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MANGANESE-LACTOFERRIN COMPLEX

WITH PROPERTIES STIMULATING THE GROWTH OF PROBIOTIC BACTERIA

The subject of the offer is manganese-lactoferrin complex with properties stimulating the growth of probiotic bacteria in digestive system.

Application: prevention and treatment of bacterial infections, including sepsis in newborns.



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Lactoferrin

Lactoferrin is a protein with known antibacterial, antifungal and antiviral properties. Due to these properties, lactoferrin is widely used among others as compound of functional foods, dietary supplements or various types of pharmaceuticals. Specific use of lactoferrin was found in the prevention of infections in premature infants, newborns and older children. Oral supplementation with various forms of lactoferrin is important in reducing inflammation by neutralization of bacterial antigens (including LPS) and preventing the passage of bacteria from the intestinal lumen into the bloodstream that can cause sepsis in infants with very low birth weight.

The possible application and unique properties of the invention

Until now, the influence of lactoferrin on populations of probiotic *Lactobacillus* bacteria was not examined. The relation between lactoferrin saturation with metal ions such as iron and manganese and its biological activity is also not known.

The present invention, lactoferrin saturated with manganese, is distinguished by **unique property of stimulating the growth of probiotic bacterial strains in gastrointestinal tract**. These bacterial strains are part of the natural, beneficial bacterial flora of human. **The invention is also distinguished by a broad range of possible applications** which include:

- **prevention of neonatal infections** (including prematures with low birth weight particularly vulnerable to infections) allowing to maintain or restore normal bacterial flora – **reduction the risk of newborn infections leading to sepsis;**
- **prevention and treatment of chronic inflammatory bowel diseases;**
- dietary supplement used in **the prevention and/or treatment of bacterial and viral infections;**
- preparation **supporting the treatment of patients on antibiotic therapy, cancer patients and those suffering from chronic intestinal inflammation.**

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Currently on the market there are many lactoferrin preparations. The distinguishing features of the invention as compared to other formulations are:

- **distinct stimulatory effect on growth of the probiotic *Lactobacillus* bacteria;**
- the possibility to saturate the complex exclusively with **particularly advantageous and safe manganese** on the third oxidation state;
- **absence of ferric ions indispensable for growth of pathogenic bacteria** and preserved ability of the complex to uptake ferric ions after release of manganese in the gastrointestinal tract;
- **high absorption of manganese and its gradual release in the human body,** resulting in **increased safety.**

The invention in addition to stimulatory effect on growth of probiotic bacteria colonies retains all beneficial features of commercially available preparations of lactoferrin.

The invention is subject to patent application covering the formulation, method of its manufacture and use. Further research is conducted at the Faculty of Chemistry, Jagiellonian University and the Faculty of Pharmacy, Jagiellonian University Medical College.

Currently the Centre for Technology Transfer CITTRU is looking for entities interested in licensing and commercial application of described invention. Cooperation with partners interested in joint R&D projects in scientific topic related to the invention is also desirable.

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