Cytometry (Intracellular) staining using rabbit Anti-M6PR (cation independent) antibody

Intracellular Flow Cytometry analysis of Jurkat (human acute T cell leukemia) cells labelling M6PR with purified ab124767 at 1/150 (red). Cells were fixed with 4% paraformaldehyde. Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/500) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).

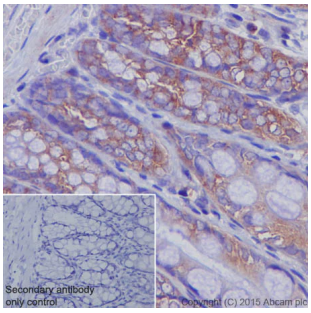


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-M6PR (cation independent) antibody

This IHC data was generated using the same anti-M6PR antibody clone, EOR6599, in a different buffer formulation (cat# ab124767).
Immunohistochemical analysis of formalin fixed, paraffin embedded Human papillary carcinoma tissue section labelling Mannose 6 Phosphate Receptor (Cation independent) with unpurified ab124767 at dilution of 1/250.

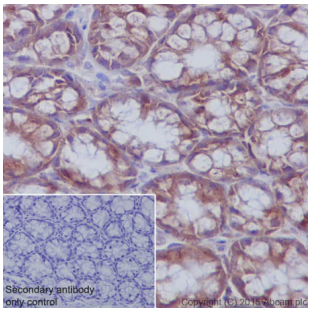
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-M6PR (cation independent) antibody

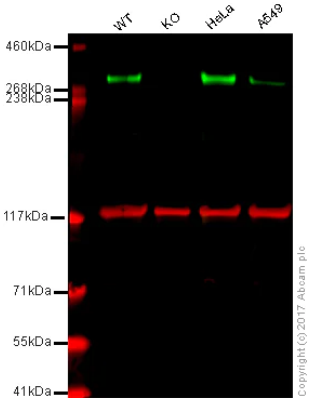
Immunohistochemical staining of paraffin embedded rat colon tissue section labelling M6PR with purified ab124767 at dilution of 1/500. The secondary antibody used was ab97051 Goat Anti-Rabbit IgG H&L (HRP), at a dilution of 1/500. The sample was counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control and is shown in the inset.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-M6PR (cation independent) antibody

Immunohistochemical staining of paraffin embedded mouse colon tissue section labelling M6PR with purified ab124767 at dilution of 1/500. The secondary antibody used was ab97051 Goat Anti-Rabbit IgG H&L (HRP), at a dilution of 1/500. The sample was counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control and is shown in the inset.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).



Western blot - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

M6PR (cation independent) Western blot staining using rabbit Anti-M6PR (cation independent) antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab124767 observed at 274 kDa. Red - loading control, ab18058, observed at 130 kDa. ab124767 was shown to specifically react with M6PR (cation independent) in wild-type HAP1 cells as signal was lost in M6PR (cation independent) knockout cells. Wild-type and M6PR (cation independent) knockout samples were subjected to SDS-PAGE. ab124767 and ab18058 (Mouse anti-Vinculin loading control) were incubated overnight at 4°C at 1/50000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab124767).
Lane 1:
Western blot - Anti-M6PR (cation independent) antibody [EPR6599] - Lysosome Membrane Marker (ab124767)

Lanes 2 - 4:
Western blot - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090) at 1/50000 dilution

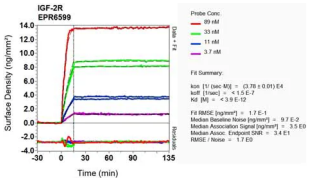
Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
M6PR (cation independent) knockout HAP1 whole cell lysate at 20 µg

Lane 3:
HeLa whole cell lysate at 20 µg

Lane 4:
A549 whole cell lysate at 20 µg

Predicted band size: 274 kDa



OI-RD Scanning - Anti-M6PR (cation independent) antibody [EPR6599] - BSA and Azide free (ab226090)

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.

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