Recombinant Bovine Transferrin, Animal Component-Free

Cat. No. :	B058C
Alternative Names:	Transferrin; TRFE; TF; Beta-1 metal-binding globulin; Siderophilin; Serotransferrin
Species:	Bovine
Accession No.:	Q29443
Expression System:	CHO
Protein Sequence:	Asp20-Pro704
Theoretical MW:	75.83 kDa
Theoretical pI:	6.50
Tag:	Tag-Free.
Formulation buffer:	Sterile ddH_2O.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	Using MDCK canine kidney epithelial cells in a serum-free proliferation assay, the ED_{50} for this effect was determined to be ≤2.0 μg/mL.
Endotoxin Level:	≤0.01 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution: Reconstitute with sterile double-distilled water (ddH_2O).

⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.

❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.

Shipping: Shipped on dry ice. Short-term transit on cold packs (2-8℃) is acceptable.

Storage: **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -80℃ as supplied.
- 2-7 days at 2 to 8℃ under sterile conditions after reconstitution.
- 3-6 months at -20 to -80℃ under sterile conditions after reconstitution.

Protein Description

Background: Bovine transferrin (bTF), encoded by TF in Bos taurus, is the dominant iron-transport glycoprotein in bovine serum (~ 2.5 mg/mL) and milk. Synthesized primarily in hepatocytes, the mature 79.5-kDa protein shares ~ 80% sequence identity with human transferrin but features species-specific N-glycosylation patterns and subtle conformational differences affecting receptor kinetics. Functionally, bTF binds two Fe^{3+} ions with synergistic carbonate anion, enabling safe iron circulation, cellular delivery via transferrin receptor (TFR1)-mediated endocytosis, and nutritional immunity through iron sequestration. In biotechnology, highly purified bTF is indispensable: a defined, xeno-compatible component of serum-free media for hybridoma, CHO, and stem cell cultures; a critical iron source in fetal bovine serum (FBS); and a model system for structural studies of iron-binding/release dynamics. While exhibiting moderate cross-reactivity with human TFR1, its species specificity necessitates bovine-derived protein for optimal performance in bovine cell models. bTF remains foundational to comparative iron biology, cell culture standardization, and studies of host-pathogen iron competition.

References:

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2. He QY, et al. Crystallization and preliminary X-ray analysis of diferric bovine transferrin. Acta Crystallogr D Biol Crystallogr. 1993;49(Pt 4):431-433.
3. Williams J, et al. Comparative studies of transferrins: iron-binding properties of human, bovine, and rabbit transferrins. Biochim Biophys Acta. 1982;717(2):253-260.
4. Baker EN, Baker HM. Molecular structure, binding properties and dynamics of transferrin. Cell Mol Life Sci. 2005;62(22):2531-2539.
5. Freshney RI. Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications. 7th ed. Wiley-Blackwell; 2016.
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Product Disclaimer

- This product is intended for research use only and is not for use in diagnostic, therapeutic, or clinical procedures.
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