

## Inhibition of Cancer Growth and Metastases by Preparations Based on Shark Oil

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Lipid-rich extracts from several shark organs have strong anti-angiogenic activity. Experiments using both culture and animal models established that dilution of this extract with olive oil enhanced the activity synergistically.

This combination has also been found to be very effective at inhibiting the growth of melanomas in mice. However, it was found to have relatively minimal effect at inhibiting the growth of cultured melanoma cells and of a number of other types of tumour cells in culture. This suggested that the shark oil olive oil mix (known as Super Maco) had little effect on the cancer cells themselves. Thus the *in vivo* inhibitory effect must be predominantly on the angiogenesis and other activities that are associated with cancer growth and spread. It has also been established that the Super Maco was non-toxic in animals.

An investigation of the mechanism of action of Super Maco has shown that it can inhibit the activity of several growth factors that are known to promote angiogenesis. For one of these, VEGF, the Super Maco binds to its receptors and as a result inhibits the activation of angiogenesis.

A second generation preparation based on Super Maco is being researched. A unique extract has been prepared from *Phellinus linteus* mushroom and combined with Super Maco. This mushroom extract is  $\beta$ -glucan free and is also lipid-rich. Several combinations of these have been shown to have increased anti-angiogenesis activity. When tested on melanoma in mice these mixtures were even more potent than the Super Maco or mushroom extract alone. There is also evidence that this mix may be active when used for treating lung cancer. Safety and non-toxicity has also been confirmed for this product.

Research is currently in progress to evaluate the effectiveness of lipid-rich extracts from other species of mushroom when combined with Super Maco.