abcam

ab281913

Anti-Transferrin Receptor antibody [R17 217.1.3] - Rabbit IgG (Chimeric)

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.02% Proclin 300 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Clone number	R17 217.1.3
Purification technique	Affinity purification Protein A
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Mouse
Dilution info	10 µg/mL
Notes	-

Flow Cyt

Tested

Species	Mouse
Dilution info	1/100
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 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

This rabbit monoclonal chimeric antibody was made using the variable domain sequences of the original Rat IgG2a format, for improved compatibility with existing reagents, assays and techniques.

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.

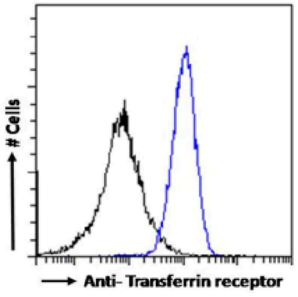
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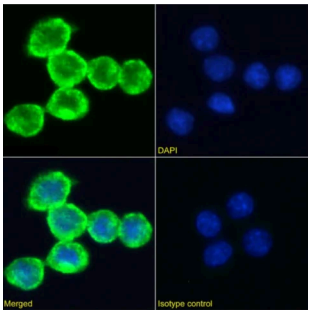
2 product images



Flow Cytometry - Anti-Transferrin Receptor antibody [R17 217.1.3] - Rabbit IgG (Chimeric) (ab281913)

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

Flow-cytometry analysis of RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) cells labelling Transferrin Receptor with anti-Fluorescein IgG antibody (isotype control, black line) or ab281913 (blue line) at 1/100 dilution for 1 hour at room temperature. After washing, bound antibody was detected using a goat anti-rabbit IgG AlexaFluor® 488 antibody at 1/1000 dilution and cells analysed using a FACSCanto flow-cytometer.



Immunocytochemistry/ Immunofluorescence - Anti-Transferrin Receptor antibody [R17 217.1.3] - Rabbit IgG (Chimeric) (ab281913)

Transferrin Receptor Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Transferrin Receptor antibody

Immunofluorescence analysis of paraformaldehyde fixedRAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) cells labelling Transferrin Receptor with ab281913 at 10 µg/ml, followed by Alexa Fluor® 488 secondary antibody at 2 µg/ml (green/ tpo-left). Image showing membrane staining. The nuclear counter stain is DAPI (blue). The isotype control was stained with anti-Fluorescein antibody followed by Alexa Fluor® 488 secondary antibody.

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