

## Hops compound may prevent prostate cancer

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The natural compound xanthohumol blocks the effects of the male hormone testosterone, therefore aiding in the prevention of prostate cancer.

"We hope that one day we can demonstrate that xanthohumol prevents prostate cancer development, first in animal models and then in humans, but we are just at the beginning," said Clarissa Gerhauser, Ph.D., group leader of cancer chemoprevention in the Division of Epigenomics and Cancer Risk Factors at the German Cancer Research Center, in Heidelberg, Germany.

Gerhauser presented these findings at the American Association for Cancer Research Frontiers in Cancer Prevention Research Conference, held in Houston, Dec. 6-9, 2009.

Xanthohumol is derived from hops and belongs to the group of flavonoids that are found in many plants, fruit, vegetables and spices. Studies to date have shown that xanthohumol blocks the action of estrogen by binding to its receptor, which may lead to prevention of <u>breast cancer</u>.

Since testosterone receptors act similarly to that of estrogen — by binding, then stimulating hormone-dependent effects, such as gene expression and cell growth — the researchers examined whether xanthohumol might not only block the effects of estrogen, but also of the male hormone androgen.



Gerhauser and colleagues stimulated hormone-dependent prostate cancer cells with testosterone, which led to a massive secretion of <u>prostate</u> <u>specific antigen</u> (PSA). PSA is used for screening and early detection of <u>prostate cancer</u> in men. Cells were then treated with testosterone and xanthohumol and the effects were examined.

"Xanthohumol prevented the receptor from translocating to the cell nucleus, thus inhibiting its potential to stimulate the secretion of PSA and other hormone-dependent effects," she said.

Molecular modeling results showed that xanthohumol directly binds to the androgen receptor structure.

The researchers suggest that this compound may have beneficial effects in animals — when they measured the anti-androgenic potential of xanthohumol in a rat model, they found that although xanthohumol was not able to prevent an increase in prostate weight after <u>testosterone</u> treatment, it could reduce testosterone-increased seminal vesicle weight.

"Although the prostate weights were not changed, xanthohumol still reduced the effects of hormone signaling, such as gene expression, measured in the prostate tissue," said Gerhauser.

Source: American Association for Cancer Research (<u>news</u> : <u>web</u>)

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