abcam

ab8093

Anti-M6PR (cation independent) antibody [MEM-238] - Lysosome Membrane Marker

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4 Preservative: 0.097% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Virus within Human IGF2R. The exact immunogen used to generate this antibody is proprietary information. Database link P11717
Clone number	MEM-238
Purification technique	Affinity purification Protein A
Specificity	CD222 antigen (human)
Epitope	Recognizes an epitope between domains 2 and 5.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from TCS. Purity >95% by SDS-PAGE.

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	2-6 µg/mL
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Predicted

Species	Primates
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1-2 µg/mL
Notes	-

Predicted

Species	Primates
Dilution info	-
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 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

CD222 is a 250kDa transmembrane protein with a short cytoplasmic tail containing an internalization signal. CD222 was originally identified as a receptor for IGFII and M6P-containing proteins (e.g. lysosomal hydrolases). Lysosomal enzymes are sorted to lysosomes via CD222 either from the Golgi, where the enzymes acquire M6P, or from the extracellular space. The majority of CD222 molecules (approximately 90-95%) are located intracellularly, only 5-10% is present on the cell membrane. The internalization rate seems to be enhanced by ligand induced dimerization of CD222 as well as by phosphorylation of its cytoplasmic serine. CD222 is also a receptor for TGFbeta latency associated peptide (LAP), proliferin and may bind several molecules independently of M6P, including plasminogen, CD87 or retinoic acid. It is involved in activation of latent TGFbeta [PROW].
This product was changed from ascites to tissue culture supernatant on 24th January 2018. Please note that the dilutions may need to be adjusted accordingly. If you have any questions, please do not hesitate to contact our scientific support team.

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

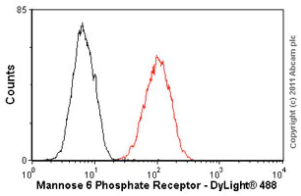
We do not recommend this combination. It is not covered by our product promise.

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.

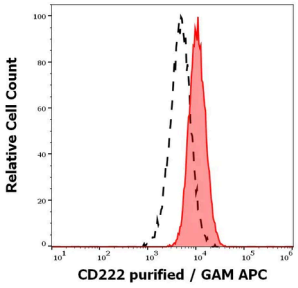
4 product images



Flow Cytometry (Intracellular) - Anti-M6PR (cation independent) antibody [MEM-238] - Lysosome Membrane Marker (ab8093)

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

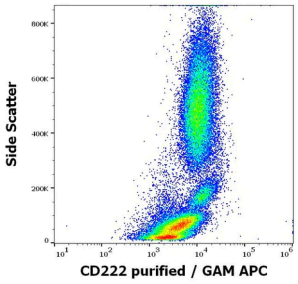
Overlay histogram showing HeLa cells stained with ab8093 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab8093, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Flow Cytometry - Anti-M6PR (cation independent) antibody [MEM-238] - Lysosome Membrane Marker (ab8093)

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

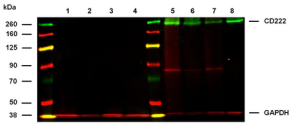
Flow cytometry surface staining analysis of human peripheral whole blood showing separation of human neutrophil granulocytes (red) from lymphocytes black using ab8093 at 2 µg/ml GAM APC.



Flow Cytometry - Anti-M6PR (cation independent) antibody [MEM-238] - Lysosome Membrane Marker (ab8093)

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

Flow cytometry analysis of human peripheral whole blood stained using ab8093 in 2 µg/ml and GAM APC.



Western blot - Anti-M6PR (cation independent) antibody [MEM-238] - Lysosome Membrane Marker (ab8093)

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

Western blotting analysis was performed on whole cell extracts (RIPA lysis buffer) of Jurkat, K562, Raji, and HeLa cell lines, mixed and heated (100°C, 5 min) with reducing and non-reducing SDS-loading buffer. Samples were resolved using 7% Tris-glycine SDS gel electrophoresis. Nitrocellulose membrane blot was probed with ab8093 followed by IRDye 800CW Goat-anti-Mouse IgG (green). Mouse anti-GAPDH monoclonal antibody FF26A conjugated with DyLight 680 (0.1 µg/ml), was used as the loading control (red). Multiplex fluorescent Western blot detection was performed. CD222 molecules were detected at ~250 kDa in all analysed cell lines.
All lanes:
Western blot - Anti-M6PR (cation independent) antibody [MEM-238] - Lysosome Membrane Marker (ab8093)

Lane 1:
Jurkat whole cell extract, with reducing SDS loading buffer

Lane 2:

K562 whole cell extract, with reducing SDS loading buffer

Lane 3:
Raji whole cell extract, with reducing SDS loading buffer

Lane 4:
HeLa whole cell extract, with reducing SDS loading buffer

Lane 5:
Jurkat whole cell extract, with non-reducing SDS loading buffer

Lane 6:
K562 whole cell extract, with non-reducing SDS loading buffer

Lane 7:
Raji whole cell extract, with non-reducing SDS loading buffer

Lane 8:
HeLa whole cell extract, with non-reducing SDS loading buffer

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