ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Mouse Apo-Transferrin (Tf) Protein

Cat. # TF14-N	Purified **Mouse** Apo-Transferrin protein	**SIZE**: 100 ug
Cat. # TF14-N-1	Purified **Mouse** Apo-Transferrin protein	**SIZE**: 1 mg

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.

To form holo-transferrin (i.e., to saturate apo-transferrin with iron), the following procedure can be followed. The apo-transferrin is mixed with 2% of its mass in ferrous ammonium sulfate hexahydrate with sodium carbonate buffer, pH 5.9, for 1.5 hours. The pH is then raised to 8.5 with sodium carbonate and the solution is mixed for an additional 1.5 - 2 hours. The sample is then dialyzed against water to remove the buffer salts.

Source of Antigen

Mouse (Webster strain) Transferrin was purified by salt fractionation and chromatographical methods to (>95%, mol wt ~80 Kda). No heating was used during the purification. Purified protein is free from IgG or other contaminating serum proteins.

Mouse serum Transferrin is supplied in PBS, pH 7.4 at 1 mg/ml or in powder form. Reconstitute the protein PBS or other buffers at 1 mg/ml or other desired concentrations. Store powder at 4oC and reconstituted solution at -20oC. Avoid repeated freeze and thaw.

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

Recommended Usage

Mouse serum Transferrin can be used a carrier protein, molecular weight standards, antigen or ELISA standards.

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

Mouse albumin, Transferrin, IgG, CRP, IgG, IgA, IgM, and IgE ELISA kits

TF14-N-1	71216A

Alpha Diagnostic Intl Inc., 6203 Woodlake Center Dr, San Antonio, TX 78244, USA; **Email**: service@4adi.com
☎ (800) 786-5777; (210) 561-9515; **Fax**: (210) 561-9544; **Web Site**: www.4adi.com