

## Recombinant Human TFRC Protein, C-His-tagged

Cat. No. TFRC-137H Lot. No. (See product label)

### SPECIFICATION

**Product Overview** Recombinant Human TFRC Protein with C-His tag was expressed in E. coli.

**Species** Human

**Source** E.coli

#### Description

Transferrin receptor 1 (CD71, TFRC) is a type II transmembrane receptor and carrier protein responsible for the uptake of cellular iron through receptor-mediated endocytosis. Neutral pH at the cell surface promotes binding of the iron-binding glycoprotein transferrin (Tf) to the CD71 receptor. The receptor-ligand complex enters the cell through receptor-mediated endocytosis and is internalized into an endosome. Relatively lower endosomal pH leads to a change in the local charge environment surrounding the iron-transferrin binding site and results in the release of iron. The receptor-ligand complex is recycled to the cell surface where transferrin dissociates from the CD71 receptor. Ubiquitously expressed transferrin receptor is continuously recycled and undergoes clathrin-mediated endocytosis regardless of ligand binding state. The interaction between receptor and ligand has been studied in detail. The helical domain of CD71 directly interacts with the transferrin C-lobe and induces a conformation change in Tf to facilitate the transport process. Interaction between the receptor CD71 and transferrin is mediated by the membrane protein hemochromatosis (HFE). HFE binds the  $\alpha$ -helical domain of CD71, blocking formation of the CD71-transferrin complex and inhibiting iron uptake. In addition to binding transferrin, CD71 also interacts with H-ferritin at the cell surface and transports this intracellular iron storage protein to cellular endosomes and lysosomes. Additional

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studies indicate that the transferrin receptor is an evolutionarily conserved receptor for a number of arenaviruses and at least one retrovirus. Aberrant expression of CD71 is seen in a number of cancers, including thyroid carcinomas, lymphomas, and T-lineage leukemias, suggesting a possible therapeutic role for targeted inhibition of the transferrin receptor.

**Molecular Mass** ~27 kDa

**AA Sequence**  
 QNVKHPVTGQFLYQDSNWASKVEKLTLDNAAFPFLAYSGIPAVSFCFCEDTDYPYL  
 GTTMDTYKELIERIPELNKVARAAAEVAGQFVIKLTHTDVELNLDYERYNSQLLSFVRD  
 LNQYRADIKEMGLSLQWLYSARGDFFRATSRLTTDFGNAEKTRDFVMKKLNDRVMR  
 VEYHFLSPYVSPKESPFRHVFWGSGSHTLPALLENLKLKQNNGAFNETLFRNQLA  
 LATWTIQGAANALSG

**Purity** Transferred into competent cells and the supernatant was purified by NI column affinity chromatography and the purity is > 85% (by SDS-PAGE).

**Notes** For research use only, not for use in diagnostic procedure.

**Storage** Store at 4 centigrade short term. Aliquot and store at -20 centigrade long term. Avoid freeze-thaw cycles.

**Concentration** ≥0.5 mg/mL

**Storage Buffer** PBS, 4M Urea, pH7.4

## GENE INFORMATION

**Gene Name** [TFRC transferrin receptor \(p90, CD71\) \[ Homo sapiens \(human\) \]](#)

**Official Symbol** [TFRC](#)

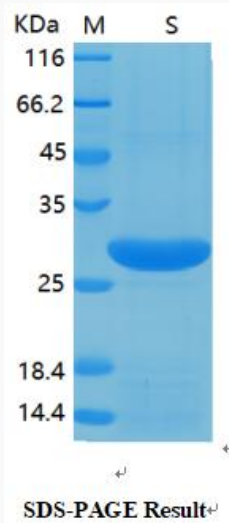
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|                       |   |
|-----------------------|---|
| <b>Synonyms</b>       | TFRC; transferrin receptor (p90, CD71); transferrin receptor protein 1; CD71; TFR1; T9; TR; TFR; p90; TRFR; |
| <b>Gene ID</b>        | 7037  |
| <b>mRNA Refseq</b>    | NM_001128148  |
| <b>Protein Refseq</b> | NP_001121620  |
| <b>MIM</b>            | 190010  |
| <b>UniProt ID</b>     | P02786  |

**SDS-PAGE**



The SDS-PAGE gel image shows two lanes: 'M' (molecular weight markers) and 'S' (sample). The markers in lane M are labeled with their respective molecular weights in kDa: 116, 66.2, 45, 35, 25, 18.4, and 14.4. Lane S shows a single, prominent blue band at a position corresponding to approximately 90 kDa, which is consistent with the expected size of the transferrin receptor protein 1 (CD71).

SDS-PAGE Result

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