

Product Specification Sheet

Human Transferrin Receptor 1 (TfR1) Soluble protein

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| Cat. # TFR16-R-10 | Human TfR1 soluble protein (purified) | SIZE: 10 ug |
| Cat. # TFR16-R-50 | Human TfR1 soluble protein (purified) | SIZE: 50 ug |

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

Purified human soluble TFR1 (~80 kda, **cat # TFR16-R-10** and **cat # TFR16-R-50**) was purified from human samples that were -ve for HIV/HbsAg/HCV etc. However, all precautions must be observed for disposal and avoid contamination. The protein is supplied in PBS, pH 7.4 at 10 ug/20 ul (0.5 mg/ml). Lot specific concentration will be provided on the vials. Stock solution can be prepared in appropriate buffers at a desired protein concentration. Before opening the vials, centrifuge the tube to collect all material or liquid at the bottom. Some evaporation of liquid is possible due to evaporation or buffer solution at the top. However, the protein content will be 10 ug/vial. Store frozen at -20oC or below in suitable size aliquots. Avoid freeze and thaw.

Powder contains 0.1% azide. Appropriate preservative (Azide or merthiolate) or carrier proteins (BSA etc) may be added if desired to the stock solution.

Storage

Short-term: unopened, undiluted vials at -20oC.

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

The TFR16-R can be used for ELISA or western standard at optimal concentrations.

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.

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

TFR16-R-1-50 71216A