abcam

ab256572

Anti-Transferrin Receptor antibody [8D3] - BSA and Azide free

Recombinant

Key facts

Isotype	IgG2a
Host species	Rat
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	8D3
Purification technique	Ion exchange chromatography
Concentration	1.001 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC

Tested

Species	Mouse
Dilution info	-

Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Mouse
Dilution info	-
Notes	-

Not recommended

Species	Human, Rat
Dilution info	-
Notes	-

WB

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Mouse, Human, Rat
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
Storage information	Do Not Freeze

Notes

ab256572 is the carrier-free version of ab256568.

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.

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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 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

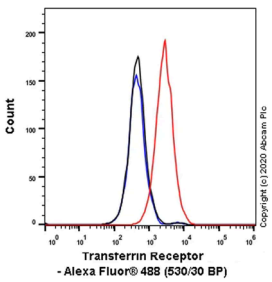
We do not recommend this combination. It is not covered by our product promise.

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.

2 product images

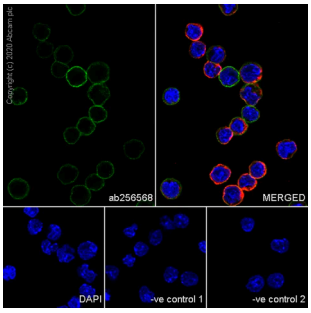


Flow Cytometry - Anti-Transferrin Receptor antibody [8D3] - BSA and Azide free (ab256572)

Transferrin Receptor Flow Cytometry staining of A20 (mouse reticulum sarcoma B lymphocyte) cells using rat Anti-Transferrin Receptor antibody

This data was produced using the same antibody clone but in a different buffer formulation, ab256568.

Flow cytometric analysis of A20 (mouse reticulum sarcoma B lymphocyte) cells labelling Transferrin Receptor with ab256568 at 1/500 dilution (0.1µg) (Red) compared with a Rat monoclonal IgG2a (ab18450) isotype control (Black) and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat F(ab)2 Anti-Rat IgG Fc (Alexa Fluor® 488, ab150161) at 1/2000 dilution was used as the secondary antibody. Gated on viable cells.



Immunocytochemistry - Anti-Transferrin Receptor antibody [8D3] - BSA and Azide free (ab256572)

Transferrin Receptor Immunocytochemistry staining using rat Anti-Transferrin Receptor antibody

This data was produced using the same antibody clone but in a different buffer formulation, ab256568.
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized A20 (mouse reticulum sarcoma B lymphocyte) cells labelling Transferrin Receptor with ab256568 at 1/50 dilution, followed by ab150157 Goat Anti-rat IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing membranous and cytoplasmic staining in A20 cells. ab179513 Anti-beta Tubulin rabbit monoclonal antibody was used to counterstain tubulin at 1/200 dilution, followed by ab150080 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 594) at 1/500 dilution (Red). The nuclear counterstain was DAPI (Blue).

-ve control 1: ab256568 at 1/50 dilution followed by ab150080 at 1/500 dilution.

-ve control 2: ab179513 at 1/200 dilution followed by ab150157 at 1/1000 dilution.

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