abcam

ab259509

Anti-Transferrin Receptor antibody [EPR20671-220] - BSA and Azide free (Capture)

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR20671-220
Purification technique	Affinity purification Protein A
Specificity	This antibody does not cross-react with mouse TFR2 in flow cytometry.
Concentration	1.011 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

sELISA

Expected

Species	Mouse

Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Mouse
Dilution info	1/5000
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

Target data

See full target information Tfrc

Function

Cellular uptake of iron occurs via receptor-mediated endocytosis of ligand-occupied transferrin receptor into specialized endosomes (By similarity). Endosomal acidification leads to iron release. The apotransferrin-receptor complex is then recycled to the cell surface with a return to neutral pH and the concomitant loss of affinity of apotransferrin for its receptor. Transferrin receptor is necessary for development of erythrocytes and the nervous system (By similarity). Upon stimulation, positively regulates T and B cell proliferation through iron uptake (PubMed:26642240). Acts as a lipid sensor that regulates mitochondrial fusion by regulating activation of the JNK pathway (By similarity). When dietary levels of stearate (C18:0) are low, promotes activation of the JNK pathway, resulting in HUWE1-mediated ubiquitination and subsequent degradation of the mitofusin MFN2 and inhibition of mitochondrial fusion (By similarity). When dietary levels of stearate (C18:0) are high, TFRC stearoylation inhibits activation of the JNK pathway and thus degradation of the mitofusin MFN2 (By similarity). Mediates uptake of

NICOL1 into fibroblasts where it may regulate extracellular matrix production (PubMed:38625739).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Notes

ab259509 is a BSA and Azide Free antibody supplied in an unconjugated format and it is suitable for sandwich ELISAs to quantify Mouse Transferrin Receptor. The recommended pair for sandwich ELISA is:
Capture: ab259509, Mouse Transferrin Receptor Capture Antibody (unconjugated)
Detector: ab259510, Mouse Transferrin Receptor Detector Antibody (unconjugated)
The reference range value is 0.82 - 52.5 ng/ml.

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.

Sandwich ELISA
The recommended antibody orientation is based on internal optimization for ELISA-based assays. Antibody orientation is assay dependent and needs to be optimized for each assay type. Please note that the range provided for this antibody is only an estimation based on the performance of the product using the recommended antibody pair. Performance of the antibody pair will depend on the specific characteristics of your assay. We guarantee the product works in sandwich ELISA, but we do not guarantee the sensitivity or dynamic range of the antibody in your assay.

Supplementary info

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

Activity summary	The transferrin receptor commonly referred to as TfR or CD71 is an integral membrane protein that facilitates the uptake of transferrin-bound iron into cells. This receptor has a molecular weight of around 95 kDa and often exists as a homodimer on the cell surface. It is widely expressed in many tissues especially in erythroid precursors and rapidly dividing cells. Alternate names for this receptor include TfR1 and TfR2 though they have distinct roles and distributions. Other transmembrane proteins like OX26 and MEM have been studied in relation to the transferrin receptor due to their involvement in drug delivery.
Biological function summary	TfR plays a critical role in iron homeostasis by mediating the internalization of transferrin and release of iron in the endosomes. It operates as part of the transferrin-transferrin receptor complex facilitating iron assimilation necessary for DNA synthesis and cell growth. Iron release involves acidifying endosomes allowing transferrin to bind with specific cellular receptors including alternate forms like beta 2 transferrin. The process subsequently contributes to erythropoiesis and various metabolic processes by regulating essential cellular iron levels.
Pathways	The transferrin receptor is central to iron metabolism and the receptor-mediated endocytosis pathway. It tightly interacts with transferrin and intracellular pathways process the iron released from transferrin within endosomes. The receptor's role in this pathway involves a dynamic with other proteins such as HFE and hepcidin. These interactions help control systemic iron levels linking closely to the maintenance of erythroid cell health and proliferation.
Associated diseases and disorders	Disruptions in transferrin receptor function correlate with anemia and neurodegenerative disorders. In anemia related to iron deficiency impaired TfR activity reduces iron uptake culminating in insufficient erythropoiesis. Altered receptor expression or function also connects to neurological diseases like Alzheimer's where iron dysregulation is a concern. Here the transferrin receptor interacts with proteins like Amyloid precursor protein contributing to disease pathology through improper metal 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.

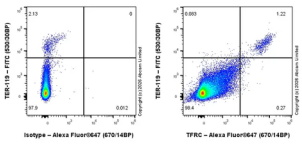
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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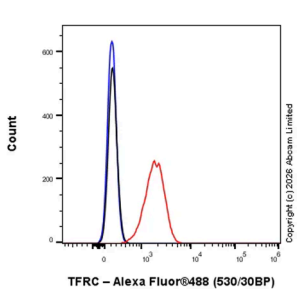
5 product images



Flow Cytometry - Anti-Transferrin Receptor antibody [EPR20671-220] - BSA and Azide free (Capture) (ab259509)

Transferrin Receptor Flow Cytometry staining of Mouse bone marrow cell line using rabbit Anti-Transferrin Receptor antibody

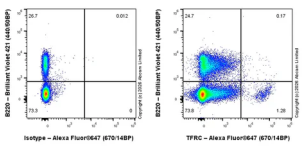
Flow cytometry analysis of mouse bone marrow cell line labelling [Transferrin Receptor] with ab259509 at 1/5000 dilution. Cells were co-stained with anti-TER-119 conjugated to FITC. Isotype control, Rabbit monoclonal IgG (ab172730) (Left). Goat anti-Rabbit IgG Alexa Fluor® 647, (ab150083) was used as secondary at 1/5000 dilution. Gated on viable cells.



Flow Cytometry - Anti-Transferrin Receptor antibody [EPR20671-220] - BSA and Azide free (Capture) (ab259509)

Transferrin Receptor Flow Cytometry staining of RAW 264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage) cells using rabbit Anti-Transferrin Receptor antibody

Flow cytometry overlay histogram of [RAW 264.7] (mouse Abelson murine leukemia virus-induced tumor macrophage) cells labelling [Transferrin Receptor] with ab259509 at 1/5000 dilution (Red) compared with a [Rabbit monoclonal IgG (ab172730) (Black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Secondary antibody details, Goat Anti-Rabbit IgG (Alexa Fluor® 488) (ab150081), at 1/5000 dilution. Gated on viable cells.

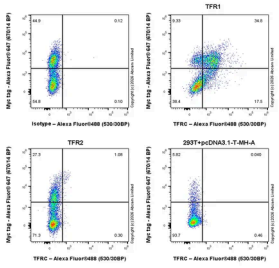


Flow Cytometry - Anti-Transferrin Receptor antibody [EPR20671-220] - BSA and Azide free (Capture) (ab259509)

Transferrin Receptor Flow Cytometry staining of Mouse bone marrow cell line using rabbit Anti-Transferrin Receptor antibody

Flow cytometry analysis of mouse bone marrow cell line labelling [Transferrin Receptor] with ab259509 at 1/5000 dilution. Cells were co-stained with anti-B220 conjugated to Brilliant Violet

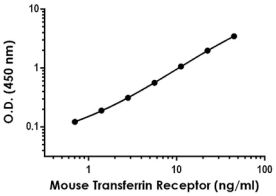
421. Isotype control, Rabbit monoclonal IgG (ab172730) (Left). Goat anti-Rabbit IgG Alexa Fluor® 647, (ab150083) was used as secondary at 1/5000 dilution. Gated on viable cells.



Flow Cytometry - Anti-Transferrin Receptor antibody [EPR20671-220] - BSA and Azide free (Capture) (ab259509)

Transferrin Receptor Flow Cytometry staining using rabbit Anti-Transferrin Receptor antibody

Flow cytometry analysis of 4% paraformaldehyde (10 min) transfected 293T cells permeabilised with 90% methanol labelling [Transferrin Receptor] with ab259509 at 1/5000 dilution. Cells were surface stained with isotype control or intracellularly stained with anti-myc tag conjugated to Alexa Fluor® 647. Goat Anti-Rabbit IgG Alexa Fluor® 488 (ab150081) was used as secondary at 1/5000 dilution.
293T cells transfected with a mouse TFR1 expression vector containing a myc-His-tag® (Upper right), 293T cells transfected with a mouse TFR2 expression vector containing a myc-His-tag® (Lower left), and 293T cells transfected with an empty expression vector containing a myc-His-tag® (Lower right).



Sandwich ELISA - Anti-Transferrin Receptor antibody [EPR20671-220] - BSA and Azide free (Capture) (ab259509)

Representative standard curve from corresponding SimpleStep ELISA® Kit (ab243674).

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