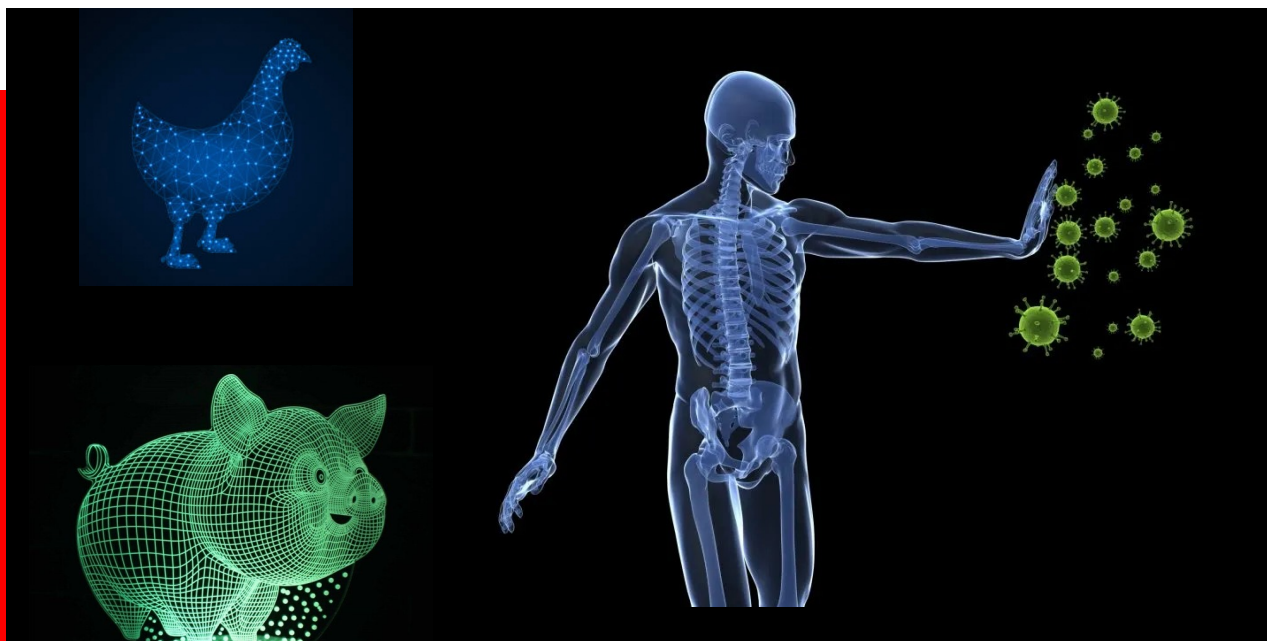


EURO-IMMUNOSTIM



IMMUNO-STIMULANT FOR PIGS AND POULTRY

BETA-GLUCANS + MOS + MICRO-CATALYST (INULIN)

Euro-Immunostim contains **Beta Glucans** - a highly active biological molecule $\beta(1,3)(1,6)$ -D-Glucans

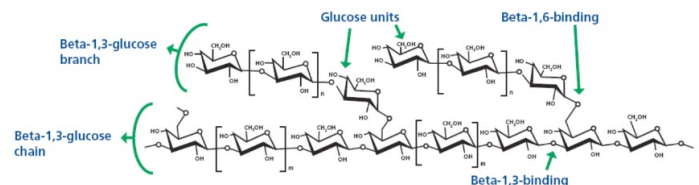
After ingestion by the animals a glucan molecule meets a group of glucan receptors, it is activated and produces such bactericidal compounds as lysozyme, reactive oxygen radicals, and N- oxides. Thereafter, the cells begin to produce several cytokines, which activate surrounding phagocytes and leukocytes that are responsible for inducing specific immunity. Thus, glucans induce not only a local activation of cells but also an overall (i.e., systemic) response of the organism because cytokines are produced by cells migrating from the site at which they reacted with glucans.

Glucans also play a very important role in promoting the activity of helper lymphocytes known as Th1 and Th2 effectors. Th1 lymphocytes control immunity against intracellular parasites while Th2 effectors control immunity against extracellular pathogens. A disturbance of their balance and a predominance of one of these two populations may trigger an autoimmune response. For example, predomination of a Th2 population is associated with the development of allergy. Glucans, however, create conditions supporting

Th1 lymphocytes. It was demonstrated that grifolan showed an

ability to promote the formation of Th1 lymphocytes to the detriment of Th2 cells. Each sub-population of lymphocytes produces a characteristic spectrum of cytokines.

Th1 lymphocytes synthesize the cytokines interferon gamma (INF- γ gamma) and interleukin 2 (IL-2). On the other hand, Th2 lymphocytes produce cytokines IL-4, IL-5, and IL-6.11

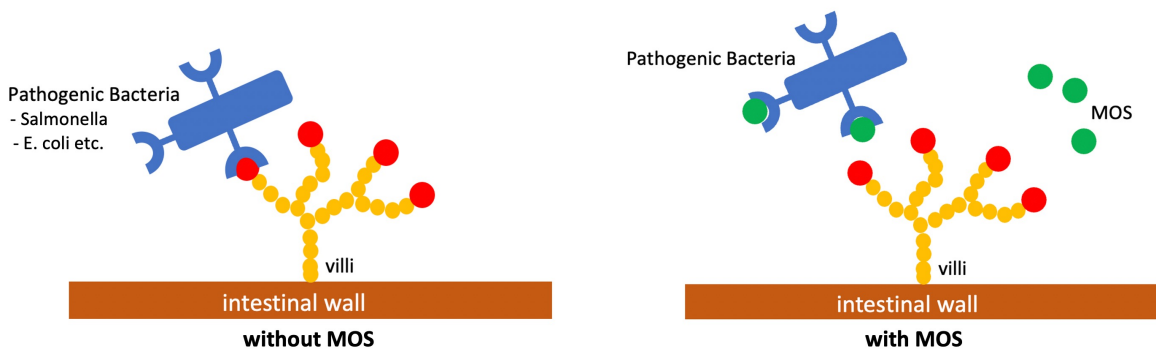


Euro-Immunostim contains **MOS** - a powerful immunostimulant

MOS (Mannan Oligo-Saccharides) are derived from the cell wall of the yeast *Saccharomyces cerevisiae*.

Mannan is a sugar recognized by certain bacteria, including many strains of *E. coli* and *Salmonella*.

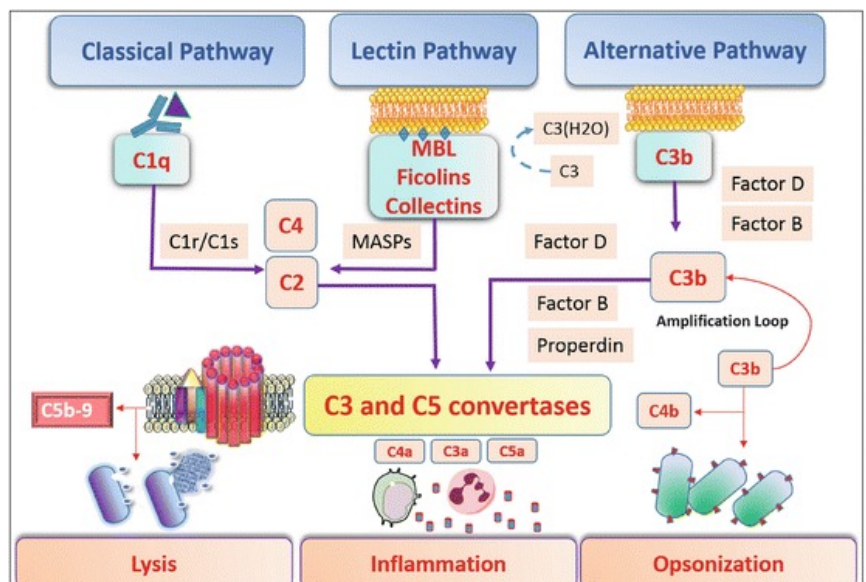
In the oligosaccharide form however, the mannan is not available for the pathogen to grow.



When MOS is added to the animal diets, lectins of these pathogens are tricked into attaching to the mannan sugar instead of the carbohydrates attached to the intestinal villi. These lectins are then flushed out without being able to metabolize the sugar, resulting in a “cleansing” effect of the intestinal wall and preventing permanent damage to the villi (finger-like protrusion on the intestinal wall containing sights for nutrient absorption). This allows improved animal performance.

Activation of Mannose-Binding Lectin Pathway

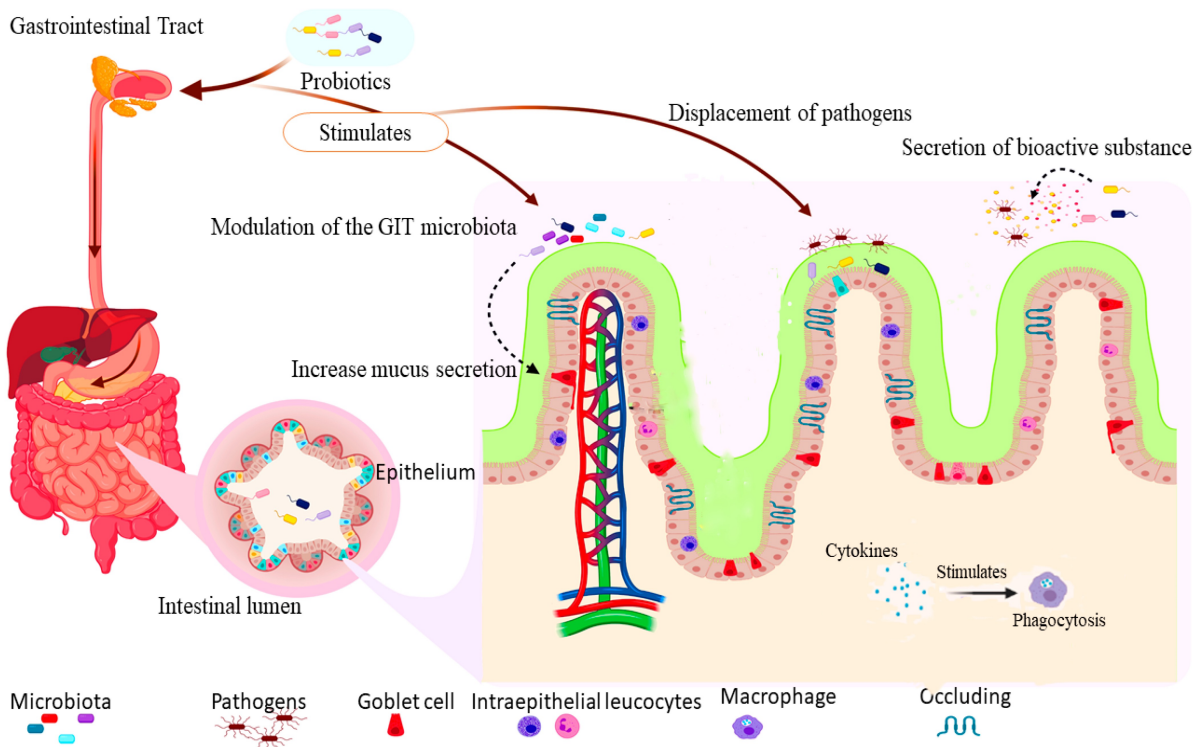
MOS is a mannoprotein complex derived by enzymatic hydrolysis of the inner cell wall of the fungal organism and function as a **potent immuno-activator**. It contains **mannose** and can affect the immune system by stimulation of the liver to secrete mannose binding protein. This protein binds to the mannose and triggers the complement “cascade” of immune response. This pathway is activated by the binding of **mannose-binding lectin (MBL)** to mannose of MOS. This in turn activates the MBL-associated serine proteases, **MASP-1** and **MASP-2**, which activate **C4** and **C2**, to form the C3 convertase, **C4b2a**.



Euro-Immunostim is fortified with **Inulin (micro-catalyst)** - a new generation Prebiotic.

A complex carbohydrate polymer that catalyze the growth of beneficial microflora of the host animals. When added to animal feed, is not digested by intestinal enzymes, but in fact is a substrate for the growth of beneficial bacteria (probiotic). It helps the lactic acid bacteria grow and multiply in the GIT: Lactobacillus, Leuconostoc, Pediococcus, Streptococcus, Aerococcus, Carnobacterium, Enterococcus, Tetragenococcus, Vagococcus, Weissella, Sporolactobacillus, Bifidobacterium

Lactic acid bacteria out-competes and suppresses the proliferation of Gram-negative bacteria such as E. coli, Salmonella and Clostridium perfringens. Pathogenic bacteria cannot utilize the Micro-Catalyst, cannot multiply and are starved to death. Increase in number of beneficial bacteria leads to increase in production of lactic acid and synthesis of amino-acids, vitamins and other nutrients.



Euro-Immunostim improves **antibody** production – through microbial amino-acid synthesis.

Micro-catalyst increase the number of beneficial bacteria in the GIT. Microbial synthesis of essential amino acids by beneficial bacteria contributes to the pool of essential amino acids. A series of experiments involving labeled inorganic nitrogen suggests that up to 20% of circulating lysine and threonine in nonruminant mammals, including adult humans, is synthesized by gut microbes. Substrates required for microbial synthesis of essential amino acids are derived from dietary carbohydrates

Euro-Immunostim helps *Bifidobacterium* and *Enterococcus* to to synthesize vitamins. Thiamine, folate, biotin, riboflavin, and panthothenic acid are water-soluble vitamins that are plentiful in the diet, but that are also synthesized by gut bacteria. Likewise, it has been estimated that up to half of the daily Vitamin K requirement is provided by gut bacteria. The molecular structure of bacterially synthesized vitamins is not always identical to the dietary forms of the vitamins. In fact, several specialized epithelial transporters have been recognized to participate specifically in the absorption of vitamins derived from gut bacteria

DOSAGE: Broilers, Layers, Pigs	
0.2 kg per ton of feeds	For low risk of exposure to bacterial and viral pathogens.
0.4 kg per ton of feeds	For medium risk of exposure to bacterial and viral pathogens.
0.6 kg per ton of feeds	For high risk of exposure to bacterial and viral pathogens.

Packaging:
25-kg multi-wall kraft bag



Made in Belgium

