

# Using Natural Compounds to Treat Cancer in Dogs and Other Animals

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A variety of chemotherapy and radiotherapy regimens have been tested in dogs, cats, and other animals with varying but generally limited degrees of success. In humans and animals alike, highly effective treatments having few adverse effects are still lacking for most cancers. In response, interest is growing in the use of herbs and vitamins. It is estimated that up to 60 percent of all human cancer patients use herbs and/or vitamins at some time during their cancer treatment.<sup>1</sup> Although the percentage of owners using alternative medicine as part of their pets' anticancer treatment is not available, it can be assumed to be similarly high.

The burgeoning interest in natural substances should not be surprising; several important anticancer drugs in fact derive from natural

compounds. For example, Taxol, a drug obtained from the Pacific yew tree, and vincristine, from the periwinkle plant, are in common use. Unfortunately, these drugs can also produce severe adverse effects. A growing body of evidence, however, suggests that milder-acting natural compounds can also have an effect on cancer. Dozens of natural compounds have been identified that have a history of safe use as food or in herbal medicine and also have antitumor effects.<sup>2</sup> Some compounds showing promise in cancer treatment are listed in Table 1.

A recent cover story in *Time* magazine noted that during the last two decades, researchers have identified several qualities unique to cancer cells and have started work on a new generation of drugs that target them.<sup>3</sup> Unlike current chemotherapy drugs,

**Table 1. Natural Compound Examples and Their Actions**

Compound	Brief Description
<b>Apigenin</b>	This flavonoid found in parsley and other plants inhibits signal transduction in cancer cells. Signal transduction is the propagated movement of a chemical signal from the cell's outer membrane to its nucleus. The signal is often initiated by a growth factor reaching a receptor. Signal transduction plays a vital role in cancer cell proliferation.
<b><i>Astragalus membranaceus</i></b>	<i>Astragalus</i> is an herb used in Chinese herbal medicine as an immunostimulant and tonic. It contains high-molecular-weight polysaccharides that stimulate immune cells.
<b>Boswellic acid</b>	This triterpenoid found in frankincense reduces inflammation. Through various means, inflammation assists cancer cells survival.
<b>Curcumin</b>	Curcumin, found in the spice turmeric, inhibits signal transduction in cancer cells and reduces inflammation.
<b>EPA (eicosapentaenoic acid)</b>	This omega-3 fatty acid found in fish oil alters the plasma membrane of cancer cells, resulting in increased drug uptake. EPA also reduces inflammation.
<b>Genistein</b>	Genistein is an isoflavonoid found in soybeans that affects several events in cancer progression. For example, it reduces signal transduction and inhibits angiogenesis.
<b>Ginseng</b>	Ginseng is saponin-rich herb with immunostimulating properties. It is used as a tonic in Chinese herbal medicine.
<b>Melatonin</b>	This hormone is used to induce sleep. It can inhibit some types of cancer cells directly, and also has antioxidant effects and assists immune function.
<b>PSP (polysaccharide)</b>	PSP is an active compound in the mushroom <i>Coriolus versicolor</i> . Like <i>Astragalus</i> it contains high-molecular-weight polysaccharides that stimulate immune cells.