

# IRONEMIC PLUS

Lactoferrin 100 mg, GMP 5 mg, Elemental Iron (Ferrous Bisglycinate)  
19 mg & Vitamin C 60 mg Capsules



BREAK THE BOUNDARIES

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## Anemia

Anemia of chronic disease, also called the anemia of inflammation, is a condition that can be associated with many different underlying disorders including chronic illnesses such as cancer, certain infections, and autoimmune and inflammatory diseases.

**Many different chronic conditions can cause inflammation that leads to Anemia, including** Autoimmune diseases, such as rheumatoid arthritis or lupus, Cancer, Chronic infections, such as HIV/AIDS and tuberculosis, Chronic Kidney Disease, Inflammatory bowel disease (IBD), such as Crohn's disease or ulcerative colitis, Other chronic diseases that involve inflammation, such as diabetes and heart failure, obesity.

## Lactoferrin - Iron Homeostasis Regulator

Bovine lactoferrin (bLf), a glycoprotein is emerging as a natural substance effective in anaemia management. It works by-

- Pulling out stored iron from Enterocytes, Macrophages & Liver due to high binding affinity
- Downregulating Hepcidin release due to anti-inflammatory property
- Modulating Ferroportin Synthesis through down regulation of IL-6
- Restoring ferroportin-mediated iron export from cells to blood
- Addressing functional Iron deficiency through lactoferrin & as well reduce iron associated side effects

## Ascorbic Acid: Powerful Enhancer of Iron Absorption

Ascorbic acid is a powerful enhancer of nonheme iron absorption and can reverse the inhibiting effect of such substances as tea and calcium/phosphate.

Calcium could affect iron absorption by affecting interactions with ligands in the gut lumen and by impairing the uptake of ferrous ion by the divalent metal transporter 1 (DMT1).<sup>1</sup>

AA can increase the absorption of both ferrous ion ( $\text{Fe}^{2+}$ ) and ferric ion ( $\text{Fe}^{3+}$ ) in a dose-dependent manner, and Its effect is attributed mainly

- Vitamin C can create a more acidic environment in the stomach and prevent the oxidization of ferrous iron to ferric iron.
- To its reducing properties, allowing the iron to stay soluble through a wide range of pH (from 2 to 11).



- To be absorbed via the DMT1 in the small intestine.
- AA would facilitate ferric iron absorption by interacting with ferric ion at acid pH. The clinical trial was performed without the addition of ascorbic acid (AA), which is recognized to be the most effective enhancer of iron absorption and to counteract the effects of most iron absorption inhibitors.

#### Clinical Study : Milk Inhibits and Ascorbic Acid Favors Ferrous Bis-Glycine Chelate Bioavailability in Humans

- Studied the absorption of iron bis-glycine chelate given in water, in milk and in milk with ascorbic acid using a double-isotopic method in two groups of 14 women.-
- Iron absorption of iron bis-glycine given in milk was significantly lower ( $P < 0.002$ ) than when given in water, with values of 11.1 and 46.3%, respectively (standardized to 40% absorption of the reference dose).

With the addition of 0.57 mmol/L ascorbic acid, **iron absorption of iron bis-glycine given in milk increased significantly from 11.1 to 15.4% ( $P < 0.05$ ).**

	Iron bis-glycine chelate Fe	Iron bis-glycine+ AA Fe	Ferrous Ascorbate Fe
	Milk	Milk	Water
Mean	8.3	10.7	29.9
Adjusted ref dose	11.1	15.4	40

These findings show that milk and ascorbic acid affect iron bis-glycine chelate bioavailability and also demonstrate that iron stores may influence its bioavailability as well.<sup>3</sup>

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## Description



**Ironemic Plus** consists of Lactoferrin, Disodium Guanosine 5-Monophosphate (GMP), Ferrous bisglycinate and Vitamin C.

## Indication



**Ironemic Plus** is indicated for the management of Iron Deficiency Anemia and Anemia of Chronic Disease.

## Mechanism of Action



**Ironemic Plus works by the following mechanisms –**

1. Decreases Hepcidin levels by regulating the Ferroportin Hepcidin Axis.
2. Increases iron efflux in the systemic circulation by Macrophage M1 to M2 phenotype conversion.
3. Reduces ferritin bind iron stores.
4. Reduces inflammatory pathways further affecting Hepcidin.
5. Improves Ferroportin stabilization via GMP.
6. Increase iron absorption by ascorbic acid through counteracting the effects of most iron absorption inhibitors.

## Dosage & Administration



1-2 capsules a day or as suggested by Healthcare Professional.

## Advantages of Ironemic Plus



1. Effective increase of Hemoglobin and systemic Iron Levels.
2. Countering any adverse effect of inflammation arising due to Erythropoietin resistance.
3. Less likely to cause intestinal side effects such as nausea, constipation and bloating.
4. Restoration of Iron Homeostasis.
5. Ferrous bisglycinate has at least two-fold higher bioavailability/absorption compared to “conventional” iron salts, e.g., ferrous sulfate and ferrous fumarate.
6. Useful in the treatment of both True/absolute iron deficiency anemia as well as Functional Iron deficiency anemia.
7. Vitamin C has additional advantages, such as improving the efficacy of iron chelates and its absorption.

Ref: 1) Lepanto et al. Frontiers in Immunology, September 2018; Volume 9: Article 2123.