



## Synonym

Transferrin,TF,DKFZp781D0156,PRO1557,PRO2086

## Source

Human Transferrin Protein, premium grade(TRN-H5216) is expressed from human 293 cells (HEK293). It contains AA Val 20 - Pro 698 (Accession # [AAH59367](#)).

Predicted N-terminus: Val 20

*It is produced under our rigorous quality control system that incorporates a comprehensive set of tests including sterility and endotoxin tests. Product performance is carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage. When ready to transition into later clinical phases, we also offer a custom GMP protein service that tailors to your needs. We will work with you to customize and develop a GMP-grade product in accordance with your requests that also meets the requirements for raw and ancillary materials use in cell manufacturing of cell-based therapies.*

## Molecular Characterization

**Transferrin(Val 20 - Pro 698)**  
**AAH59367**

This protein carries no "tag".

The protein has a calculated MW of 75.2 kDa. The protein migrates as 71 kDa $\pm$ 3 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under non-reducing (NR) condition (SDS-PAGE) due to glycosylation.

## Endotoxin

Less than 0.0001 EU per  $\mu$ g by the LAL method.

## Host Cell Protein

<0.5 ng/ $\mu$ g of protein tested by ELISA.

## Host Cell DNA

<0.02 ng/ $\mu$ g of protein tested by qPCR.

## Sterility

The sterility testing was performed by membrane filtration method.

## Mycoplasma

Negative.

## Purity

>95% as determined by SDS-PAGE.

>98% as determined by SEC-MALS.

## Formulation

Lyophilized from 0.22  $\mu$ m filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

## Reconstitution

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

## Storage

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

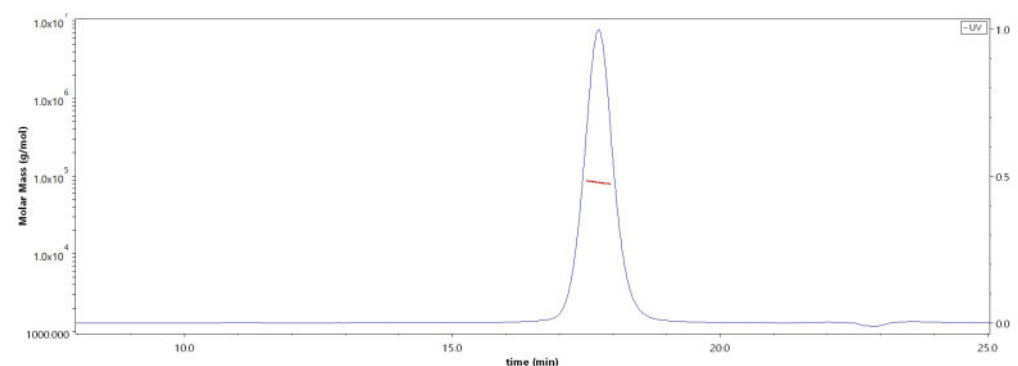
*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- -20°C to -70°C for 24 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

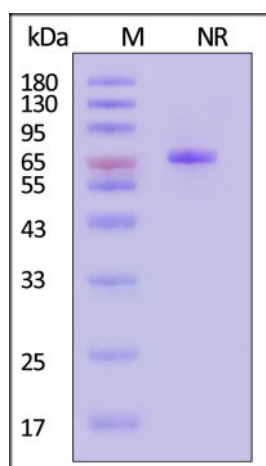
## SDS-PAGE

## SEC-MALS



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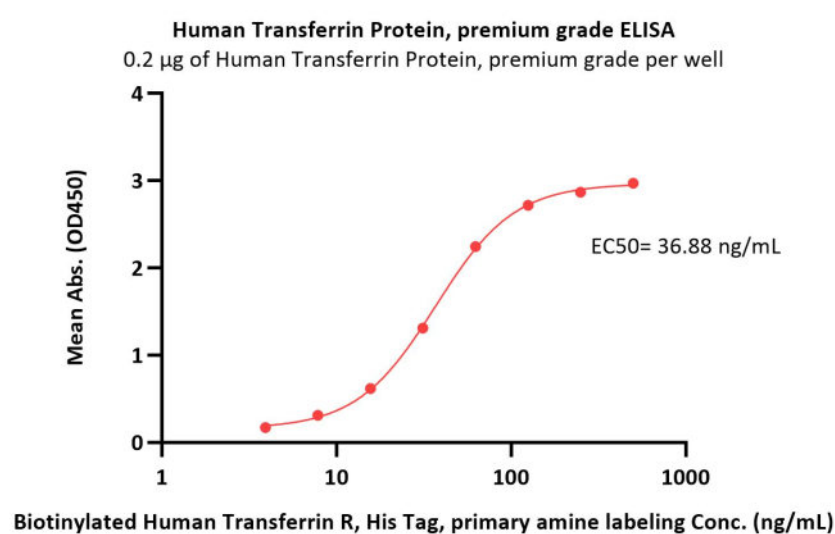
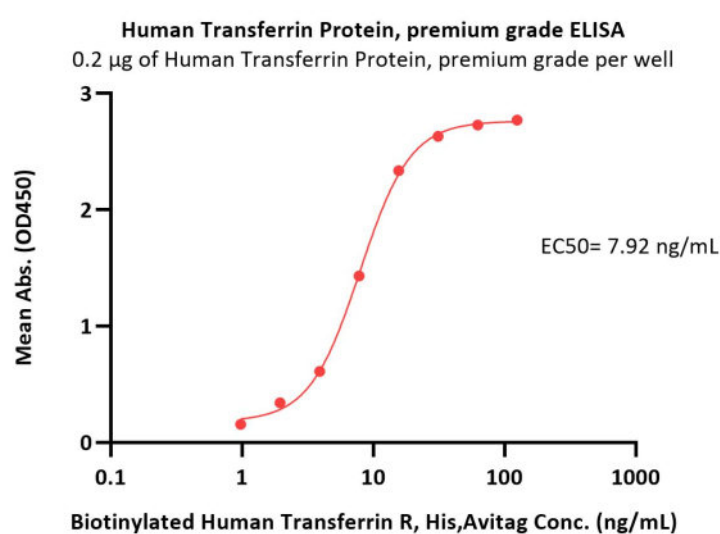


The purity of Human Transferrin Protein, premium grade (Cat. No. TRN-H5216) is more than 98% and the molecular weight of this protein is around 75-95 kDa verified by SEC-MALS.

[Report](#)

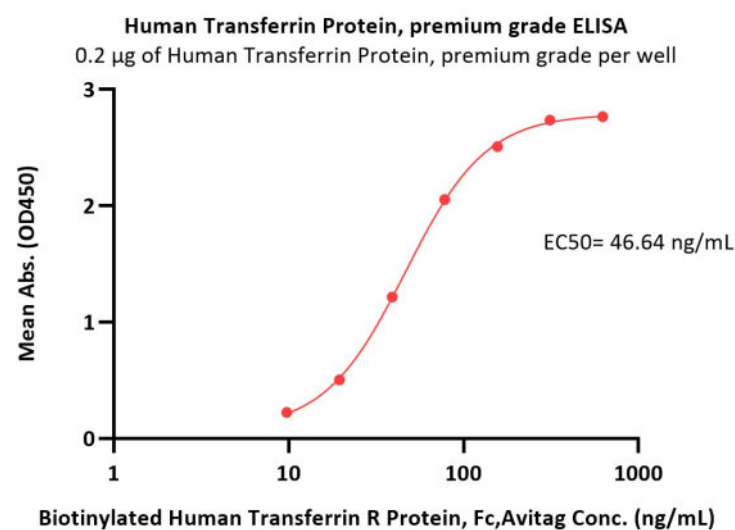
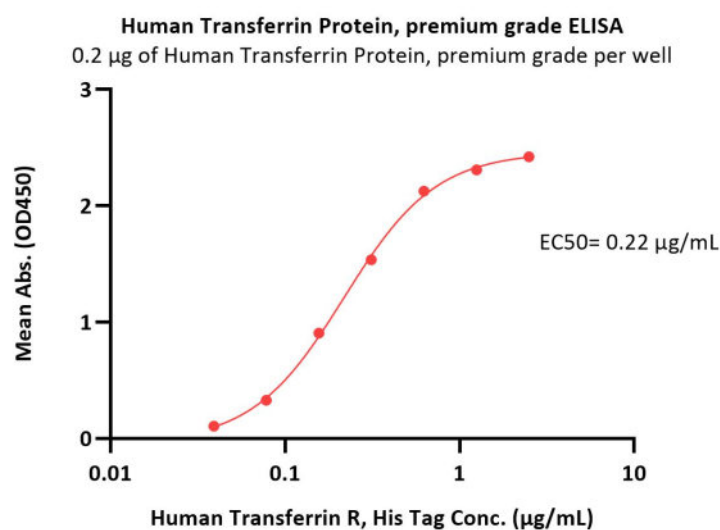
Human Transferrin Protein, premium grade on SDS-PAGE under non-reducing (NR) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With [Star Ribbon Pre-stained Protein Marker](#)).

## Bioactivity-ELISA



Immobilized Human Transferrin Protein, premium grade (Cat. No. TRN-H5216) at 2 µg/mL (100 µL/well) can bind Biotinylated Human Transferrin R, His,Avitag (Cat. No. TFR-H82E5) with a linear range of 1-16 ng/mL (QC tested).

Immobilized Human Transferrin Protein, premium grade (Cat. No. TRN-H5216) at 2 µg/mL (100 µL/well) can bind Biotinylated Human Transferrin R, His Tag, primary amine labeling (Cat. No. TFR-H8243) with a linear range of 4-63 ng/mL (Routinely tested).



Immobilized Human Transferrin Protein, premium grade (Cat. No. TRN-H5216) at 2 µg/mL (100 µL/well) can bind Human Transferrin R, His Tag (Cat. No. CD1-H5243) with a linear range of 0.039-0.313 µg/mL (Routinely tested).

Immobilized Human Transferrin Protein, premium grade (Cat. No. TRN-H5216) at 2 µg/mL (100 µL/well) can bind Biotinylated Human Transferrin R Protein, Fc,Avitag (Cat. No. TFR-H82F3) with a linear range of 10-78 ng/mL (Routinely tested).

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## Background

Transferrin is also known as Serotransferrin, Beta-1 metal-binding globulin, TF, and is iron-binding blood plasma glycoproteins that control the level of free iron in biological fluids. Although iron bound to transferrin is less than 0.1% (4 mg) of the total body iron, it is the most important iron pool, with the highest rate of turnover (25 mg/24 h). The affinity of transferrin for Fe(III) is extremely high ( $10^{23} \text{ M}^{-1}$  at pH 7.4) but decreases progressively with decreasing pH below neutrality. When not bound to iron, it is known as "apo-transferrin". In humans, transferrin consists of a polypeptide chain containing 679 amino acids. It is a complex composed of alpha helices and beta sheets to form two domains (the first situated in the N-terminus and the second in the C-terminus). The N- and C-terminal sequences are represented by globular lobes and between the two lobes is an iron-binding site. The liver is the main source of manufacturing transferrin, but other sources such as the brain also produce this molecule. Transferrin is also associated with the innate immune system. Transferrin is found in the mucosa and binds iron, thus creating an environment low in free iron that impedes bacteria survival in a process called iron withholding. The level of transferrin decreases in inflammation. The metal binding properties of transferrin have a great influence on the biochemistry of plutonium in humans. Transferrin has a bacteriocidal effect on bacteria, in that it makes  $\text{Fe}^{3+}$  unavailable to the bacteria. Carbohydrate deficient transferrin increases in the blood with heavy ethanol consumption and can be monitored via laboratory testing.

## Clinical and Translational Updates

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