Researchers identify cancer preventive properties in common vitamin supplement

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Early laboratory research has shown that resveratrol, a common dietary supplement, suppresses the abnormal cell formation that leads to most types of breast cancer, suggesting a potential role for the agent in breast cancer prevention. Resveratrol is a natural substance found in red wine and red grapes. It is sold in extract form as a dietary supplement at most major drug stores.

"Resveratrol has the ability to prevent the first step that occurs when estrogen starts the process that leads to cancer by blocking the formation of the estrogen DNA adducts. We believe that this could stop the whole progression that leads to breast cancer down the road," said Eleanor G. Rogan, Ph.D., a professor in the Eppley Institute for Research in Cancer and Allied Diseases at the University of Nebraska Medical Center.

Rogan was the lead author of the report that was published in the July 2008 issue of *Cancer Prevention Research,* a journal of the American Association for Cancer Research.

For the current study, Rogan and colleagues measured the effect of resveratrol on cellular functions known to contribute to breast cancer.

The formation of breast cancer is a multi-step process which differs depending on type of disease, a patient's genetic makeup and other factors. However, scientists know that many breast cancers are fueled by increased estrogen, which collects and reacts with DNA molecules to form adducts. Rogan and colleagues found that resveratrol was able to

suppress the formation of these DNA adducts.

"This is dramatic because it was able to be done with fairly low concentrations of resveratrol to stop the formation of these DNA adducts in the cells we studied," said Rogan. Although researchers experimented with up to 100 µmol/L of resveratrol, the suppression of DNA adducts was seen with 10 µmol/L. A glass of red wine contains between 9 and 28 µmol/L of resveratrol.

The researchers also found that resveratrol suppressed the expression of CYP1B1 and the formation of 2,3,7,8-Tetrachlorodibenzo-p-dioxin, two known risk factors for breast cancer.

Rogan said resveratrol works by inducing an enzyme called quinone reductase, which reduces the estrogen metabolite back to inactive form. By making estrogen inactive, resveratrol decreases the associated risk.

The current study was conducted in laboratory cultures, and will need to be confirmed in larger human trials, Rogan said.

Source: American Association for Cancer Research