

Natural Compounds That Show Promise in Preventing Cancer

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Although cancer chemotherapy agents are thought of as chemicals and somehow unnatural, many of them have been developed from nature. Plants, fungus, coral all have contributed to the war on cancer. Paclitaxel comes from the bark of the Pacific Yew tree, docetaxel from the needles of the European Yew tree and vinca alkaloids like vincristine and vinblastine were isolated from the leaves of the periwinkle plant. It naturally follows that if natural substances can treat cancer, they can also prevent cancer. More importantly, these cancer fighting substances are in the food we eat and they are the subjects of intensive research.

I've written articles on how foods help prevent disease. Food substances, especially vitamins, minerals and other micronutrients, have a variety of mechanisms by which they maintain health and prevent disease. They can prevent oxidation, induce anti-carcinogenic enzymes, or even turn on and off good genes and bad genes. The wonder of foods and health is a vast universe just waiting to be explored. Here are some of the most potent and promising agents to prevent cancer.

All of the following agents have potent agents to fight oxidation, inflammation, out-of-control cell growth, and abnormal blood vessel formation all of which have been found to lead to cancer development.

1. Green tea which contains polyphenols and EGCG. It shows promise in preventing multiple cancers including skin, head and neck, esophagus, stomach, pancreas, colon, bladder, prostate, and breast cancers.
2. Curcumin found in turmeric powder. This spice is common in foods from India and is also used to give yellow mustard its color. Curcumin shows promise in preventing skin, lung, head and neck, esophagus, stomach, colon, bladder, prostate, breast, lymphoma, and cervix cancers.
3. Resveratrol is found in grape skins and red wine. In addition to the benefits outlined above, resveratrol induces the production of sirtuins which help protect the DNA from damage and has been found to extend the lives of animals. Human research is underway. This shows promise in preventing ovary, breast, prostate, liver, leukemia, lung and stomach cancers.
4. Lycopene is found in tomatoes as well as water melons and some other fruit. Lycopene shows promise in preventing prostate, breast, lung, skin, head and neck, stomach, colon and pancreas cancers.
5. Pomegranates contain multiple substances including ellagic acid which shows promise in preventing skin, breast, lung, prostate, head and neck, esophagus, colon, leukemia and brain tumors.
6. Soybeans and soy products contain genistein. There is promise that genistein may prevent breast, prostate, skin, stomach, colon, pancreas, head and neck, ovary and liver cancers.
7. Ginkgo biloba a popular supplement has promise in preventing ovary, brain and breast cancer.

8. Omega-3 oils are found in olive oil, flaxseed, and fish. It has promise in preventing prostate, esophageal, colon, stomach, pancreas, head and neck, and hematologic cancers.

Some of the most exciting findings in this research are the action of these compounds go beyond oxidation and inflammation. These substances actually have beneficial effects on good genes and suppressive effects on bad genes. This area of research is called nutrigenomics and it is a very exciting field.

The compounds in these foods have been found to have actions on tumor suppressors p53 and p21 proteins. They modulate growth through activity on growth factor receptors (EGFR), blood vessels (VEGF), cell division a.k.a. mitosis (cyclin D1) and cell death (bcl-2, bax protein). They even help to modulate the immune system response to stimuli (NF-kb).

Everything we need to remain healthy is present in nature. Medical research has known this for thousands of years and the research has not stopped. As you can see, there is active research on many of the foods we eat to see how they help prevent cancer. This research is ongoing across the world and it shows much promise. Hopefully they will confirm what our mothers have always told us to remain healthy, "eat your fruits and vegetables."

More reading:

Ruhul Amin A.R.M et. al. Perspectives for cancer prevention with natural compounds. J Clin Oncology 2009;27:2712-2725

National Cancer Institute: www.cancer.gov (you can search for research trials here)

The American Institute for Cancer Research: www.AICR.org (an excellent resource for nutrition and cancer information)