abcam

ab226166

Anti-MIF antibody [EPR18149-128] - 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	EPR18149-128
Purification technique	Affinity purification Protein A
Concentration	0.972 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Rat, Mouse, Human
Dilution info	-

Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

Target data

See full target information MIF

Function	Pro-inflammatory cytokine involved in the innate immune response to bacterial pathogens (PubMed:15908412, PubMed:17443469, PubMed:23776208). The expression of MIF at sites of inflammation suggests a role as mediator in regulating the function of macrophages in host defense (PubMed:15908412,

PubMed:17443469, PubMed:23776208). Counteracts the anti-inflammatory activity of glucocorticoids (PubMed:15908412, PubMed:17443469, PubMed:23776208). Has phenylpyruvate tautomerase and dopachrome tautomerase activity (in vitro), but the physiological substrate is not known (PubMed:11439086, PubMed:17526494). It is not clear whether the tautomerase activity has any physiological relevance, and whether it is important for cytokine activity (PubMed:11439086, PubMed:17526494).

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

ab226166 is the carrier-free version of ab187064.

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.

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	Macrophage migration inhibitory factor (MIF) also known as glycosylation-inhibiting factor is a protein with a molecular mass of approximately 12.5 kDa. It plays a mechanistic role as a cytokine that regulates immune responses specifically influencing macrophage behavior. MIF expresses in various cell types including immune and epithelial cells. It gets secreted by activated lymphocytes and macrophages pointing to its involvement in the inflammatory process.
Biological function summary	MIF acts as an upstream regulator of innate immunity and exerts broad influence on cytokine release. MIF elevates pro-inflammatory cytokines like TNF-alpha and IL-1beta promoting an immune response. It does not typically form part of a complex but interacts with cell surface receptors like CD74 triggering intracellular signaling pathways. These interactions illustrate MIF as a regulator of immune cell recruitment and activation.
Pathways	MIF participates in the glucocorticoid receptor regulatory pathway and MAP kinase pathway. It shows interaction with JNK and ERK1/2 proteins which further map into important cellular reactions like stress response and cell proliferation. By integrating into these pathways MIF influences cell survival proliferation and inflammatory cascades emphasizing its role in immune regulation.
Associated diseases and disorders	MIF links to inflammatory diseases such as rheumatoid arthritis and sepsis. It influences disease progression by interacting with proteins like TNF-alpha and IL-6 contributing to inflammatory damage. Elevated MIF levels often correlate with disease severity in rheumatoid arthritis acting as a potential target for therapy. Furthermore sepsis demonstrates a similar pattern where MIF modulation can impact patient outcomes underlining its relevance in clinical investigations.

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

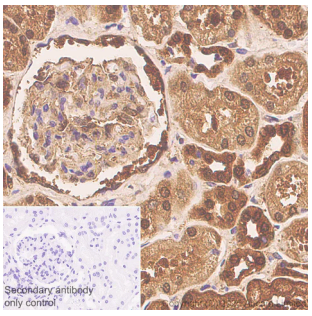
We do not recommend this combination. It is not covered by our product promise.

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-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

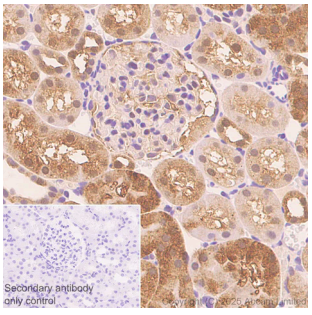
MIF Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human kidney using rabbit Anti-MIF antibody

This data was developed using ab187064, the same antibody clone in a different buffer formulation.

Immunohistochemical analysis of Paraffin-embedded sections on Human kidney tissue with ab187064 at 1/2500 dilution, followed by ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on human kidney. Counter stained with Hematoxylin.

The primary antibody was incubated for 30 mins at room temperature. Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins

The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

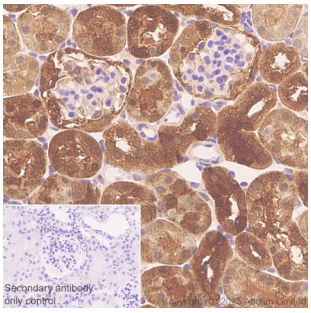
MIF Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Rat kidney using rabbit Anti-MIF antibody

This data was developed using ab187064, the same antibody clone in a different buffer formulation.

Immunohistochemical analysis of Paraffin-embedded sections on Rat kidney tissue with ab187064 at 1/2500 dilution, followed by ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on rat kidney. Counter stained with Hematoxylin.

The primary antibody was incubated for 30 mins at room temperature. Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins

The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

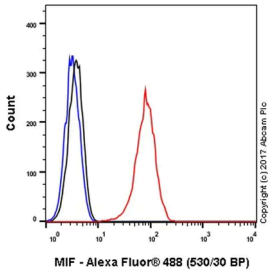
MIF Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse kidney using rabbit Anti-MIF antibody

This data was developed using ab187064, the same antibody clone in a different buffer formulation.

Immunohistochemical analysis of Paraffin-embedded sections on Mouse kidney tissue with ab187064 at 1/2500 dilution, followed by ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on mouse kidney. Counter stained with Hematoxylin.

The primary antibody was incubated for 30 mins at room temperature. Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins

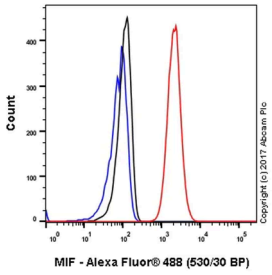
The immunostaining was performed on a Leica Biosystems BOND® RX instrument.



Flow Cytometry (Intracellular) - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

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

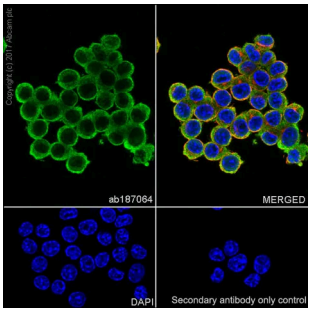
Intracellular flow cytometric analysis of 4% paraformaldehyde fixed, 90% methanol permeabilized RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) cell line labeling MIF with ab187064 at 1/500 (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187064).



Flow Cytometry (Intracellular) - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized Neuro-2a (mouse neuroblastoma cell line) cell line labeling MIF with ab187064 at 1/500 (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187064).



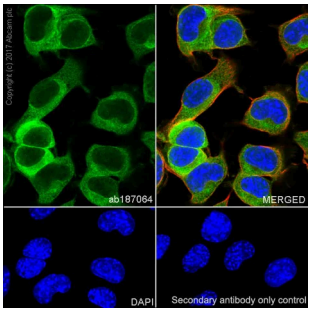
Immunocytochemistry/ Immunofluorescence - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

MIF Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MIF antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized RAW 264.7 (mouse macrophage cell line transformed with Abelson murine leukemia virus) cells labeling MIF with ab187064 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on RAW 264.7 cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187064).



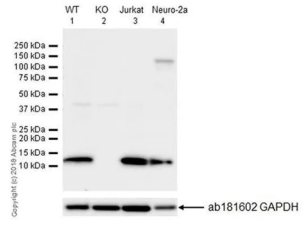
Immunocytochemistry/ Immunofluorescence - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

MIF Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-MIF antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized Neuro-2a (mouse neuroblastoma cell line) cells labeling MIF with ab187064 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on Neuro-2a cell line.
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187064).



Western blot - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

MIF Western blot staining using rabbit Anti-MIF antibody

ab187064 was shown to specifically react with MIF in wild-type HAP1 cells as signal was lost in MIF knockout cells. Wild-type and MIF knockout samples were subjected to SDS-PAGE. ab187064 and ab181602 (Rabbit anti-GAPDH loading control) were incubated 1 hour at room temperature at 1/1000 dilution and 1/200,000 dilution respectively. Blots were developed with Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) secondary antibody at 1/100,000 dilution for 1 hour at room temperature before imaging. The blot was developed on a BIO-RAD® ChemiDoc™ MP instrument using the ECL technique.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab187064).

All lanes:
Western blot - Anti-MIF antibody [EPR18149-128] (ab187064) at 1/1000 dilution

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

Lane 2:
MIF knockout HAP1 whole cell lysate at 20 µg/mL

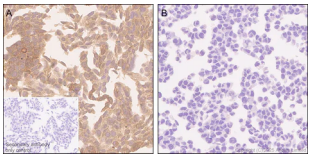
Lane 3:
Jurkat (human T cell leukemia T lymphocyte) whole cell lysate at 20 µg/mL

Lane 4:
Neuro-2a (mouse neuroblastoma neuroblast) whole cell lysate at 20 µg/mL

Predicted band size: 12 kDa

Observed band size: 13 kDa

Exposure time: 15s



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MIF antibody [EPR18149-128] - BSA and Azide free (ab226166)

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

This data was developed using ab187064, the same antibody clone in a different buffer formulation.

Immunohistochemical analysis of Paraffin-embedded sections on A: Wild-type HAP1 (chronic myelogenous leukemia cell) cell pellet and B: MIF knockout HAP1 cell pellet, with ab187064 at 1/2500 dilution, followed by ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining on Wild-type HAP1 (chronic myelogenous leukemia cell) cell pellet, no staining on (B) MIF knockout HAP1 cell pellet. Counter stained with Hematoxylin.

The primary antibody was incubated for 30 mins at room temperature. Heat mediated antigen retrieval was performed with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins

The immunostaining was performed on a Leica Biosystems BOND® RX instrument.

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