abcam

ab33996

FITC Anti-Transferrin Receptor antibody [YTA 74.4]

Anti-Transferrin Receptor antibody [YTA 74.4] conjugated to FITC - suitable for flow cytometry, and reacts with mouse samples. Clone [YTA 74.4] is a rat monoclonal antibody.

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Key facts

Isotype	IgG2a
Host species	Rat
Conjugation	FITC
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	pH: 7.4 Preservative: 0.09% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Cell preparation containing Tfrc protein. The exact immunogen used to generate this antibody is proprietary information. Database link Q62351
Clone number	YTA 74.4
Purification technique	Affinity purification Protein A
Concentration	0.1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified IgG prepared by ion exchange chromatography.

Reactivity data

Flow Cyt

Expected

Species	Mouse
Dilution info	-
Notes	Use 10ul to label 10^6 cells in 100ul. ab18446 - Rat monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

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

ab33996 stains dividing cells, and can be used to distinguish resting from activated T cells.

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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