abcam

ab227989

Anti-MGEA5/OGA antibody [EPR7154(B)] - 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	EPR7154(B)
Purification technique	Affinity purification Protein A
Dissociation constant	9.8 x 10^{-11} M
Concentration	1.008 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information OGA

Function	Isoform 1. Cleaves GlcNAc but not GalNAc from O-glycosylated proteins (PubMed:11148210, PubMed:11788610, PubMed:20673219, PubMed:22365600, PubMed:24088714, PubMed:28939839, PubMed:37962578). Deglycosylates a large and diverse number of proteins, such as CRYAB, ELK1, GSDMD, LMNB1 and TAB1 (PubMed:28939839, PubMed:37962578). Can use p-nitrophenyl-beta-GlcNAc and 4-methylumbelliferone-GlcNAc as substrates but not p-nitrophenyl-beta-GalNAc or p-nitrophenyl-alpha-GlcNAc (in vitro) (PubMed:20673219). Does not bind acetyl-CoA and does not have histone acetyltransferase activity (PubMed:24088714). Isoform 3. Cleaves GlcNAc but not GalNAc from O-glycosylated proteins. Can use p-nitrophenyl-beta-GlcNAc as substrate but not p-nitrophenyl-beta-GalNAc or p-nitrophenyl-alpha-GlcNAc (in vitro), but has about six times lower specific activity than isoform 1.

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

ab227989 is the carrier-free version of ab124807.

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

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	MGEA5 also referred to as OGA or O-GlcNAcase serves an important mechanical role in cellular metabolism. This enzyme with a molecular mass of around 103 kDa is primarily involved in the removal of O-GlcNAc modifications from serine/threonine residues on nuclear and cytoplasmic proteins. It is expressed in various tissues but exhibits predominant activity in the brain liver and pancreas. Alternative names like "OGA stains" or "OGA b" may also be encountered in literature or research contexts.
Biological function summary	MGEA5 acts as an important modulator of protein function and regulation by cycling O-GlcNAc modifications thereby influencing processes like transcription signal transduction and apoptosis. While not part of a well-defined complex it frequently interacts with other proteins involved in glucose metabolism and the cellular stress response. Its activity works in concert with OGT (O-GlcNAc transferase) which adds O-GlcNAc maintaining a balance important for cellular function.
Pathways	MGEA5 involvement centers largely around glucose homeostasis and the insulin signaling pathway. It modulates the function of proteins like insulin receptor substrate (IRS) and other key regulators in this pathway affecting metabolic regulation and energy homeostasis. It shows a direct relationship with OGT as they reciprocate in action effects highlighting their collaborative role in cellular pathways that affect cellular signaling and survival.
Associated diseases and disorders	MGEA5 has been implicated in neurodegenerative diseases and diabetes. In Alzheimer's disease altered O-GlcNAc cycling affects tau protein homeostasis which is significant in disease pathogenesis. Likewise in diabetes MGEA5 influences insulin resistance by regulating O-GlcNAc levels on insulin signaling molecules. Dysregulation of these processes may also involve proteins such as beta-amyloid further linking MGEA5 to these pathological states.

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

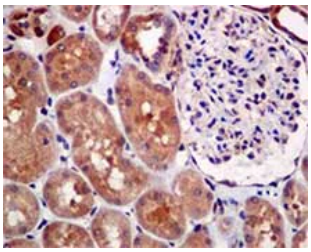
We do not recommend this combination. It is not covered by our product promise.

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.

9 product images

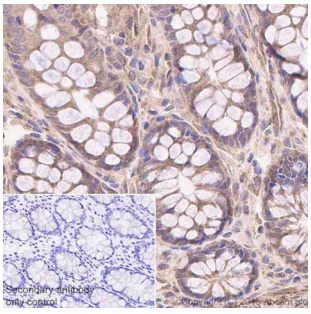


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

MGEA5/OGA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MGEA5/OGA antibody

This IHC data was generated using the same anti-MGEA5/OGA antibody clone, EPR7154(B), in a different buffer formulation (cat# ab124807).
ab124807, at 1/100 dilution, staining MGEA5 in paraffin-embedded Human kidney tissue by Immunohistochemistry.

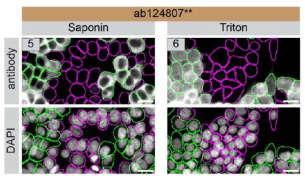
Heat mediated antigen retrieval was performed before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

MGEA5/OGA Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-MGEA5/OGA antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human colon tissue sections labeling MGEA5/OGA with purified ab124807 at 1:50 dilution (12.56 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.



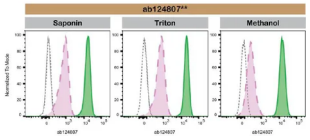
Immunocytochemistry/ Immunofluorescence - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

MGEA5/OGA Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MGEA5/OGA antibody

This data was developed using ab124807, the same antibody clone in a different buffer formulation.
ab124807 was shown to react with MGEA5/OGA in wild-type HAP1 cells in immunocytochemistry with loss of signal observed in a MGEA5/OGA knockout cell line. Wild-type and knockout cells were

mixed and pelleted at a 1:1 ratio on coverslips. The cells were fixed with 4% paraformaldehyde (15 min) then permeabilized with 0.1% Triton X-100 (10min) and then blocked with 1x PBS, 0.01% Triton X-100, 5% BSA, 5% NGS. The cells were then incubated with ab124807 at 1/700 dilution overnight at 4°C followed by a further incubation at room temperature for 1h with a goat anti-rabbit secondary antibody to (Alexa Fluor® 555) at 0.5 µg/ml. Acquisition of the green (wild-type), red (antibody staining) and far-red (knockout) channels was performed. Representative grayscale images of the red channel are shown. Wild-type and knockout cells are outlined with yellow and magenta dashed line, respectively. Schematic representation of the mosaic strategy used is shown on the bottom-right panel. Image was acquired with a Zeiss(LSM-880).

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.



Flow Cytometry (Intracellular) - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

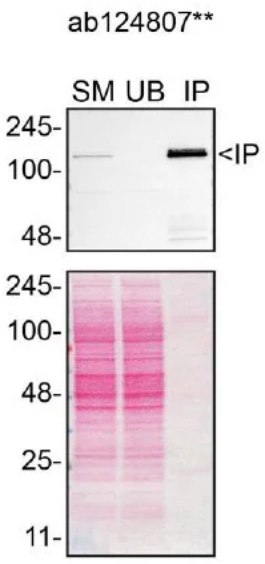
MGEA5/OGA Flow Cytometry (Intracellular) staining using rabbit Anti-MGEA5/OGA antibody

This data was developed using ab124807, the same antibody clone in a different buffer formulation.
HAP1 wild-type and OGA knockout cells were labelled with a green or violet, fluorescent dye, respectively. Wild-type and knockout cells were mixed in a 1:1 ratio, fixed in 4% PFA and permeabilized in 0.1% Triton X-100.

Antibody staining was quantified using the Attune NxT Flow Cytometer with representative images showing the staining intensity in the knockout population (pink histogram, dashed line) compared to the wild-type cells (green histogram, solid line). Histograms with dotted lines represent secondary antibody-only controls in both wild-type and knockout cells.

Antibody dilution: 1/7000

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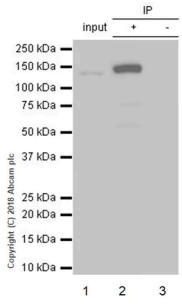
Immunoprecipitation - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

This data was developed using ab124807, the same antibody clone in a different buffer formulation.
Immunoprecipitation of MGEA5/OGA in HAP1 cells. Lysates were prepared and immunoprecipitation was performed using 2.9 µg of ab124807 pre-coupled to Protein A beads. Samples were then washed and processed for western blot.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Immunoprecipitation - Anti-MGEA5/OGA antibody [EPR7154(B)] (ab124807) at 2.9 µg

All lanes:
HAP1 culture medium

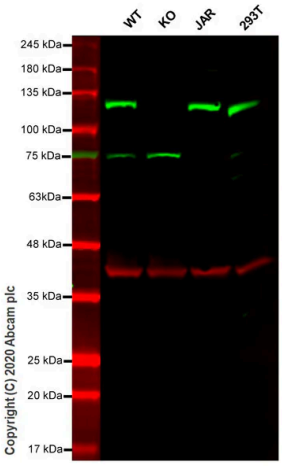
Predicted band size: 102 kDa



Immunoprecipitation - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

ab124807 (purified) at 1:30 dilution (2µg) immunoprecipitating MGEA5/OGA in HeLa whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab124807 & HeLa whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab124807 in HeLa 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-MGEA5/OGA antibody [EPR7154(B)] (ab124807)

Predicted band size: 102 kDa



Western blot - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

MGEA5/OGA Western blot staining using rabbit Anti-MGEA5/OGA antibody

This data was developed using the same antibody clone in a different buffer formulation (ab124807).
Lanes 1-4: Merged signal (red and green). Green - ab124807 observed at 130 kDa. Red - loading control, ab8245 observed at 37 kDa.

ab124807 Anti-MGEA5/OGA antibody [EPR7154(B)] was shown to specifically react with MGEA5/OGA in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab265821 (knockout cell lysate ab257263) was used. Wild-type and MGEA5/OGA knockout samples were subjected to SDS-PAGE. ab124807 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-

Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 10000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-MGEA5/OGA antibody [EPR7154(B)] (ab124807) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
MGEA5 knockout HeLa cell lysate at 20 µg

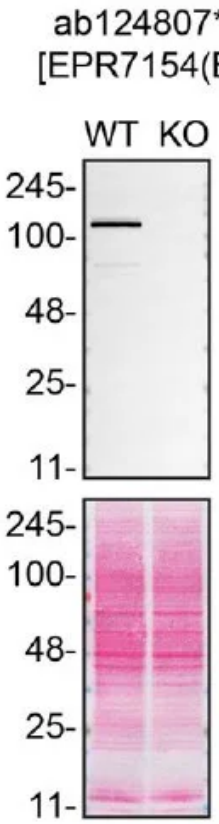
Lane 3:
JAR cell lysate at 20 µg

Lane 4:
HEK-293T cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 102 kDa

Observed band size: 130 kDa



Western blot - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

MGEA5/OGA Western blot staining using rabbit Anti-MGEA5/OGA antibody

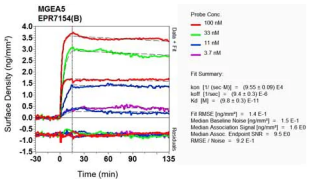
This data was developed using ab124807, the same antibody clone in a different buffer formulation.
ab124807 was shown to react with MGEA5/OGA in wild-type HAP1 cells in Western blot with loss of signal observed in a OGA knockout cell line. Wild-type HAP1 and MGEA5/OGA knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab124807 overnight at 4 °C at a 1/5000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-MGEA5/OGA antibody [EPR7154(B)] (ab124807) at 1/5000 dilution

Lane 1:
Wild-type HAP1 lysate at 30 µg

Lane 2:
MGEA5/OGA knock-out HAP1 lysate at 30 µg

Predicted band size: 102 kDa



OI-RD Scanning - Anti-MGEA5/OGA antibody [EPR7154(B)] - BSA and Azide free (ab227989)

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'.