

# Medication Analysis Report

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**Generated:**

2025-12-16 23:06:14

**Analysis System:** MedicationAnalyzer (Comprehensive Drug Analysis)

**Analysis Cost:** \$0.3407

**Duration:** 463.5s

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## Medication Overview

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**Name:**

lactoferrin

**Drug Class:** Lactoferrin is classified as an iron-binding glycoprotein and immunomodulatory agent. Therapeutically, it functions as a nutritional supplement, antimicrobial protein, and immunomodulator. It belongs to the transferrin family of iron-binding proteins.

**Analysis Confidence:** 0.75/1.00

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## Mechanism of Action

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Lactoferrin exerts multiple mechanisms at the molecular level: (1) Iron sequestration - binds ferric iron ( $\text{Fe}^{3+}$ ) with high affinity ( $K_d \sim 10^{-20} \text{ M}$ ), depriving pathogens of essential iron for growth; (2) Direct antimicrobial activity - binds to lipopolysaccharides (LPS) on bacterial cell walls causing...

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## Pharmacokinetics Summary

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- **Absorption:** Oral bioavailability of intact lactoferrin is low (approximately 1-5% in adults) due to gastric acid...
  - **Metabolism:** Orally administered lactoferrin undergoes extensive proteolytic degradation in the gastrointestinal ...
  - **Elimination:** Primary route of elimination is through fecal excretion of unabsorbed protein and peptide fragments ...
  - **Half-Life:** The elimination half-life of orally administered lactoferrin has not been precisely determined due to extensive gastrointestinal degradation and minimal systemic absorption. Endogenous plasma lactoferrin has an estimated half-life of approximately 10-20 minutes. Gastrointestinal transit time (2-4 hours in small intestine) is more relevant for oral supplementation effects.
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## Key Safety Information

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## Interactions Summary

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### Moderate Drug Interactions (5)

- **Fluoroquinolone antibiotics (ciprofloxacin, levofloxacin, moxifloxacin):** Decreased fluoroquinolone bioavailability by up to 50-90%, potentially resulting...
- **Tetracycline antibiotics (doxycycline, minocycline, tetracycline):** Reduced tetracycline absorption and serum concentrations, potentially compromisi...

- **Levothyroxine:** Decreased levothyroxine absorption leading to reduced thyroid hormone levels and...
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## **Evidence-Based Recommendations**

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**For complete details including all interactions, dosing adjustments, and comprehensive recommendations, see the detailed report.**

### **DISCLAIMER:**

This analysis is for educational and research purposes only. Always consult qualified healthcare providers for medication decisions.