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Product Specification Sheet

Rat Transferrin Receptor 1 (TfR1) Antibodies

☐ Cat. # TFR18-M **Mouse** Monoclonal Anti-Rat TfR1 IgG # 1 **SIZE**: 100 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

Antigen	Purified **rat Tfr1** protein
Ab Host/type	Balb/c **mouse**. Splenocytes were fused with Sp2/0 myeloma cells. Resulting clone (designated TFR11, isotype IgG2a), selected for reactivity with TfR1, was expanded into mice as **ascites**. Antibody has been purified by Protein A/G column chromatography.
2-Ab	Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available))
-ve control IgG	Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control

Isotype Controls for mouse IgG2a

Catalog#	ProdDescription
20102-102	Mouse IgG2a isotype control, purified
20102-102-B	Mouse IgG2a-Biotin conjugate (isotype control)
20102-102-F	Mouse IgG2a-FITC conjugate (isotype control)
20102-102-FP	Mouse IgG2a-FITC-PE conjugate
20102-102-HP	Mouse IgG2a-HRP conjugate (isotype control)
20102-102-PC5	Mouse IgG2a-PE-Cy5 conjugate (isotype control)
20102-102-PE	Mouse IgG2a-PE conjugate (isotype control)

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 (1-2 ug/ml). TfR1 (full length) is approx 95 kDa.

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

Flow cytometry (FACS) : assay dependent.

Specificity & Cross-reactivity

TfR11-M reacts with both soluble and membrane forms of rat TfR1. No significant reactivity is seen with TfR2. Antibody reactivity in other species is not established. Antibodies to human and mouse Tfr1 are also available.

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 for ADI Antibodies (see updates at the web site)
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*This product is for In vitro research use only.

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