

Immune System Enhancer Helps Fight Cancer

Natural Killer Cell Enhancement And Anti-Cancer Effects
 Of Proprietary Japanese Mushroom Extract, Active Hexose
 Correlated Compound (AHCC®).

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When it comes to cancer prevention and treatment, your body's first defense is your best. A type of white blood cell called Natural Killer (NK) cells, may hold the key to the growth and spread of cancers. First discovered in the 1980's, NK cells are recognized as the immune system's front-line defense against cancer, viruses and other pathogens. In healthy individuals, NK cells routinely kill cancers while tumors are microscopic and before they are detectable.

Measurements of NK cell cancer killing function are considered primary indicators of clinical prognosis. Research shows that NK cell cancer killing function is often low in those with a family history of cancer, declines with age, corresponding with age-related increases in the incidence of cancer, and is suppressed by cancer surgery, radiation and chemotherapy, offering an explanation of why cancer metastasis seem to spread more aggressively following these treatments.

Stimulating NK cell function and supporting the immune system's front-line defense has become one of the most promising avenues of cancer treatment and prevention. Since 1986, there have been 29 published scientific studies showing that the use of a proprietary natural compound called AHCC (Active Hexose Correlated Compound), made from a hybrid of mushrooms used in traditional Japanese medicine, can increase NK cell cancer killing function by several hundred times.

Among the benefits of using AHCC, as experienced by a majority of cancer patients in several human clinical trials, is substantial improvement in the functioning of macrophages, another type of cytotoxic white blood cell that clears debris from cell damage, directly attacks disease causing cells, and displays antigens which stimulate antibody production by B-cell white blood cells.

AHCC also helps increase the production of specific cytokines, immune system chemical messengers, that include:

- Interferon, which directly inhibits the replication of viruses and other parasites and increases NK cell activity.
- Tumor Necrosis Factor (TNF), a group of proteins that help destroy cancer cells by triggering apoptosis (programmed cell death).
- Interleukins IL-2 and IL-12, which suppress production of tumor growth factor (TGF), stimulate still higher NK cell activity, and accelerate the differentiation and proliferation of T-cells.

There is a bewildering choice of immune enhancing natural supplements available. Unfortunately, the proof for most of these fall short of true consumer use conditions. For example, there are numerous mouse and rat studies. From this animal research we are supposed to infer results in humans. In other studies involving humans the researchers may use an intravenous route of administration, whereas in the "real world," users will be expected to take it orally. In some instances, results are from one researcher only, without independent confirmation. Therefore, one of the most important attributes of AHCC may be the strength and extent of the research that demonstrate its beneficial effects. It is supported by multiple studies reviewed for publication in professional peer journals, involving hundreds of human patients, all taking the product by mouth, and using

many groups of scientific investigators who independently verify and validate one another's results. This gives doctors and patients a confident, reliable profile of this supplement's mechanism of action, scope of effect and safety profile.

There are many studies that show the benefits of Active Hexose Correlated Compound, but the most impressive is also the most recent, a study of patients with liver cancer presented at the XXXIII Congress Of The European Society for Surgical Research. The study design tracked 151 consecutive patients following "curative" surgery for primary liver cancer from February 1992 to September 1999. A treatment group consisting of 70 patients received 3 grams of AHCC per day; the balance were a matched "control" group that had surgery only. The object of the study was to see how AHCC would effect the over-all survival of patients with liver cancer and the pattern of reoccurrence.

The results were remarkable:

- Fewer patients reoccurred in the Active Hexose Correlated Compound group, 49%, versus 67% in the control group.
- Average survival was 23 months longer among patients who took Active Hexose Correlated Compound versus those who didn't.
- Overall survival was improved in the Active Hexose Correlated Compound group. At the end of the study, 79% of the Active Hexose Correlated Compound patients were still alive, versus only 51% of those who didn't take it.
- No undesirable side effects were reported with the use of AHCC.

How AHCC works

AHCC is not battling cancer or a cancerous tumor directly. It is strengthening the immune system, so it can do what it is supposed to do - destroy cancer cells! This helps explain why the compound is effective for more than just liver cancer. A 1995 study published in the International Journal of Immunology showed that AHCC's beneficial effects are not cancer-type specific. Three prostate, three ovarian, two multiple myeloma and three breast cancer patients had their tumor associated antigen (TAA) markers measured before, during and after taking AHCC.



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The results speak for themselves: There was significant decline in the level of PSA in all prostate cancer patients; in addition, significant decline in CA 125 levels was observed for 2/3 ovarian cancer patients and one of two multiple myeloma patients had significant reduction in BJP level (the second had a slight decrease). The level of CA 15-3 in two breast cancer patients did not change significantly, although the CEA in one of the breast patients did see significant reduction.

Other important data to come from this trial includes the Natural Killer Cell activity level. Nine of the eleven patients had dramatic increase in the NK cell activity level as well as their T and B cell activity level. In other words, the patient's reduction in tumor markers correlated with the increases in strength of their immune systems, validating the notion that a strong immune system can help fight cancer. It is worth repeating that none of the patients participating in any of the clinical trials, where Active Hexose Correlated Compound was administered at the therapeutic dose, observed any side effects or toxicity. Remember, there are many chemicals available that have the ability to shrink tumors, but at what price? There is a big "risk-reward relationship" in cancer therapy and finding nontoxic compounds like AHCC, which carries virtually no risk, with the possibility of a great reward, is a long sought goal of cancer research.

Most cancer patients use natural therapies to complement conventional anti-cancer therapies, so a study published in 1998 in the prestigious journal *Anti-Cancer Drugs* showing how AHCC worked in combination with a widely used form of oral chemotherapy is particularly important. This study demonstrated that AHCC enhanced the beneficial effects of the chemotherapy, while reducing detrimental side effects. This study's findings showed that AHCC combined with UFT (an oral form of 5-FU):

- Restored Natural Killer Cell activity inhibited by chemotherapy. (Chemotherapy inhibited NK Cell activity by nearly 75% when used alone)
- Decreased primary tumors by 20% more than chemotherapy alone
- Inhibited the spread of cancer metastasis to other parts of the body by nearly 30% as compared to chemotherapy alone.
- Increased macrophage activity as compared to chemotherapy alone, sometimes by as much as 96%.

The *Anti-Cancer Drugs* study concluded, "Taken together, the combination of Active Hexose Correlated Compound, plus chemotherapy, brought about good thera-

peutic effects, not only on primary tumor growth, but also on reducing metastasis and these effects were mediated by host immunity which was restored or activated by Active Hexose Correlated Compound."

The Japanese have traditionally used natural compounds from mushrooms to support the immune system. The makers of AHCC, Amino-Up Chemical Company of Sapporo, Japan, have improved on tradition by creating a proprietary hybrid of Shiitake and other types of medicinal mushrooms with historically proven health benefits. An article published in *Bio Industry*, Volume 10, September '93, explains how AHCC is obtained. The proprietary hybrid is cultivated under laboratory conditions in a liquid medium, rather than in the soil or wood growth medium that is natural to these fungi. This material is harvested and enzymatically modified through a fermentation process to break the large polysaccharides normally found in medicinal mushrooms, in the 100,000 dalton range, down to a more bioactive size. Technically speaking, the active component is an oligosaccharide, with a molecular weight of 5,000 daltons – a relatively small molecule, easily absorbed in the gut with an alpha, 1- 4 glucan structure.

The safety of this new compound has been well established, both by itself and in combination with other therapies. In fact, AHCC is used in more than 700 hospitals worldwide in their treatment of cancer patients. There is even an AHCC research association that meets every year in Sapporo. This group records the details of hundreds of case histories and small studies that are reviewed and published annually. Even after years of use, this natural extract caused no toxicity, adverse reactions, or unwanted side effects. Furthermore, the effects of Active Hexose Correlated Compound don't appear to decline with extended use. Patients have been followed for up to 8 years, and after discontinuing use, the immune system doesn't "crash" from exhaustion or hyperstimulation.

Suggested usage:

The dosages used in the previously mentioned clinical studies, as well as in earlier research, fall into two categories: the first is preventative and the second is therapeutic or as a treatment.

1. As a form of prevention, take one gram per day or one 500 mg pill in the morning and one at night. This dose will help increase your natural killer cell activity level and help build-up your immune system for general health and well being. There are actually several studies that show that patients who use AHCC will go on to develop fewer cancers.

2. For therapeutic use, take 3 grams per day (two pills in the morning, two in the afternoon and two at night) for three weeks and then one gram per day thereafter (one in the morning and one at night).

Taking a higher dose in the beginning, or for the first three weeks, NK cell activity will build up quicker or reach its peak at a faster rate. Maintenance of that increased activity level will be achieved by taking one gram per day.

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