ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

# Rat Transferrin Receptor Protein 2 (Tfr2) Antibodies

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| ☐ Cat. # AB-23100-A | Rabbit Anti-Rat Tfr2 IgG (aff pure) | **SIZE**: 100 ug |
| ☐ Cat. # AB-23100-P | Rat Tfr2 Control/blocking peptide | **SIZE**: 100 ug |

Transferrin is a serum glycoprotein of ~80 kDa is the primary protein of inter-organ transport of nonhaeme iron. Tf binds to transferrin receptors and are uptaken by endocytosis. TfR production in the cell is regulated by iron response through iron regulatory element binding protein. It is needed for the import of iron into the cell and is regulated by intracellular iron concentration. Low iron concentrations promote increased levels of transferrin receptor, to increase iron intake into the cell. Thus, transferrin receptor maintains cellular iron homeostasis. There are two kinds of receptors namely Tfr1 and Tfr2 which was recently identified. Both the genes in the family encodes a single-pass type II membrane protein and are homodimers. Transferrin receptor 1 also called as CD71 is essential for development of erythrocytes and nervous system. Tfr1 varies from Tfr2 as Tfr1 has PA domain which is not found in Tfr2. Additionally Tfr1 receptors in rats lacks the 100 amino acids found in Tfr2 receptors. Transferrin receptor 2 (TfR2) is encoded by the TFR2 gene in humans and is predominantly found in liver, intestine, spleen, lung, muscle, prostate, and peripheral blood mononuclear cells. TfR2 localizes in the lipid raft domains and colocalized with it is the tetraspanin CD81. TfR2 activates MAPK pathway enabling signal transduction across the membrane. Mutations in the gene encoding TfR2 produce hemochromatosis and iron loading in the liver. This signaling connection supports the hypothesis that TfR2 serves as a sensor of hepatic iron status to regulate the activity of hepcidin, which is a hormone released by the liver that inhibits intestinal iron absorption and iron release by macrophages.

**Function**: Mediates cellular uptake of transferrin-bound iron in a non-iron dependent manner. May be involved in iron metabolism, hepatocyte function and erythrocyte differentiation.
**Subcellular Location**: Cell membrane; Single pass type II membrane.
**Protein name** Transferrin receptor protein 2
**Synonyms** Tfr2
**Gene name** Name: Tfr2, Synonyms: Tfr2
**Similarity**: Belongs to the peptidase M28 family. M28B family.

## Source of Antigen and Antibodies

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| **Antigen** | 17-aa peptide of rat Tfr2; (protein accession #B2GUY2). (**designated Transferrin receptor 2 or control peptide**)conjugated to KLH; Epitope location ~ N-terminus, extracellular domain |
| **Ab Host/type** | Rabbit, polyclonal Aff pure IgG1 (**cat #AB-23100-A**) purified over the antigen column |
| **2-ab** | Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available |
| **-ve control** | # 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control |

### Form & Storage of Antibodies/Peptide Control

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

**Control/blocking peptide**
☐ 100 ug/100 ul ☐ solution ☐ lyophilized powder
Supplied in Buffer: PBS pH 7.5,

**Reconstitute powder in PBS at 1 mg/ml.**

**Storage**
**Short-term**: unopened, undiluted liquid vials at 20°C and powder at 4°C or -20°C..
**Long-term**: at –20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability**: 6-12 months at –20°C or below.
**Shipping**: 4°C for solutions and room temp for powder

### Recommended Usage

**Western Blotting** (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure using Chemiluminescence technique).

**ELISA** (1:10K-1:100K; using 50-100 ng of control peptide/well).

**Histochemistry & Immunofluorescence**: not tested. We recommend the use of affinity pure antibody at 2-20 ug/ml.

### Specificity & Cross-reactivity

Rat-AB-23100 peptide sequence is 88% conserved in mouse and 67% conserved in human. Cross reactivity between species has not been studied and established. Control peptide because of its low molecular weight (<3 kDa) is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug contol peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity.

**General References:** Camaschella C., (2000) Nat.Genet. 25: 14; Gerhard DS (2004) Genome Research 14(10B), 2121.

**This product is for In vitro research use only.*

**Related materials available from ADI**

**Antibodies**:

AB-23100-A-P 120234SM

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