ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Anti-Human Transferrin (Tf) Antibodies

Cat. # TF11-S	**Goat** Anti-Human Transferrin antiserum	**SIZE**: 100 ul
Cat. # TF11-A	**Goat** Anti-Human Transferrin IgG	**SIZE**: 100 ug
Cat. # TF11-HRP	**Goat** Anti-Human Transferrin IgG-HRP Conjugate	**SIZE**: 100 ug
Cat. # TF11-C	Purified **Human** 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; 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. Several variants of Tf have been identified with varying iron binding ability.

Source of Antigen and Antibodies

Antigen	Purified human serum Tf protein
Ab Host/type	Goat, Polyclonal antiserum (#TF11-S) and purified IgG, purified over antigen-agarose (Cat # TF11-A)
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 human serum Tf (>98% purity, **Cat # TF11-C**) was used to prepare the Western blot positive controls, that are supplied in denaturing SDS-PAGE sample buffer ready to load on gels (10 ul/lane) and detect with appropriate antibodies (TF11-S etc). Heat once prior to loading. Store frozen in suitable aliquots.

Cat# TF11-HRP, Anti-TF IgG-HRP-conjugate

Purified antibody was coupled to HRP (RZ>3.0) using periodate method. The molar enzyme to protein (E/P) ratio = 4.0. The antibody is supplied in stabilizing buffer, 0.1% prolcin-300 as preservative in either **lyophilized** (0.1 ml) or **liquid** form (100 ul; @ 1 mg/ml).

Reconstitute powder in PBS in 0.1 ml. Store at 4oC in suitable aliquots. Stability is ~6-12 months. Do not freeze and thaw.

Suggested conjugate dilutions are 1:1,000-1:10,000 ELISA, 1:1K-1:5K for western, and 1:200-1:1000 (IHC).

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
100ul solution lyophilized powder
Supplied 0.05% azide, **Reconstitute** powder in 100 ul PBS

Affinity pure IgG
100 ug/100ul solution lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Storage
Short-term: unopened, undiluted liquid vials at -20OC and powder at 4oC or -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

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 antiserum and 1-5 ug/ml for IgG).

Histochemistry & Immunofluorescence: Not tested.

Specificity & Cross-reactivity

Anti-human Tf antibodies reacts with human and poorly with mouse and rat. We recommend using other antibodies for mouse (cat# TF14-A) and rat (Tf12-S). Antibody cross-reactivity in various other species has not been studied. Purified human, mouse, 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 (1999) EMBO J. 18, 4361; Cairo G I (2000) Biochem. J. 352, 241-250

*This product is for In vitro research use only.

Related material available from ADI
Antibodies Transferrin, and TfRs receptors (TfR1 and TfR2) , Ferritin, H and L-chain, Human and Mouse Trasnferrin ELISA Kits
TF11-S-A-C-HRP 71216A

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