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ASK THE  
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## Cancer, The Immune System, and Nutritional Supplements

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## Cancer, The Immune System, and Nutritional Supplements

This is a tale of three discoveries. One transpired deep in the rainforests of Peru. Another happened high in the mountains of Japan. And the third discovery occurred in a university on the East Coast of the United States.

These discoveries have resulted in some incredible all-natural nutritional supplements that have powerful effects on the human immune system. And, while each of these products help prevent and treat immune diseases individually, together they may work even more powerfully to help strengthen our immunity and keep us cancer-free.

In this issue of *Ask the Doctor*, we will learn about these discoveries: namely, POA cat's claw root, maitake mushrooms, and IP-6 with inositol. We will see for ourselves how these all-natural supplements work directly on specific cells of the immune system to protect us from cancer and boost our immunity.

### Q. What is cat's claw?

A. Cat's claw might be one of the most confusing (and most effective!) botanical medicines available in health food stores today—with good reasons.

First, its mere name can be puzzling. Currently, there are at least 16 plants in the world that are called cat's claw. Sometimes these plants are referred to as "Una de Gato", Spanish for cat's claw. While *Uncaria tomentosa* is the Latin name of the plant most frequently sold as cat's claw supplements, these products vary vastly. Some cat's claw nutritional supplements contain cat's claw bark, some contain cat's claw stems, and others contain compounds from the leaves of cat's claw. All of these claim to help the immune system.<sup>1</sup>

However, it is the **root** of *Uncaria tomentosa* that actually contains the compounds that give cat's claw its health benefits. Scientists, who have extensively studied every part of the plant, discovered that only extracts made from cat's claw root possess the healing power to treat and prevent disease. While it would seem that this vital understanding might help clear up some cat's claw

confusion, not all *Uncaria tomentosa* roots actually contain healing properties.<sup>2</sup>

To determine which cat's claw roots **do** have healing properties, we have to go to the rainforests of Peru. This is where *Uncaria tomentosa* thrives. It's a woody vine that's found at the base of tall trees in the rainforests. As the plant grows, it winds up and around the tree, attaching itself to the trunk with curved cat-like claws found at the junctions of its leaves. The Asháninka Indians, who make these rainforests their home, have used the roots of the cat's claw plant for thousands of years to cure illness and maintain health in the tribe.<sup>1,2</sup>

Healers in the Asháninka tribe attribute the healing properties in cat's claw to the "good spirits" that live in the plant's roots. In order to obtain these healing properties, the correct cat's claw root must first be harvested. The Asháninka healers know which cat's claw to use; they can actually "see" the good spirits hidden inside the root of the plant before they collect them. Some cat's claw plant roots have the good spirits. Some cat's claw plant roots don't. If the cat's claw root with good spirits

is mixed with any cat’s claw root without good spirits, the healing power is lost. While there are no visible differences in the plants or the roots, only certain cat’s claw roots possess the power to heal. And, only the Asháninka tribal healers seem to be able to see them.<sup>2</sup>

Sounds like voodoo medicine doesn’t it? But amazingly, scientists who were given cat’s claw roots by the Asháninka to study in the laboratory discovered that they were able to “see” the good spirits, too! Using high performance liquid chromatography, or HPLC, a laboratory process that identifies various chemical compounds, the good spirits of cat’s claw roots were revealed to actually be important medicinal compounds, called pentacyclic oxindole alkaloids (or POAs).<sup>2</sup>

At the same time, the scientists studying cat’s claw found they could “see” the non-healing properties as well. Again, using HPLC, they also discovered the presence of tetracyclic oxindole alkaloids (or TOAs) in certain cat’s claw roots. While the POAs have very powerful effects in the immune system, the TOAs have different effects in the body, none of which help the immune system cells at all.<sup>3-6</sup>

And, if the TOAs and POAs are mixed together (as so often happens in the vast majority of cat’s claw products), the resulting product is useless to healing and health. The TOAs cancel out the action of the POAs, making the cat’s claw root extract ineffective. Even as little as 1% TOA content can cause POAs to lose their ability to beneficially modulate the immune system.<sup>2,7</sup>

This means that cat’s claw supplements that contain **only POAs** (in other words, cat’s claw that is **100% TOA-free**) from the root of the plant will provide powerful effects in the immune system.<sup>1,2,7</sup>

#### ***Q. What effect do the POAs from cat’s claw root have on our immune system?***

**A.** Cat’s claw POAs work to keep us healthy by directly interacting with white blood cells, the backbone of our immune system. Our white blood cells are the disease fighting cells of the human body, helping us combat colds, flu’s autoimmune disease and even cancer. There are many kinds of white blood cells; each has a specific job to do in fighting diseases.<sup>8</sup>

Certain POAs help white blood cells called macrophages work faster. The macrophages’ job is to engulf and digest foreign material. This means that macrophages can ingest more bacteria and disease causing microbes when they are exposed to POAs.<sup>9,10</sup> The scientists also discovered that POA cat’s claw extract increases the production of a chemical protein called

interleukin that is secreted by macrophages.<sup>11</sup> This macrophage-secreted interleukin (IL-1) has important immune enhancing properties that can actually wake up resting white blood cells and spur them into action. It also helps make other biochemicals essential to an activated immune system.<sup>12</sup> (90 percent of white blood cells are in reserve.)

POAs also help B cells.<sup>9,10</sup> B cells are white blood cells that make antibodies that kill germs. Each B cell is programmed to make one specific antibody that is effective against one specific germ (such as a bacteria, virus, or fungus).<sup>12</sup> When scientists looked at the number of B cells after they were exposed to POA cat’s claw root extract, they found that the B cells had increased significantly, resulting in an increased supply of antibodies.<sup>13</sup>

And perhaps most importantly as they relate to cancer, the POAs in cat’s claw root extract help increase the number of T-cells, the true soldiers of the immune system.<sup>13</sup> There are many different kinds of these white blood cells, including Helper T-cells, Suppressor T-cells, and Killer T-cells. Increased Helper, Suppressor, and Killer T-cells can more effectively destroy cancer cells. Increasing the number of circulating T-cells is very important in a disease like AIDS as well.<sup>12</sup>

European health care providers are often very comfortable integrating the use of herbal and nutritional supplements as vital components of their patients’ cancer treatments. In Austria alone, cat’s claw extract is used together with conventional treatment (chemotherapy, radiation, and/or surgery), to treat hundreds of cancer patients every year!<sup>14</sup>

A recent clinical observational study looked at POA cat’s claw extract in 78 people with very advanced brain cancer. All of the participants reported that the special POA cat’s claw helped them feel better, have more vitality, and reduced side effects (such as nausea) caused by their conventional cancer treatment. The researchers felt that POA cat’s claw extract may also prove to have benefit in extending the life span of people with these types of deadly brain cancers.<sup>15</sup>

#### ***Q. What exactly are maitake mushrooms?***

**A.** Maitake (pronounced my-tok-kee) mushrooms are native to the mountain forests of Japan. They are large mushrooms, some growing up to fifty pounds, characterized by overlapping, rippling caps. For thousands of years, maitake mushrooms have been linked to good health in those who eat them. They have been highly prized for centuries. During the feudal era of Japan, maitake mushrooms were equal to their weight in silver.<sup>16</sup>

Maitake mushrooms are known by many names. Maitake’s Latin name is "*Grifola frondosa*" which refers to the griffin, a mythical half-lion and half-eagle that symbolizes strength and vigilance. They are sometimes called “Hen-of-the-Woods”, as their overlapping caps are similar to the plumage of barnyard fowl. Maitakes are also known as “dancing mushrooms.” This name may reflect the mushrooms’ wavy, rippling appearance. It may also originate from the dance of joy mushroom hunters perform when they find maitakes in the woods.<sup>16</sup>

#### ***Q. How did research discover maitake’s health benefits?***

**A.** Because maitakes are well known as healthy food, researchers interested in medicinal mushrooms have studied them extensively. They discovered many maitake compounds with dramatic health-promoting potential. One of these compounds, maitake D-fraction, has particularly powerful anti-cancer effects.<sup>17</sup>

In lab studies, D-fraction stops the growth of cancer cells and cancerous tumors. Maitake D-fraction stimulates the activity of two white blood cells, macrophages and natural killer cells. These white blood cells then trigger the production of interleukins and other lymphokines, two biochemicals that help mediate the immune response. Maitake also inhibits some of the mechanisms that promote metastasis, or spread, of cancer cells in the lymph system and bloodstream.<sup>18-20</sup>

Because of this success, maitake D-fraction is now being used in preliminary clinical trials of women with breast cancer.<sup>16</sup> One study has reported significant improvement of symptoms, including reduction of the tumor. The maitake D-fraction was given to breast cancer patients in addition to standard chemotherapy.<sup>17</sup>

#### ***Q. What is IP-6 with inositol?***

**A.** In the mid 1980s, scientists at the University of Maryland were studying various plant fibers and how they affected our health. They were particularly interested in fiber and cancer. They discovered that fiber and bran contain many natural components. One of these components, IP-6, has been studied extensively for over 20 years.<sup>21-26</sup>

IP-6 is the abbreviation for inositol hexaphosphate, an all-natural compound found in the bran of brown rice. IP-6 is also referred to as phytic acid.<sup>27</sup> Inositol is part of the B vitamin group, and IP-6, in a special and specific combination with inositol, has powerful effects on the immune system.<sup>28, 29</sup>

#### ***Q. How does IP-6 with inositol help the immune system?***

**A.** Scientists who study IP-6 with inositol have discovered many amazing things how this combination works. While many cancer drugs work by killing all cells, both cancerous and normal, IP-6 with inositol only affects cancer cells. When cancer cells in the laboratory are exposed to IP-6 with inositol, they lose their aggressive nature, stop dividing uncontrollably, and eventually die. The combination of IP-6 with inositol does not affect normal cells.<sup>29-31</sup>

Researchers have also discovered that this powerful combination boosts the activity of natural killer (NK) cells, those important white blood cells that “naturally” kill cancer cells.<sup>29-31</sup> Increased NK cell activity can result in the increased killing of cancer cells, as well as cells infected by viruses.<sup>12</sup> And, finally, researchers have discovered that IP-6 with inositol also acts like an antioxidant to help prevent cellular damage.<sup>32</sup>

#### ***Q. If IP-6 comes from bran, wouldn’t eating more whole grain or high fiber foods provide IP-6?***

**A.** Scientists who study a specific IP-6 and inositol blend asked this very same question and went to the laboratory to find the answer. They took cancerous tumors and exposed them to either the nutrients of fiber and bran, or to IP-6. The nutrients of the fiber and bran were the equivalent of a 20% bran diet. The scientists discovered that the IP-6 was twice as effective as the nutrients of the 20% bran diet.<sup>33</sup>

In bran or fiber, IP-6 is bound to protein. For IP-6 to be well absorbed in the stomach, enter the bloodstream, and travel to the various organs where cancer has occurred, the IP-6 must first be separated from the protein. This normally happens with digestion, but it can take awhile and is inefficient. Phytase, an enzyme found in food and also the intestine, can actually break down IP-6, making it ineffective as a cancer fighter. The longer it takes IP-6 to be released from food, the more time phytase has to break down IP-6 to an ineffective form. Pure IP-6 is better, because it will be absorbed into the bloodstream before phytase has a chance to destroy it.<sup>29,33</sup>

#### ***Q. Why not just take IP-6 by itself? Why does IP-6 need to be combined with inositol?***

**A.** When scientists studying this combination used plain IP-6 in the laboratory, good cancer preventative effects and good cancer killing effects took place.<sup>26,34-37</sup> When scientists used plain inositol in the laboratory, again, good cancer preventative and cancer killing effects occurred.<sup>38-41</sup> However, when IP-6 was combined

with inositol, **powerful** cancer killing and cancer preventative effects happened.<sup>29,30</sup> Clearly, IP-6 with inositol is the superior choice in cancer prevention.

Scientists are interested in the very unique way IP-6 works in our body. One theory of how this combination exerts its effects is that IP-6 mixed with inositol breaks down into IP-3 in the body. IP-3 is more active than IP-6, but is very unstable. That is why it is so important to use a product that is an exact combination of IP-6 and inositol, precursors that are both needed to yield the maximum amount of IP-3 needed for immune stimulation and cancer growth inhibition.<sup>29,30</sup>

#### ***Q. If these three natural products are taken together, could they over-stimulate my immune system?***

**A.** That is a very good question. And at first glance, it might seem a possibility. However, one of the most amazing aspects of all three nutritional products, POA cat’s claw root extract, maitake d-fraction, and IP-6 with inositol, is their ability to both strengthen a weakened immune system and calm down a hyperactive immune system. They **modulate** the immune system.<sup>9</sup>

The POAs in cat’s claw root extract do not take over the immune system’s job, they simply strengthen the body’s immune system so it can do its job better.<sup>9-11,13</sup> Maitake D-fraction does not act on cancer cells directly, it encourages the body’s own immune system regulators to act.<sup>17-21</sup> IP-6 with inositol does not increase NK cells, it increases NK cell activity.<sup>29-32</sup> In other words, these three natural discoveries strengthen and balance the immune system without the fear of over-stimulation.

In fact, it is theorized that cat’s claw root extract, maitake mushrooms, and IP-6 with inositol may work *synergistically*. Meaning, together they strengthen and balance the immune system even better when they are taken together. However, if you use a cat’s claw supplement that contains any amount of TOAs, not only will the good “spirits” of the POAs be cancelled, experts believe that they will interfere with IP-6 with inositol as well.<sup>42</sup> That’s why it is vital to choose a cat’s claw supplement that is *100% TOA-free* and says so on its label.

#### **Conclusion**

These three natural discoveries may be some of the most important health discoveries to date. From the mountains of Japan, the rainforests of Peru, and the learned halls of a prestigious university we have been given powerful allies in healthy immunity and cancer prevention. Thankfully, there are formulas available at

health food stores that contain all three natural discovery dietary supplements in one convenient product.

Our immune systems are continuously assaulted from pollutants in the environment, toxic additives in our food, and common chemicals we use and depend on every day. These assaults can leave us vulnerable to colds and the flu, as well as serious conditions, such as cancer and autoimmune diseases. Staving off these threats means our white blood cells must stand ready to mount incredibly intricate defenses. Cat’s claw root extract, maitake D-fraction, and IP-6 with inositol not only provide an all natural boost to our immune system but also protect us from some serious diseases.