TPP™ PROBIOTIC

GI TRACT COMPATIBLE AND FUNCTIONAL PROBIOTICS©

TPP™ Probiotic formulation is a carefully mixed selection of microorganisms that are friendly to the human GI tract. The organisms in this product will help stabilize and maintain a healthy intestinal probiotic ecosystem[1].

SUPPLEMENT FACTS

Serving Size 1 Capsule

Amount Per Serving			% Daily Value
Tzyme™ Probiotic Blend	442	mg	*
Lactobacillus plantarum	3 billion	CFU	*
Lactobacillus sporogenes	380 billion	CFU	*
Lactobacillus salivarius	300 million	CFU	*
Bifidobacterium longum	200 million	CFU	*
Lactobacillus casei	225 million	CFU	*
Lactobacillus acidophilus	1 billion	CFU	*
Jerusalem Artichoke tuber	20	mg	*
Lactoferrin	10	mg	*

* Daily Value not established

Other ingredients: Vegetarian Capsules (cellulose & water)
Enzyme activity is measured in Food Chemical Codex (FCC) units.
Store tightly sealed in a cool, dry place. Keep out of reach of children.
**Refrigerate for optimum activity*

Tzyme™ is the trademark of a proprietary blend of highly active, functional enzymes. These enzymes are pH balanced and GI tract stable. This blend is formulated to enhance the digestive process and impart systemic benefits.

TPP™ Probiotic ingredients:

The value of the "friendly bacteria" normally found in the human digestive tract (such as *L. plantarum, L. acidophilus, L. casei, L. salivarius, L. sporogenes,* and *B. longum*) is well established. For instance, ***L. plantarum*** is actually used to improve the microbial safety of foods. This usage comes from their secretion of "bacteriocins" (proteins that are lethal to certain other bacteria)[2]. *L. plantarum* has also been found to inhibit the translocation of bacteria from the gut to other organs (e.g., liver, lymph nodes)[3] in animal models.

Oral supplementation with ***L. acidophilus*** can enhance the body's anti-infective mechanisms of defense[4]. Research has suggested how stimulation of the production of interleukin-1 alpha and tumor necrosis factor-alpha is one mechanism that shows the beneficial effects of swallowing *L. acidophilus*. These substances have potent cytocidal and cytostatic effects on tumor cells[5].

The mechanisms of immune support provided by ***B. longum*** have been widely studied in animal models. It has been found that *B. longum* stimulates the immune system by enhancing the activity of natural killer cells in the spleen of rats[6] and by stimulating intestinal IgA production[7].

The immunostimulatory effect of ***L. casei*** has been demonstrated in human subjects. These beneficial bacteria promote the immunological barrier of the gut by the intestinal secretion of IgA.

L. sporogenes is a very resilient organism. It can sustain various conditions of the GI tract and can also help to control pathogenic organisms. This bacteria is readily activated by gastric acid and then migrates down the GI tract, producing lactic acid and various bacteriocins.

L. salivarius is a very resilient and highly prolific bacteria. Its actions reduce the production of toxic amines. These organisms produce highly active proteolytic enzymes that enhance the hydrolysis of proteinaceous compounds in the colon.

TPP™ Probiotic also contains **lactoferrin**, which is currently the object of considerable study. Lactoferrin has been shown to be an effective antibacterial agent. It is even found in tears, where it serves as one component of the outer eye's defense[8]. Supplementation with lactoferrin has been found to inhibit bacterial translocation from the digestive tract to other organs and systems. This is probably due to its suppression of bacterial overgrowth[9].

Jerusalem Artichoke is rich in inulin, which is a polymer of fructose (also called fructooligosaccharides (FOS)). It has been shown how FOS can serve as a source of effective nutrients for intestinal probiotic bacteria. This activity is sometimes called 'prebiotic' because normal human digestive enzymes are unable to digest FOS, and so it therefore passes in its whole state into the colon, where it becomes available as a nutrient to "friendly" bacteria[10].

INDICATIONS:
CANDIDIASIS
DIARRHEA
CONSTIPATION
LACTOSE INTOLERANCE
IMMUNE CONDITIONS
INHIBITED TRANSLOCATION OF BACTERIA

RECOMMENDED DOSAGE:
Take one (1) capsule upon arising and/or at bedtime. Drink at least 8 oz. of water with each dosage. If you have difficulty swallowing capsules, then remove contents from capsule, mix with a small amount of tepid water, and ingest immediately.

Dosage may be increased according to need as directed by your health care professional.

NO FILLERS / NON-ALLERGENIC

Available in bottles of 60 capsules.

TPP™ Probiotic should be taken in addition to:
TPP™ Digest
TPP™ Protease

REFERENCES:

1. Salminen, S. & Salminen, E. "Lactulose, lactic acid bacteria, intestinal microecology and mucosal protection" Scand J Gastroenterol Suppl 1997; 222: 45-8.
2. Olasupo, W.A. "Bacteriocins of Lactobacillus plantarum strains from fermented foods" Folia Microbiol 1996; 41: 130-136.
3. Adawi, D., et al. "Effect of Lactobacillus supplementation with and without arginine on liver damage and bacterial translocation in an acute liver injury model in the rat" Hepatology 1997; 25: 642-7.
4. Schiffrin, E.J. et al. "Immune modulation of blood leukocytes in humans by lactic acid bacteria: criteria for strain selection" Am J Clin Nutr 1997; 66: 515S-20S.
5. Rangavajhyala, N. et al. "Nonlipopolysaccharide component(s) of Lactobacillus acidophilus stimulate(s) the production of interleukin-1 alpha and tumor necrosis factor-alpha by murine macrophages" Nutr Cancer 1997; 28: 130-4.
6. Sekine, K. et al. "Inhibition of initiation and early stage development of aberrant crypt foci and enhanced natural killer activity in male rats administered bovine lactoferin concomitantly with azoxymethane" Cancer Lett 1997; 121: 211-6.
7. Takahashi, T. et al. "Effects of orally ingested Bifidobacterium longum on the mucosal IgA response of mice to dietary antigens" Biosci Biotechnol Biochem 1998; 62: 10-15.
8. McClellan, K.A. "Mucosal defense of the outer eye" Surv Ophthalmol 1997; 42: 233-46.
9. Teraguchi, S. et al. "Orally administered bovine lactoferrin inhibits bacterial translocation in mice fed bovine milk" Appl Environ Microbiol 1995; 61: 4131-4.
10. Roberfroid, M.B. "Health benefits of non-digestible oligosaccharides" Adv Exp Med Biol 1997; 427: 211-9.

ADDITIONAL READING:

1. Rowland, I.R. 1988; Role of the Gut Flora in Toxcity and Cancer Academic Press