TPP™ PROTEASE 375K

HIGHLY STABLE AND FUNCTIONAL SYSTEMIC ENZYMES©

TPP™ Protease 375K is a proprietary blend of highly active proteolytic enzymes with a wide range of pH stability. Proteolytic enzymes taken orally under certain conditions have been shown to be absorbed in substantial quantities into the blood [1,2]. Once in the blood circulation, the enzymes in this blend bind to serum proteins (particularly alpha 2-macroglobulin (α2M)) and impart immunomodulatory benefits[4]. One of the most well-established functions that is served by the oral proteases in **Tzyme™** blend is the maintenance of normal blood flow. This is accomplished by breaking down blood clots (fibrinolysis)[3] and platelet aggregation within blood vessels and breaking down excess extra-vascular plasma proteins, as in edema. **TPP™ Protease 375K** will also enhance the hydrolysis of food proteins for the enhanced bio-availability of amino acids.

SUPPLEMENT FACTS

Serving Size 1 Capsule

Amount Per Serving		% Daily Value
Tzyme™ Protease Blend	375,000 HUT	*

* 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.

Tzyme™ Protease Blend in TPP™ Protease provides vital systemic benefits, including the support of adequate blood rheology for the optimum flow of immune cells and their meditating molecules, hormones, blood cells and other vital molecules and cells. The superb absorption ability and the high functionality of this product is certain to enhance and optimize overall protein hydrolysis. These benefits, in turn, facilitate and support a wide array of metabolic processes.

TPP™ Protease 375K benefits include:

MODULATION OF THE IMMUNE SYSTEM

As a result of their being coupled to α2M, Tzyme™ proteolytic enzymes exhibit an increased binding of several very important cytokines (hormone-like molecules that have a powerful influence on immune cells). These include Transforming growth factor-beta (TGF-β) and Tumor Necrosis Factor-alpha (TNF-α)[5]. Studies have indicated that oral hydrolytic enzymes affect cytokine synthesis and modulatory effects[6]. For instance, TNF-a synthesis, which is a necessary step in host defense against tumor cells[7], is impaired when experimentally inactivated oral proteolytic enzymes are used[8].

Thus, active, GI stable and functional oral enzymes that are absorbed into the blood stream can provide therapeutic applications. In addition, studies have shown that oral proteolytic enzymes increased the tumoricidal and cytotoxic activities of polymorphonuclear neutrophils[9].

Several hypotheses have been put forth as to the mechanisms by which proteolytic enzymes modulate the immune system to control and eliminate tumors. Some studies indicated that proteolytic enzymes selectively remove some adhesion molecules, such as CD4, CD44, B7-1, ICAM-1, B7-2, CD45RA, CD6, CD7, E2/MIC2, and Leu81/LAM 1 from cell surfaces[10,11,12,13]. According to Hale, et al.[13], the removal of these surface molecules has markedly enhanced CD2-mediated T-cell activity.

Some studies have implied that, by removing the glycoprotein CD44, some proteases help control the tumor growth of certain types of cells. The selective removal of some mediator proteins and the regulation of cytokines[9,8,6,5] constitute some factors by which proteolytic enzymes are thought to modulate the immune system and act as biological response modifiers.

INDICATIONS:

IMPAIRED KIDNEY FUNCTION - In *Glomerulonephritis* disease, there is a buildup of protein in the basement membrane of the glomeruli of the kidneys. Fluids must pass through this basement membrane during the initial phase of blood filtration by the kidneys. Recent research using an animal model of this disease "lends further support to the concept that enzymes capable of degrading immune complexes *in situ* can ameliorate glomerulonephritis."[14]

HEAVY METAL TOXINS - Heavy metals such as lead (Pb) and mercury (Hg) exert their poisoning effect by binding to ionizable or sulfhydryl groups of proteins. These groups include vital enzymes. Once these metals bind to an essential functional protein, such as an enzyme, they denature and/or inhibit it. This interaction of heavy metals to proteins can lead to degenerative disease, nerve damage, and even death.

When taken on an empty stomach, it should be noted that protease is readily taken up into the mucosa cells of the intestine and then passed into blood circulation. Clinical observations have noted that, upon high intake of **TPP™ Protease 375K**, heavy metal concentrations have been significantly decreased in the blood.

RECOMMENDED DOSAGE:

Take one (1) capsule two (2) times daily on an empty stomach with 8 oz. of water. 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 and/or as indicated by your health care professional.

Available in bottles of 60 capsules.

NO FILLERS/NON-ALLERGENIC

TPP™ Protease 375K should be taken in addition to:

TPP™ Digest
TPP™ Probiotic

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