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Transferrin Receptor/CD71 (D7G9X) XP[®] Rabbit mAb (PE Conjugate)

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications: FC-FP	Reactivity: H	Sensitivity: Endogenous	Source/Isotype: Rabbit IgG	UniProt ID: #P02786	Entrez-Gene Id: 7037
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Product Usage Information

Application

Flow Cytometry (Fixed/Permeabilized)

Dilution

1:50

Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibodies. Protect from light. Do not freeze.

Specificity/Sensitivity

Transferrin Receptor/CD71 (D7G9X) XP[®] Rabbit mAb (PE Conjugate) recognizes endogenous levels of total Transferrin Receptor/CD71 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu146 of human Transferrin Receptor/CD71 protein.

Description

This Cell Signaling Technology antibody is conjugated to phycoerythrin (PE) and tested in-house for direct flow cytometry analysis in human cells. This antibody is expected to exhibit the same species cross-reactivity as the unconjugated Transferrin Receptor/CD71 (D7G9X) XP[®] Rabbit mAb #13113.

Background

Transferrin receptor 1 (CD71, TFRC) is a type II transmembrane receptor and carrier protein responsible for the uptake of cellular iron through receptor-mediated endocytosis (1). Neutral pH at the cell surface promotes binding of the iron-binding glycoprotein transferrin (Tf) to the CD71 receptor. The receptor-ligand complex enters the cell through receptor-mediated endocytosis and is internalized into an endosome. Relatively lower endosomal pH leads to a change in the local charge environment surrounding the iron-transferrin binding site and results in the release of iron (2). The receptor-ligand complex is recycled to the cell surface where transferrin dissociates from the CD71 receptor (2). Ubiquitously expressed transferrin receptor is continuously recycled and undergoes clathrin-mediated endocytosis regardless of ligand binding state. The interaction between receptor and ligand has been studied in detail. The helical domain of CD71 directly interacts with the transferrin C-lobe and induces a conformation change in Tf to facilitate the transport process (3). Interaction between the receptor CD71 and transferrin is mediated by the membrane protein hemochromatosis (HFE). HFE binds the α -helical domain of CD71, blocking formation of the CD71-transferrin complex and inhibiting iron uptake (4,5). In addition to binding transferrin, CD71 also interacts with H-ferritin at the cell surface and transports this intracellular iron storage protein to cellular endosomes and lysosomes (6). Additional studies indicate that the transferrin receptor is an evolutionarily conserved receptor for a number of arenaviruses and at least one retrovirus (7,8). Aberrant expression of CD71 is seen in a number of cancers, including thyroid carcinomas, lymphomas, and T-lineage leukemias, suggesting a possible therapeutic role for targeted inhibition of the transferrin receptor (9,10).

Background References

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2. Bali, P.K. et al. (1991) *Biochemistry* 30, 324-8.
3. Cheng, Y. et al. (2004) *Cell* 116, 565-76.
4. Bennett, M.J. et al. (2000) *Nature* 403, 46-53.
5. Feder, J.N. et al. (1998) *Proc Natl Acad Sci U S A* 95, 1472-7.
6. Li, L. et al. (2010) *Proc Natl Acad Sci U S A* 107, 3505-10.
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8. Coffin, J.M. (2013) *PLoS Biol* 11, e1001574.
9. Magro, G. et al. (2011) *Thyroid* 21, 267-77.
10. Rodríguez, J.A. et al. (2011) *Leuk Lymphoma* 52, 2169-78.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Applications Key

FC-FP: Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human

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