

## Lactoferrin/LTF Protein, Human (HEK293, His)

<b>Cat. No.:</b>	HY-P74790
<b>Synonyms:</b>	Lactotransferrin; Lactoferrin; Kaliocin-1; Lactoferroxin-A; LTF
<b>Species:</b>	Human
<b>Source:</b>	HEK293
<b>Accession:</b>	P02788 (G20-K710)
<b>Gene ID:</b>	4057
<b>Molecular Weight:</b>	Approximately 77.38 kDa

### PROPERTIES

#### AA Sequence

G R R R S V Q W C A	V S Q P E A T K C F	Q W Q R N M R K V R	G P P V S C I K R D
S P I Q C I Q A I A	E N R A D A V T L D	G G F I Y E A G L A	P Y K L R P V A A E
V Y G T E R Q P R T	H Y Y A V A V V K K	G G S F Q L N E L Q	G L K S C H T G L R
R T A G W N V P I G	T L R P F L N W T G	P P E P I E A A V A	R F F S A S C V P G
A D K G Q F P N L C	R L C A G T G E N K	C A F S S Q E P Y F	S Y S G A F K C L R
D G A G D V A F I R	E S T V F E D L S D	E A E R D E Y E L L	C P D N T R K P V D
K F K D C H L A R V	P S H A V V A R S V	N G K E D A I W N L	L R Q A Q E K F G K
D K S P K F Q L F G	S P S G Q K D L L F	K D S A I G F S R V	P P R I D S G L Y L
G S G Y F T A I Q N	L R K S E E E V A A	R R A R V V W C A V	G E Q E L R K C N Q
W S G L S E G S V T	C S S A S T T E D C	I A L V L K G E A D	A M S L D G G Y V Y
T A G K C G L V P V	L A E N Y K S Q Q S	S D P D P N C V D R	P V E G Y L A V A V
V R R S D T S L T W	N S V K G K K S C H	T A V D R T A G W N	I P M G L L F N Q T
G S C K F D E Y F S	Q S C A P G S D P R	S N L C A L C I G D	E Q G E N K C V P N
S N E R Y Y G Y T G	A F R C L A E N A G	D V A F V K D V T V	L Q N T D G N N N E
A W A K D L K L A D	F A L L C L D G K R	K P V T E A R S C H	L A M A P N H A V V
S R M D K V E R L K	Q V L L H Q Q A K F	G R N G S D C P D K	F C L F Q S E T K N
L L F N D N T E C L	A R L H G K T T Y E	K Y L G P Q Y V A G	I T N L K K C S T S
P L L E A C E F L R	K		

#### Biological Activity

Measured by its ability to increase regulate the expression of TNF- $\alpha$  in THP-1 cells. The ED<sub>50</sub> for this effect is 97.36 ng/mL, corresponding to a specific activity is 1.03 $\times$ 10<sup>4</sup> U/mg.

#### Appearance

Lyophilized powder.

#### Formulation

Lyophilized from a 0.2  $\mu$ m filtered solution of 20 mM PB, 150 mM NaCl, pH 7.4.

#### Endotoxin Level

<1 EU/ $\mu$ g, determined by LAL method.

#### Reconstitution

It is not recommended to reconstitute to a concentration less than 100  $\mu$ g/mL in ddH<sub>2</sub>O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).

**Storage & Stability**

Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.

**Shipping**

Room temperature in continental US; may vary elsewhere.

**DESCRIPTION****Background**

Lactoferrin (LTF), a major iron-binding and multifunctional protein present in exocrine fluids such as breast milk and mucosal secretions, exhibits diverse biological activities. Renowned for its antimicrobial properties, LTF hinders microbial growth through sequestering free iron and releasing lipopolysaccharides from the bacterial outer membrane, thereby displaying both bacteriostatic and bactericidal effects. Moreover, it plays a role in preventing bacterial biofilm development in *Pseudomonas aeruginosa* infections and demonstrates weak antifungal activity against *Candida albicans*. Beyond its antimicrobial functions, LTF impacts bone metabolism by exerting anabolic, differentiating, and anti-apoptotic effects on osteoblasts, while also inhibiting osteoclastogenesis. It contributes to adenovirus infection by promoting the binding of species C adenoviruses to epithelial cells and inhibits papillomavirus infections. LTF stimulates the TLR4 signaling pathway, leading to NF-kappa-B activation and pro-inflammatory cytokine production, while concurrently interfering with lipopolysaccharide-stimulated TLR4 signaling. Additionally, it exhibits inhibitory effects on neutrophil granulocyte migration and promotes VEGFA-mediated endothelial cell migration and proliferation. LTF's versatility extends to its binding capabilities, encompassing interactions with heparin, chondroitin sulfate, pneumococcal surface protein A, lysozyme, and DNA.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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