

Product Specification Sheet

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

Cat. # TFR11-M	<b>Mouse</b> Monoclonal Anti-human TfR1 IgG # 1	<b>SIZE:</b> 100 ug
Cat. # TFR11-C	Purified Human <b>placenta</b> TfR1 protein W. B. +ve Control # 1	<b>SIZE:</b> 100 ul
Cat. # TFR12-C	Purified Human <b>soluble</b> TfR1 protein W. B. +ve Control # 1	<b>SIZE:</b> 100 ul

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 105-801aa 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**

<b>Antigen</b>	Purified <b>human soluble TfR1</b> (~80 kDa) protein
<b>Ab Host/type</b>	Balb/c <b>mouse</b> . Splenocytes were fused with Sp2/0 myeloma cells. Resulting clone (designated TFR11, isotype IgG2b), selected for reactivity with TfR1, was expanded into mice as <b>ascites</b> . Antibody has been purified by Protein A/G column chromatography.
<b>2-Ab</b>	Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available))
<b>-ve control IgG</b>	Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as -ve control

TfR1 (full length, **#TFR11-C**) and soluble forms (**#TFR12-C**) were purified (>95%) from human placenta and blood using samples – ve for HIV/HbSAg/HCV etc. However, all precautions must be observed to avoid contamination. For Western blot +ve control (**Cat # TFR11-C and TFR12-C**) are supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane for good visibility with antibody Cat # **TFR11-M**. Store at –20oC in suitable size aliquots. SDS may crystallize in cold conditions. It should redissolve by warming before taking it from the stock. It should be heated once prior to loading on gels. If the

product has been stored for several weeks, then it may be preferable to add 5 ul of fresh 2x sample buffer per 10 ul of control protein solution prior to heating and loading on gels. This preparation is not biologically active. It is not suitable for ELISA or other applications where native protein is required. Do not freeze, thaw, or heat repeatedly.

**Form & Storage of Antibodies/Peptide Control**

**Aff pure IgG**  
100 ug/vial solution lyophilized powder  
contains 0.05% azide **Reconstitute powder** in 100 ul PBS

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

**Recommended Usage**

**Western Blotting** (1:1K-5K antibody using ECL technique). TfR1 (full length) is approx 95 kDa. TfR11-C can be used +ve control. TfR12-C (~80 kDa) may serve as a control for soluble TfR1.

**ELISA:** Control protein can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ug/ml pure).

**Histochemistry & Immunofluorescence:** Not tested.

**Specificity & Cross-reactivity**

TfR11-M reacts with both soluble and membrane forms of human TfR1. No significant reactivity is seen with TfR2. other species. Antibody reactivity in other species is not established. Purified human TfR1 protein (Cat # TFR11-C) or the soluble TfR1 (Cat # TFR12-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; Cairo G and Pietrangelo A (2000) Biochem. J. 352, 241-250

**2. Citations of for ADI Antibodies** (see updates at the web site)

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Yersin A, 2007, Biophys. J., Sep 2007, ,  
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\*This product is for In vitro research use only.

TFR11-M-11-12-C

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