

## Datasheet for 009-0634

## Human Transferrin Biotin

### Overview

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>Description:</b>  | Human Transferrin Biotin Conjugated - 009-0634 |
| <b>Item No.:</b>     | 009-0634                                       |
| <b>Size:</b>         | 1 mg                                           |
| <b>Applications:</b> | Dot Blot, Other                                |
| <b>Origin:</b>       | Human                                          |

### Product Details

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Background:</b>        | Human transferrin is encoded by the TF gene and is an iron-binding blood plasma glycoprotein that controls the level of free iron in biological fluids. Human transferrin binds iron very tightly but reversibly. Human transferrin is the most important iron pool in mammals. Human transferrin has a molecular weight of around 80 kDa and contains 2 specific high-affinity Fe(III) binding sites. The affinity of Human transferrin for Fe(III) is extremely high but decreases progressively with decreasing pH below neutrality. Human Transferrin also plays a role in the immune system, creating environments low in iron for which many pathogenic bacteria are unable to thrive. |
| <b>Synonyms:</b>          | Human Transferrin Biotin Conjugation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Species of Origin:</b> | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Conjugate:</b>         | Biotin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Format:</b>            | Transferrin                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Type:</b>              | Native Protein                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>F/P Ratio:</b>         | 10-20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

### Target Details

|                            |                                                                                                                                                                                                                                                                   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Purity/Specificity:</b> | This product was prepared from normal serum by a multi-stage process that includes delipidation and selective precipitation. Assay by immunoelectrophoresis resulted in a single precipitin arc against anti-biotin, anti-Human Transferrin and anti-Human Serum. |
| <b>Relevant Links:</b>     | <ul style="list-style-type: none"><li>• <a href="#">NCBI - AAB22049.1</a></li><li>• <a href="#">UniProtKB - Q06AH7</a></li></ul>                                                                                                                                  |

- **GenelD - 7018**

## Application Details

|                                |                                                                                                                                                                                                                        |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tested Applications:</b>    | Dot Blot                                                                                                                                                                                                               |
| <b>Suggested Applications:</b> | Other (Based on references)                                                                                                                                                                                            |
| <b>Application Note:</b>       | Human Transferrin Biotin has been tested in dot blot and is designed for Immunoblotting, ELISA, immunohistochemistry, immunomicroscopy as well as other antibody based assays using streptavidin or avidin conjugates. |
| <b>Assay Dilutions:</b>        | All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.                                                                                                                        |

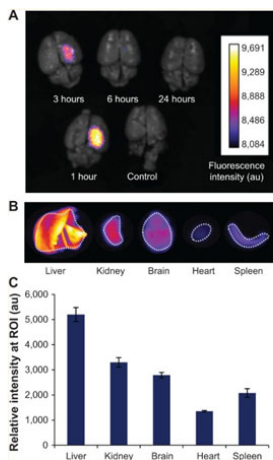
## Formulation

|                               |                                                            |
|-------------------------------|------------------------------------------------------------|
| <b>Physical State:</b>        | Lyophilized                                                |
| <b>Concentration:</b>         | 1.0 mg/mL by UV absorbance at 280 nm                       |
| <b>Buffer:</b>                | 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2 |
| <b>Preservative:</b>          | 0.01% (w/v) Sodium Azide                                   |
| <b>Stabilizer:</b>            | 10 mg/ml Polyethylene Glycol (PEG-8000)                    |
| <b>Reconstitution Volume:</b> | 1.0 mL                                                     |
| <b>Reconstitution Buffer:</b> | Restore with deionized water (or equivalent)               |

## Shipping & Handling

|                            |                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shipping Condition:</b> | Ambient                                                                                                                                                                                                                                                                                                                                         |
| <b>Storage Condition:</b>  | Store vial at 4° C prior to restoration. For extended storage aliquot contents and freeze at -20° C or below. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use. |
| <b>Expiration:</b>         | Expiration date is one (1) year from date of receipt.                                                                                                                                                                                                                                                                                           |

## Images



### Immunofluorescence Microscopy

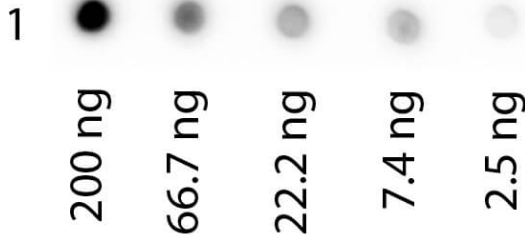
Ex vivo fluorescence imaging of biodistribution of the nanoparticles in an orthotopic mouse model of PBT.

Notes: (A) Fluorescent signal observed in the brains of four separate mice with PBT (1–24 hours) injected intravenously (via tail vein) with transferrin-coated Prussian blue nanoparticles (MnPB-ATxRd-Tf). A control mouse with PBT was not injected with nanoparticles. (B) Representative ex vivo fluorescence imaging of organ biodistribution of the nanoparticles at 3 hours post-injection. (C) Histograms quantifying the observed fluorescence biodistribution of the nanoparticles 3 hours post-injection. ROIs for intensity measurements are indicated by white dashed lines in (B). Abbreviations: PBT, pediatric brain tumor; MnPB, manganese-containing Prussian blue; ATxRd, Texas Red-labeled avidin; Tf, transferrin; ROI, region of interest; au, arbitrary units. Human Transferrin Biotin Conjugated (p/n 009-0634).

Figure 8. PMID: 24920896.

### Dot Blot

Dot Blot of Biotin conjugated Human Transferrin. Antigen: Human Transferrin Biotin. Load: 3-fold serial dilution starting at 200 ng. Primary antibody: None. Secondary antibody: Peroxidase streptavidin secondary antibody at 1:40,000 for 30 min at RT. Block: MB-070 for 60 min at RT.



#### Dot Blot

Dot Blot results of Human Transferrin Biotin Conjugated.  
 Antigen: Human Transferrin Biotin Conjugated. Blot loaded  
 at 3 fold dilution: 1. 100ng, 2. 33.3ng, 3. 11.1ng, 4. 3.70ng, 5.  
 1.23ng. Blocking: MB-070 Buffer for 30 minutes at RT.  
 Secondary Antibody: Streptavidin-HRP (p/n S000-03) at  
 1:40,000 for 30 min at RT. Imaging System ChemiDoc, Filter  
 used: Chemi.



## References

- Dumont, MF et al. Manganese-containing Prussian blue nanoparticles for imaging of pediatric brain tumors.  
*International Journal of Nanomedicine* (2014)

## Disclaimer

No test method can provide total assurance that the hepatitis B virus, hepatitis C virus, human immunodeficiency virus, or any other infectious agents are absent. Thus, all blood products, including purified proteins derived from human blood sources, should be handled at Biosafety Level 2 as recommended by the CDC\NIH manual entitled Biosafety in Microbiological and Biomedical Laboratories for potentially infectious human serum, blood specimens or proteins derived from same. Source material for the human blood product supplied to your facility has been tested for the detection of HIV antibody, Hepatitis B surface antigen, antibody to Hepatitis C, HIV 1 antigen(s), antibody to HTLV - I/II, and syphilis by FDA guidelines. All units were found to be non-reactive/negative for these tests. All human blood source material is collected in FDA licensed centers and is tested with FDA approved test kits.

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