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## **Green Tea Blocks Benefits of the Cancer Drug Velcade®**

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Preliminary data suggest that for green tea, or at least extracts of its polyphenol antioxidants, may be unfavourable in some cases. In test-tube experiments on cancer cells and in animals, green tea's polyphenols appeared to inactivate the cell-killing activity of bortezomib (Velcade®).

Using preclinical models and tumour-bearing mice, researchers at the University of Southern California in Los Angeles found that the unusually effective blockage of bortezomib's therapeutic activity was based on the chemical interaction between molecules. Constituents of green tea, in particular the (-)-epigallocatechin gallate (EGCG) molecule and the bortezomib molecule were able to form chemical bonds, meaning that the bortezomib molecule could no longer bind to its intended target inside the tumour cells.

That EGCG "blocked the therapeutic action of Velcade was completely unexpected," according to team leader Axel H. Schönthal of the University of Southern California School of Medicine.

Though ethical concerns preclude the researchers' testing to see whether the same thing would occur in humans, the team believes the mouse-study findings likely would apply to people as well.

"The most immediate conclusion," Schönthal says, is that "patients undergoing cancer therapy with Velcade® must avoid green tea, and in particular all of its concentrated [polyphenol extracts]" that are so readily available in health-food stores and online.

The findings of this study, the investigators emphasize, are specific for patients taking bortezomib as opposed to any other common cancer drug.

"Although the study has exposed detrimental effects of great tea in specific combination with Velcade®, this should not minimize the previously reported potentially beneficial effect of this herb," Schonthal said. "Related studies with other types of cancer therapies are promising and green tea extract may actually improve the anticancer effects of other drugs."

The researchers' work serves as a reminder that even seemingly benign dietary supplements such as green tea can interfere with the workings of conventional medicine. Until supplements are better understood by Western science, prudence dictates that they be used with caution and to be vigilant in reporting their use to physicians and pharmacists, who can be on the lookout for potentially harmful interactions.

Full article: <http://www.usc.edu/usnews/stories/16226.html>