

Inositol Hexaphosphate (IP6)

1351 – 120 vegetarian capsules

Turning Back Cancer's Clock

The Possible Benefits of IP6, a Dietary Supplement

- Inositol Hexaphosphate helps to prevent and treat various types of Cancer
 - Inositol Hexaphosphate facilitates the repair of damaged Deoxyribonucleic Acid (DNA)
 - Inositol Hexaphosphate possesses Antioxidant properties, & deactivates Hydroxyl Free Radicals
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Description

Cancer is the second leading cause of death in the United States, exceeded only by heart disease. More than 1,500 people a day died of cancer. For the past two decades, scientists have looked upon fiber almost as a panacea in the battle against cancer, particularly colon, mammary and prostate cancer. However, recent research reveals that scientists may have been led astray when it comes to the cancer-inhibiting benefits of dietary fiber. As new studies unfold, researchers are beginning to realize that there is an additional substance in dietary fiber that adds to its powerful effects against cancer. This little-known substance is a component of fiber called inositol hexaphosphate, also known as IP6 or phytic acid.

IP6 occurs in foods that are rich in fiber, especially cereals and wheat bran, along with corn, soy beans, nuts, oats, seeds and rice. Scientists have recently discovered that IP6 is a powerful antioxidant and chemopreventive agent. Researchers initially overlooked IP6 because it was obscured by its dietary carrier—fiber. Fiber is an important part of the anticancer arsenal. Scientists estimate that up to 70% of all cancer is attributed to diet. The typical low fiber Western diet has been linked to the development of colon, prostate and mammary cancers. Researchers are beginning to suspect that IP6 may be even more potent in preventing cancer than the fiber in wheat bran.

IP6's Role

Although IP6 has been called one of nature's most powerful antioxidants, its role appears to be far more extensive. It has been suggested that IP6 can regulate heart rate and blood pressure, and may also serve as a neurotransmitter. Because IP6 is a highly charged molecule, scientists formerly thought it could not be transported inside the cell, and believed that absorption by organisms was impossible. The fact that IP6 might work intracellularly was also discounted. However, preliminary work began to indicate otherwise. In vitro studies show that malignant cells almost immediately begin accumulating IP6 intracellularly. Scientists also found that IP6 is absorbed through the stomach and upper small intestine within one hour after administration.

When cells accumulate IP6, something remarkable happens. Unlike most other anticancer agents, IP6 turns back the clock on the malignant cells, forcing them to revert to a non-cancerous state. This phenomenon has been observed in HT-29 human colon carcinoma cells. Malignant and premalignant cells of the colon and other epithelial cells express the tumor marker D-galactose- β -[1 '3]-N-acetyl-D-galactosamine; this marker is absent on normal cells. Following IP6 treatment of malignant cells, the tumor marker was significantly suppressed, and in most cells the marker was completely absent. IP6 also caused a decreased rate of cell proliferation.

Proposed Anticancer Mechanisms

IP6 exerts its effects on the body by controlling cell division. IP6 reduces the rate of cellular proliferation, both in vivo and in vitro, and has exhibited an ability to reduce DNA synthesis. Scientists have suggested that one way IP6 may exert this cellular control is by interfering with mineral absorption, since iron and other minerals are important in gene regulation. Studies have shown a possible link between excess iron and an increased risk of cancer in animals and humans, particularly colon cancer. IP6 has been shown to interfere with iron absorption and reverse iron-dependent augmentation of colorectal tumorigenesis. IP6 also suppresses iron-catalyzed oxygen generation, and almost totally inhibits iron-catalyzed lipid peroxidation. AbulKalam Shamsuddin, MD, PhD, has extensively studied IP6. In a 1997 Life Sciences' article, Shamsuddin stated that "Certainly, its [IP6's] hypothetical harm connected to

chelation is far less than that of other compounds of similar usage (eg. Cancer chemotherapeutic & chemopreventive agents) and are far outweighed by the plethora of benefits.” The questions that arise in regard to IP6’s ability to chelate minerals suggest that other anticancer actions are at play. These actions include:

Boosting natural defense mechanisms

Natural killer (NK) cells defend the body against tumor initiation. Studies have shown that mice with carcinogen-induced tumors, when treated with IP6, demonstrate augmented NK activity over the untreated controls.

Inhibiting carcinogenesis

One study by Shamsuddin showed that after IP6 treatment, there was a 41% increase in intracellular IP3 and a 26% decrease in IP2. This alteration in the cellular inositol phosphate pool may indicate that the evolution from IP6 to lower forms of the molecule is a crucial step in the inhibition of carcinogenesis.

Blocking PI-3 Kinase

PI-3 Kinase is an enzyme necessary for tumor promotion; a normal cell requires PI-3 Kinase to become cancerous. Researchers have found that IP6 is a profound inhibitor of PI-3 kinase.

Altering cellular communication necessary for tumor growth

Proteins called fibroblast growth factors (FGF) initiate conversations between cells. Each FGF possesses a transmitter and receiver. As these cellular conversations occur, sugar molecules called heparan sulfates intercede to modulate the messages, flowing back and forth via the FGF system. It is through this process that a very specific type of heparan sulfate works in different tissues to maintain proper function and control cell division. Fibroblast growth factors have been implicated in tumor cell growth, as certain cancer cell lines have been shown to express FGF binding sites. IP6 mimics one specific part of the long heparan sulfate chain, thereby interfering with the functioning of the entire heparan sulfate molecule, suppressing DNA synthesis and cell division induced by FGFs.

Stimulating the p53 gene

If the tumor suppressor gene p53 is not functioning, cancer cells become more resistant to chemotherapeutic agents. IP6 has been shown to up-regulate the expression of p53.

Cancers

In vivo and in vitro studies have shown that IP6 has a protective effect against colon, breast, prostate, lung, liver, prostate and skin cancers.

Kidney Stones, Platelet Aggregation, Heart Attacks and HIV

A multifaceted nutrient, IP6 has been shown to benefit a number of other conditions. Researchers at the Harvard Medical School and Massachusetts General Hospital in Boston successfully used pure Na-InsP6 to treat idiopathic hypercalciuria, which is associated with a high incidence of kidney stones.

Safety of IP6

The majority of clinical studies have confirmed the safety of IP6. Scientists and researchers witnessed no adverse effects on body weight, serum mineral content or any pathological changes of consequence after administering IP6. The safety of IP6 has been confirmed in human studies. IP6 should be considered an absolutely essential element in any broad spectrum nutritional cancer preventive or therapeutic program.

References

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