Genetic variation impacts aspirin's effectiveness in preventing colon cancer

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Dartmouth researchers are among a team of doctors that have learned more about how people may or may not benefit from taking aspirin in the effort to curb colon cancer. Their study, which appears in the Oct. 18 issue of the *Journal of the National Cancer Institute*, finds that the beneficial effect of aspirin may be limited to individuals who have a specific genetic variation in their ODC gene.

"There is evidence that aspirin and related anti-inflammatory drugs can reduce the risk of colorectal adenomas [polyps] and cancer," says Elizabeth Barry, a research assistant professor of community and family medicine at Dartmouth Medical School, and one the authors of the study. "And with this study, we looked closer at the impact of aspirin in people who have a higher risk of developing colorectal adenomas, which lead to cancer, by examining their ODC genotype. So now we know that aspirin appears to work better in people who have this slight genetic variation, and this finding could potentially be clinically useful in the future by allowing physicians to predict which individuals are likely to benefit from aspirin use for colorectal cancer chemoprevention."

The researchers studied 973 subjects over three years as part of the Aspirin/Folate Polyp Prevention Study. In a randomized manner, some were given aspirin and some were given placebos. Almost half of the participants carried one or two copies of the ODC genetic variation. The study found that there was no association between carrying the genetic variation and the occurrence or new adenomas, but the genotype did influence the effect of aspirin on adenoma development. Those with the

ODC genetic variation were 23 percent less likely to develop new adenomas and 49 percent less likely to develop more advanced lesions, which also lead to cancer.

Other authors on the paper include John A. Baron and Maria V. Grau, with Dartmouth Medical School; Shubha Bhat and Thomas G. O'Brien, with the Institute for Medical Research in Wynnewood, Penn.; Carol A. Burke, with the Cleveland Clinic Foundation; Robert S. Sandler, with the University of North Carolina; Dennis J. Ahnen, with the University of Colorado Health Sciences Center in Denver; and Robert W. Haile, with the University of Southern California, Los Angeles.

Source: Dartmouth College