Down-regulation of Sirtuin1 Gene Inhibits Human Prostate Cancer Cell Growth

University-based researchers report that the down-regulation of the Sirtuin1 gene inhibits the growth of human prostate cancer cells in a lab dish and that stimulation of the gene encourages prostate tumor cell growth.

The study, published in the Journal of Biological Chemistry, adds to the growing body of knowledge concerning the role of the Sirtuin1 gene in health and disease and runs contrary to the idea that stimulation of the Sirtuin1-gene is beneficial in all tissues. Sirtuin1 gene protein is not overproduced in normal prostate cancer cells and nicotinamide (niacin, vitamin B3), a known Sirtuin1 gene inhibitor, selectively blocks prostate cancer cell growth.

Sirtuin1 gene activation was found to inhibit the FOXO1 gene, which contributed to the growth of prostate cancer cells. The researchers at the University of Wisconsin called Sirtuin1 an *"oncogene,"* that is, a gene that promotes cancer in prostate tissues. [Journal Biological Chemistry 2008 Dec 15, online]

This report was preceded by a study, published in August of 2008 by researchers in Japan, which also show that up-regulation of the Sirtuin1 gene promotes prostate cell cancer growth. [Biochemical Biophysical Research Communications. 2008 Aug 29; 373(3):423-8]

In September of 2008 researchers reported that Longevinex®, a resveratrol-based nutriceutical, down-regulated the Sirtuin1 and up-regulated FOXO1 genes in heart tissue.