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Discovery of Marker for Colon Stem Cells Could Shed Light on What Drives Tumor Growth

WILMINGTON, Del., April 7 /PRNewswire/ -- Cancer researchers led by Bruce Boman, M.D., Ph.D. director of Cancer Genetics and Stem Cell Biology at the Helen F. Graham Cancer Center of the Christiana Care Health System, and a faculty member at the University of Delaware, have discovered an enzyme common to both normal and malignant colon stem cells that will assist scientists searching for a cure for colon cancer.

To date, knowledge of a substance, often referred to as a marker, that enables doctors to identify, locate, and isolate normal and malignant colon stem cells, has been elusive. But the discovery by Dr. Boman and colleagues that aldehyde dehydrogenase 1 (ALDH1) is a marker for identifying and isolating colon stem cells is a potential breakthrough in the search for a key to what drives colon cancer growth.

"This is a very important tool for future research," said Boman, M.D., Ph.D., M.S.P.H., and F.A.C.P., who is also a professor of Medical Oncology at Thomas Jefferson University. "Finding a better way to identify, isolate, and track colon cancer stem cells moves us one step closer to understanding what drives tumor growth and to developing new treatments for advanced colon cancer and ways to prevent colon cancer from developing in the first place."

Dr. Boman adds that his team decided to focus on ALDH1 because it had previously been identified as a marker for leukemias, brain cancers, and breast cancer. The researchers found that ALDH1 is a more specific marker for colon cancer stem cells than are other previously identified candidate markers.

In the study, researchers implanted into mice colon stem cells from seven patients diagnosed with colon cancer, and found that the number of ALDH1 cells increased as the colon cancer progressed.

"Dr. Boman and his team's discovery demonstrates the tremendous strides being made in translational cancer research," says Nicholas J. Petrelli, M.D., Bank of America Endowed Medical Director of the Helen F. Graham Cancer Center. "It is high-impact cancer research like this that allows researchers to translate their discoveries into new tools for physicians to benefit the cancer patients in Delaware and throughout the world."

The research was funded by a grant from the National Institutes of Health, Gregg and Stacey Bacchieri, and the Will and Jeanne Caldwell Fund for Cancer Research at the University of Michigan.

Other researchers on the team in addition to Boman include Emina Huang, of the Department of Surgery at the University of Florida; Mark Hynes, of the Department of Surgery at the University of Michigan; Tao Zhang, of the Department of Biological Sciences of the University of Delaware; Christophe Ginestier, Gabriela Dontu, Henry Appelman and Max S. Wicha of the Comprehensive Cancer Center of the University of Michigan; and Jeremy Z. Fields of CA*TX Biotechnology Inc. in Gladwyne, Pa.

The study appears online on April 7 and in print on April 15 in the journal Cancer Research, published by the American Association of Cancer Research.