

Product Specification Sheet

**Human Transferrin Receptor 1 (TfR1) Antibodies**

Cat. # TFR13-M	<b>Mouse</b> Monoclonal Anti-human TfR1 IgG # 3	<b>SIZE:</b> 100 ug
	<b>FORM:</b> Soln Lyophilized	
Cat. # TFR14-M	<b>Mouse</b> Monoclonal Anti-human TfR1 IgG- <b>Biotin</b> Conjugate	<b>SIZE:</b> 100 ug
	<b>FORM:</b> Soln Lyophilized	
Cat. # TFR13-M	<b>Mouse</b> Monoclonal Anti-human TfR1 IgG- <b>FITC</b> Conjugate	<b>SIZE:</b> 100 ug
	<b>FORM:</b> Soln Lyophilized	

**Shipping:** 4oC for solutions and room temp for powder.

**Recommended Usage**

**Western Blotting:** 1-5 ug/ml..

**Flow Cytometry:** 2-5 ug/ml using 1x10<sup>6</sup> cells.

**Histochemistry & Immunofluorescence:** not tested.  
Suggested concn, 1-5 ug/ml.

**Specificity & Cross-reactivity**

TFR13-M epitope has not been determined. No significant reactivity is seen with TfR2. Antibody reactivity in other species is not established. Purified human TfR1 protein (Cat # TFR11-C) can be used a positive control.

**General References:**

Schneider C et al (1984) Nature 311, 675-678;  
McClelland A et al (1984) Cell 39, 267-274; Shih YJ et al (1990) JBC 265, 19077-19081; ; Nelson N et al (1999) EMBO J. 18, 4361-4371 (review); Cairo G and Pietrangelo A et al (2000) Biochem. J. 352, 241-250

\*This product is for In vitro research use only.

Elemental iron is required for a variety of normal cellular functions and vital for proper growth and development. **Transferrin (Tf)**, a serum glycoprotein of ~80 kDa and synthesized in the liver, is the primary protein of inter-organ transport of nonheme iron. Tf can bind two iron atoms. Tf binds to membrane **Transferrin receptors (TfRs)** and taken up by endocytosis. Iron is released from Tf, within acidic endosomes, into the cytoplasm apparently through the action of DMT1. The apoTf-TfR complex is returned to the cell surface, where, apo-Tf dissociates from TfR at the extracellular pH. The classical TfR, now termed **TfR1**, is a homodimeric (95 kDa subunits) type II membrane glycoprotein that binds two molecules of Tf. Human TfR1 (human 760 aa; mouse 763 aa) has a cytoplasmic domain 1-67aa, 68-88 aa TM, and 89-760 aa as extracellular domains. A monomeric serum form or **soluble TfR1** (~80 kDa) also exists that lacks residues 1-100 aa. Recently, a second Tf receptor, **TfR2**, has been cloned and characterized. TfR2 shares 45% identity with TfR1, and 27% with PMSA. Human TfR2 (human alpha 801 aa, Chromosome 7q22; mouse alpha 798 aa;) is predicted to contain a cytoplasmic domain of 1-80 aa, 1 TM domain followed by 105-801 aa as the extracellular domain. It is highly expressed in liver and peripheral blood mononuclear cells. In contrast to TfR1, expression of TfR2 is not down regulated as a result of iron overload, consistent with the absence iron-responsive element in TfR2. It is alternatively spliced to **alpha and beta isoforms**. TfR2-beta protein lacked the N-terminal portion of the TfR2-alpha including the putative TM domain.

**Source of Antigen and Antibodies**

Purified **human TfR1** (~95 kDa) was used as immunogen to produce **monoclonal** antibodies in **mouse**. A clone producing anti-TfR1 (IgG1K) was expanded in mice as ascites. The antibody has been purified using Protein A/G column chromatography. Unconjugated IgG (**Cat # TFR13-M**) is supplied in PBS pH 7.2, containing 0.1% BSA and 0.1% azide in solution or in powder form.

Purified anti-TfR1 IgG was conjugated to **Biotin (cat # TFR14-M)** or **FITC (cat # TFR15-M)**. The conjugates are supplied at 100 ug/ml as solution in PBS pH 7.2, containing 0.1% BSA and 0.1% azide or in powder form.

**Form & Storage**

**Affinity pure IgG**

100 ug solution contains 0.05% sodium azide	50 ug lyophilized powder
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Reconstitute powder **in the original vol. of water**

**Storage**

**Short-term:** unopened, undiluted vials for less than a week at 4oC.

**Long-term:** at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20oC or below.

**Related material available from ADI**

Antibodies NRAMP1/2, MTP1, Transferrin, and TfRs receptors (TfR1 and TfR2) , Ferritin, H and L-chain, Hemeoxygenases 1-3, HFE, Dcytb, IRP1 and IRP2, Frataxin;

Human and mouse Transferrin ELISA kits

TFR13-15-M 40421A

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