

DESCRIPTION

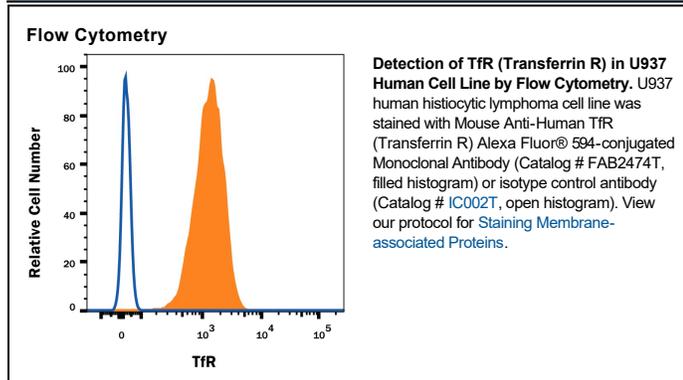
Species Reactivity	Human
Specificity	Detects human TfR in direct ELISAs.
Source	Monoclonal Mouse IgG ₁ Clone # 29806
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Human TfR
Conjugate	Alexa Fluor 594 Excitation Wavelength: 590 nm Emission Wavelength: 617 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10 ⁶ cells	See Below

DATA



PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. ● 12 months from date of receipt, 2 to 8 °C as supplied.

BACKGROUND

The Transferrin Receptor (TfR or TfR-1, designated CD71) is a type 2 transmembrane glycoprotein expressed on erythroid progenitors, muscle cells and proliferating cells as a 188 kDa disulfide-linked homodimer of 95 kDa monomers (1-4). As the major mediator of cellular iron uptake, it binds and internalizes diferric transferrin, allowing iron release at the low pH of the endosome (2, 5). The human TfR cDNA encodes 760 amino acids (aa) including a 67 aa N-terminal intracellular domain, a 21 aa transmembrane domain, and a 672 aa extracellular domain (ECD) with helical, peptidase (nonfunctional), and ligand binding domains, including an RGD potential integrin binding site (5). Human TfR ECD shares 75-80% aa identity with mouse, rat, feline, canine, equine, porcine and bovine TfR. A 679 aa alternately spliced form begins at aa 82 and is presumably secreted, while in an 804 aa form, 44 aa are inserted at aa 518 within the peptidase region (6). Most soluble TfR (sTfR) arises from trypsin proteolysis at aa 100, producing the circulating form of TfR (3). sTfR concentration in plasma or serum is proportional to total TfR and can be increased by iron deficiency (3). Erythroid progenitors, which use iron for hemoglobin synthesis, normally account for the bulk of total body TfR production (3). Since rapidly growing cells require iron to replicate DNA, cancer cells can express up to 5-fold more TfR than quiescent cells in the surrounding tissue (2, 4). Antibody targeting of TfR can inhibit tumor cell proliferation and induce apoptosis (2, 4). The hereditary hemochromatosis protein HFE competes with diferric transferrin for binding to TfR, and targets TfR for degradation rather than recycling (2, 5). TfR has been reported to have ferritin-independent functions in T cell development, immunological synapse formation and galectin-3-mediated cell death, and to be a cell entry receptor for New World hemorrhagic fever arenaviruses (2, 4, 7).

References:

1. Schneider, C. *et al.* (1984) *Nature* **311**:675.
2. Daniels, T.R. *et al.* (2006) *Clin. Immunol.* **121**:144.
3. Skikne, B.S. (2008) *Am. J. Hematol.* **83**:872.
4. Macedo, M.F. and M. deSousa (2008) *Inflamm. Allergy Drug Targets* **7**:41.
5. Aisen, P. (2004) *Int. J. Biochem. Cell Biol.* **36**:2137.
6. Entrez protein Accession # EAW53671, EAW53672.
7. Radoshitzky, S.R. *et al.* (2007) *Nature* **446**:92.

PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.