

# STATINS AND CANCER PROTECTION

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Because of their efficacy in reducing cardiovascular events and decreasing morbidity and mortality, the HMG-CoA reductase inhibitors (also referred to as the statins) are often used in the treatment of lipid disorders, particularly hypercholesterolemia. Statins inhibit HMG-CoA reductase, an enzyme that is involved in the Cholesterol biosynthesis pathway. Inhibition of this metabolic pathway also results in inhibition of the so-called Ras protein, which is important for the regulation of cell differentiation and proliferation.

Approximately 30% of all human tumors have a mutation in the k-ras oncogene, and its expression is thought to be related to abnormal cellular growth. Thus, it has been hypothesized that statins, through inhibition of HMG-CoA, and consequently inhibition of the Ras protein, would reduce the expression of the malignant phenotype of a tumor cell and restore normal cellular growth.

Several previous studies have implied that statins do have antitumor potential. Graaf and colleagues from the Academic Medical Center, Department of Clinical Pharmacy and Oncology, in Amsterdam, in conjunction with the Department of Pharmaco-epidemiology and Pharmaco-therapy at the Utrecht Institute for Pharmaceutical Sciences, conducted a population-based, case-control study to investigate the relationship between statin therapy and risk of cancer. Statin use for at least six months was associated with a risk reduction of 20%. Blais, in the Archives of Internal medicine, in 2000, reported a 28% reduction in cancer incidence in statin users when compared to users of other lipid lowering agents. Though, since in the Graaf study, physicians chose to prescribe statins in some patients and not in others, those factors that influence prescription pattern may also, through mechanisms unrelated to the drug, relate to cancer development or growth. A well-designed prospective clinical trial might resolve whether a cancer protective effect exists.

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