Muscadine Grapes Inhibit Prostate Cancer Cells

"We have discovered...grapes of such greatness, yet wild, as France, Spain, nor Italy hath no greater..." So spoke Governor Ralph Lane in a 1585 letter to Sir Walter Raleigh. He was describing the muscadine, a slip-skin variety of grape that grows in abundance in the southern half of the United States. In fact, one of the "mother vines" discovered by Walter Raleigh's settlers is still alive on Roanoke Island: it has a trunk two-feet thick and covers half an acre of ground.

Interestingly, muscadine grape skin extract (abbreviated MSKE) does not contain significant amounts of resveratrol, a better-known grape skin component that has been shown to prevent the growth of prostate cancer cell cultures. However, just this month, an extract of muscadine grape skins was shown to inhibit the growth of prostate cancer cells in a National Cancer Institute (NCI) laboratory. The results were published in the September 1, 2007 issue of the journal Cancer Research.

The team of researchers, led by Jeffrey E. Green, showed that MSKE significantly inhibited the growth of cancerous prostate cells, while leaving normal prostate cells unaffected. It did so via apoptosis, or programmed cell death. By contrast, resveratrol seems to work by blocking the cell cycle, which is the sequence of steps through which a cell moves as it grows and divides. It is thought that the body normally uses both mechanisms in an attempt to rid itself of cancer. According to Dr. Green, "These results show that MSKE may have potent anti-tumor activities in the lab that differ from the effects of resveratrol. Further studies of MSKE will be necessary to determine if this extract has potential as a chemopreventive or therapeutic agent." One interesting fact is that the scientists tested MSKE in cells that represent the various stages of prostate cancer tumor growth. All stages responded to MSKE, suggesting that the active compounds found in this muscadine extract could inhibit tumor development even at very early stages.

The Noble Muscadine

The wild Muscadine grapes (or Vitis rotundifolia) have not been subjected to extensive breeding. In March 2007, an experiment by Dr. J. M. God and colleagues at Clemson University in South Carolina showed that four extracts of muscadine "pomace" left over after wine production contained powerful antioxidants. Each of the extracts showed significant inhibition of mutagens as well as the ability to curb the activity of destructive enzymes involved in the invasiveness of cancer. "These extracts could be good inhibitors of carcinogenesis," said Dr. God.

But muscadine differs from the red grapes typically used to produce red wine, which is a major source of resveratrol. Muscadine grapes are richer in naturally occurring chemicals called anthocyanins. Anthocyanins, which are the pigments that give red and purple grapes their color, have strong antioxidant activity and have also been shown to inhibit DNA synthesis in breast cancer cells, block blood vessel growth in tumors, and curb the activity of enzymes involved in tumor spread.

Muscadine grape skins also contain ellagic acid, malic acid, magnesium, potassium, and fiber. According to a report by Penelope Perkins-Veazy of the US Department of Agriculture, "The oxygen radical absorbing capacity (ORAC) of muscadines was found to be very high." On an ounce-by-ounce basis, in fact, muscadine grape juice is said to have about twice the ORAC value of its nearest common competitor, pomegranate juice (www.muscadinenaturals.com).

The researchers now hope that the in vitro effects of MSKE can be reproduced in testing on both cancerous and normal prostate cells in animals. Clinical trials, theoretically, could follow, but since the US Food and Drug Administration has never yet approved a natural agent for treating cancer, I would not hold my breath. According to Green, since "muscadine grape products, including grape
alcoholized form, improved diabetics' metabolic responses. They also had lower liver sodium and chlorine values, which would contribute to greater health benefits than the equivalent juice. Diabetics white and red muscadine juice and wine for sale. I would think again. California officials decreasingly a problem in the US, the horizon.

Interestingly, red muscadine wine may be even more healthful than muscadine juice. In a clinical experiment at North Carolina State University, published in the journal Nutrition in November 2006, muscadine wine had even greater health benefits than the equivalent juice. Diabetics given muscadine wine had lower levels of blood glucose, insulin, and glycated hemoglobin. Their vitamin C and E blood levels were elevated, indicating improved antioxidant status. They had greater membrane fluidity and lower sodium and chlorine values, which would contribute to better blood pressure scores. They also had lower liver enzyme scores, indicating improved liver function and insulin sensitivity. In all, researchers said, a daily intake of 150 milliliters (five ounces) of muscadine wine, even in a de-alcoholized form, improved diabetics' metabolic responses compared to diabetics who were given the non-fermented, and more sugary, muscadine juice. Here is another example of a non-toxic and natural treatment that will - pardon the pun - probably die on the vine, unless some wealthy non-profit organization takes a hand in its clinical development. And no such organization has yet appeared on the horizon.

The Height of Absurdity

The next time you read a glowing news story about how cancer is decreasingly a problem in the US, think again. California officials have revealed that the US Veterans Administration (VA), which treats many American veterans, has been deliberately withholding cancer incidence data from state cancer registries across the country. This has resulted in up to 70,000 newly diagnosed cancer cases per year – about five percent of the national total – going unrecorded in the past few years.

An internal report from the California cancer surveillance agency reveals that the VA stopped reporting cancer cases to state registries in late 2004. As a consequence of this policy, "statewide and national data will be incomplete and inaccurate," said Kurt Snipes of the Cancer Surveillance Branch of the California Department of Health Services in Sacramento.

VA officials admit that they are withholding cancer incidence data, but argue that they are doing so to protect veterans' privacy rights. Yet, oddly, they continue to report non-cancer diagnoses, including HIV/AIDS. The VA has also refused to allow state health officials to conduct routine audits of cases at VA hospitals. According to Reda Wilson of the Centers for Disease Control (CDC) in Atlanta, VA hospitals in at least 13 states are no longer reporting cancer cases, and VA reporting has been "inconsistent" in an additional 14 states. Furthermore, Florida's cancer registry has never received any VA cancer data at all. The VA itself admits that 29 veterans' hospitals withheld cancer data in 2006.

Dr. Wilson says that this deliberate underreporting has resulted in somewhere between 40,000 and 70,000 cases being potentially missed nationally each year. As a result, the official figures for the annual US incidence of major killers such as prostate, lung, and colorectal cancer may all now be significantly underestimated. The National Cancer Institute (NCI) and other national surveillance organizations admit that nationwide cancer rate estimates next year will be artificially low because of the VA's omission. According to officials, the omission could introduce "uncorrectable bias" into future epidemiological studies. "Research from the mid-2000s will forever require an asterisk, or perhaps

Muscadine Grape Resources

There are many companies selling muscadine products on the Internet:

• Muscadine Products Corporation describes itself as the world's first producer of phytochemically rich muscadine grape nutraceuticals and juice. They sell various products on Ebay, such as purple muscadine grape juice, juice cider, Purple Power grape skin powder, etc.

• For gardeners, there are muscadine grape vines: www.willisorchards.com has almost a dozen varieties to choose from, as well as some of the related scuppernong grapes. I would go with one of the very dark or black varieties of muscadine. They will grow in Zone 6 or higher.

• Many health food stores carry muscadine grape seed extracts, although bear in mind that the experiments above were mainly carried out with muscadine skin extracts, not seeds.

• Muscadinenaturals.com has a variety of muscadine products.

• Crockett Creek offers several dark varieties of muscadine juice. Available at: http://ecommerce.lcs.net/stores/crockett creekbeefjerky/merchant.ihtml?pid=2147&lastcatid=432&step=4.

• Another red muscadine grape juice is available at: http://naturespearlproducts.com/catalog.asp?catid=9.
War on Cancer

a sticker on the cover, to remind researchers and the public that they are not correct.” All efforts by scientists at the NCI and elsewhere to prevent this policy from being allowed to introduce such glaring bias have failed, and the US Department of Health and Human Services (HHS) has refused to intervene. “We’ve been working with the VA for more than five years, but it’s just gotten worse,” said Holly Howe of the North American Association of Central Cancer Registries. The VA has replied with unbelievable defensiveness to the charges. “It is beginning to sound like a witch hunt by the national [cancer surveillance] standards setters to punish the VA for not subordinating itself to them,” said Raye-Ann Dorn, the VA’s national coordinator for cancer programs. “Their primary beef is that the VA said no to their strong arm tactics and has the audacity to protect our patients’ private health information from inappropriate invasions of their privacy,” she said.

I have rarely heard such an implausible explanation from any government official. “Witch hunt?” “Strong-arm tactics?” We’re talking about cancer statistics here, numbers on which crucial public policy decisions and recommendations necessarily depend.

So what’s really going on? Is this just bureaucratic trench warfare, or is there are some hidden political agenda at work? No one knows. But let us for the moment apply the Roman principle of “qui bono?” That is to say, let us ask who might benefit from this otherwise inexplicably stupid action? Low numbers generally are taken as a sign of progress in the war on cancer. It now appears that for years someone has been fiddling with the record books, quietly reducing the overall number of cancer cases. Inevitably, the apparent drop in cancer incidence lends credibility to the frequently uttered assurances of steady progress in the war on cancer.

In mid-January, for instance, President Bush went to the NCI, where he publicly took credit for much smaller changes in the cancer statistics. Taking advantage of a drop of just one-half of one percent in cancer mortality between 2003 and 2004, he intoned: “Progress is being made.” President Bush also characterized this tiny decline in mortality as “the steepest drop ever recorded.” One can only imagine what current administration spokespersons will make of an apparent five-percent decline in incidence.

The VA itself is currently completing a study of cancer in Gulf War veterans. In addition, media reports have begun to raise concerns about possibly increased cancer rates in Iraq war veterans. But, ironically, the VA is basing its study on – you guessed it – the very state cancer registries from which it deliberately withheld data. Some state officials have therefore refused to participate in the VA’s Gulf War study, because they don’t believe in the validity of their own data.

The NCI and state cancer registries are now attempting to introduce some statistical corrections into the data in order to accommodate these missing veteran cancers and minimize the impact of their omission on estimates of US cancer rates. What a situation, when one arm of the government has to work out complicated formulas to correct for errors and omissions committed by other agencies.

References
VA withholds data for up to 70,000 veteran cases a year from US cancer registries. Available at: http://www.epinews.com/news5_VA_withholding_veterans_cancer_data.html.