

Product Specification Sheet

Anti-Rat Transferrin (Tf) Antibodies

Cat. # TF12-S	Goat Anti-Rat Transferrin antiserum	SIZE: 100 ug
Cat. # TF12-C	Purified Rat Transferrin protein W. Blot +ve control	SIZE: 100 ul

Elemental iron is required for a variety of normal cellular functions and vital for proper growth and development. However, natural iron is quite insoluble and excess iron is harmful, since it can catalyze the formation of potentially damaging reactive oxygen species. The major pool of body iron (~85%; 40-50 mg/kg) is found in circulating hemoglobin and muscle myoglobin. Iron absorption occurs primarily in the intestine (duodenum) and inversely related to body iron reserve. Several proteins including **Ferritin, transferrin (Tf), transferrin receptors (TfRs), and iron regulatory proteins (IRPs)** etc play a key role in iron metabolism.

Transferrin (Tf, human chromosome 3, 679 aa), 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; Rat 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. Several variants of Tf have been identified with varying iron binding ability.

Source of Antigen and Antibodies

Purified Rat serum Tf was used to immunized goat (**Cat # TF12-S**). It is supplied as undiluted antiserum containing 0.05% azide. Store frozen

Antigen	Purified Rat serum Tf protein
Ab Host/type	Goat, Polyclonal antiserum (Cat # TF12-S)
2-Ab	Rabbit Anti-goat IgG-HRP conjugate Cat # 30220 (AP, biotin, FITC conjugates also available)
-ve control IgG	# 20011-1, Goat (non-immune) IgG, purified, suitable for ELISA, Western, IHC as -ve control

Purified Rat serum Tf (>98% purity, **Cat # TF12-C**) is supplied in SDS-PAGE sample buffer (reduced). Load 10 ul/lane of **TF12-C** for good visibility with antibody Cat # **TF12-S**. 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 the **RELMG31-C** 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

Antiserum (unpurified, undiluted)

100 ul/vial solution lyophilized powder
contains 0.05% sodium azide **Reconstitute powder** 100 ul PBS

Storage

Short-term: unopened, undiluted liquid 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). Tf is ~80 kDa.

ELISA: coat ELISA plates at 1 ug/ml and detected with antibodies (1:1K-10K for neat serum and 1-5 ug/ml for IgG).

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Anti-Rat Tf antibodies reacts with Rat and poorly with mouse and human. We recommend using other antibodies for human (cat# TF11-A) and mouse (TF14-S). Antibody cross-reactivity in various other species has not been studied. Purified human, Rat, and rat Tfs proteins are available for use as positive controls.

General References: Bowman, B. H. et al (1988) Adv. Genet. 25: 1-38; Evans, R. W. et al (1982) Biochem. J. 201: 19-26; MacGillivray, R. T. A et al (1982) PNAS 79: 2504-2508; Park, I. et al (1985) PNAS 82, 3149; Uzan, G. et al (1984) BBRC 119, 273; Yang, F. et al (1984) PNAS 81, 2752-2756; Nelson N et al (1999) EMBO J. 18, 4361(review); Cairo G 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, HOX1-3, HFE, Dcytb, IRP1 and IRP2, Frataxin; Human and Rat Transferrin ELISA Kits

Recycle Immunoblot in Just 5-10 min at room temp. (use the same strip for various ferritins)

TF12-S-C

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