Cancer Prevention Research

Table of Contents

AACR American Association for Cancer Research

August 2017 • Volume 10 • Number 8

EDITORIAL

431 The Burdens and Uncertainties of Doing What One Should Do
Victor G. Vogel

RESEARCH ARTICLES

434 Chemoprevention Uptake among Women with Atypical Hyperplasia and Lobular and Ductal Carcinoma *In Situ*
Meghna S. Trivedi, Austin M. Coe, Alejandro Vanegas, Rita Kukafka, and Katherine D. Crew

442 Pigs, Unlike Mice, Have Two Distinct Colonic Stem Cell Populations Similar to Humans That Respond to High-Calorie Diet prior to Insulin Resistance
Venkata Charepalli, Lavanya Reddivari, Sridhar Radhakrishnan, Elisabeth Eriksson, Xia Xiao, Sung Woo Kim, Frank Shen, Matam Vijay-Kumar, Qunhua Li, Vadiraja B. Bhat, Rob Knight, and Jairam K.P. Vanamala

451 Unmetabolized Folic Acid, Tetrahydrofolate, and Colorectal Adenoma Risk
Judy R. Rees, Carolyn B. Morris, Janet L. Peacock, Per M. Ueland, Elizabeth L. Barry, Gail E. McKeown-Eyssen, Jane C. Figueiredo, Dale C. Snover, and John A. Baron

459 Intermittent Dosing with Sulindac Provides Effective Colorectal Cancer Chemoprevention in the Azoxymethane-Treated Mouse Model
Swati Chandra, Ariel C. Nymeyer, Photini Faith Rice, Eugene W. Gerner, and Jennifer K. Barton

467 Piperlongumine Induces Reactive Oxygen Species (ROS)-Dependent Downregulation of Specificity Protein Transcription Factors
Keshav Karki, Erik Hedrick, Ravi Kasiappan, Un-Ho Jin, and Stephen Safe

478 The Effects of Physical Activity and Body Fat Mass on Colorectal Polyp Recurrence in Patients with Previous Colorectal Cancer
Jihye Park, Jae Hyun Kim, Hyun Jung Lee, Soo Jung Park, Sung Pil Hong, Jae Hee Cheon, Won Ho Kim, Ji Soo Park, Justin Y. Jeon, and Tae Il Kim

LETTER TO THE EDITOR

485 Diet and Exercise and Serum Markers of Oxidative Stress—Letter
Dimitrios Tsikas and Julian Eigendorf

487 Diet and Exercise and Serum Markers of Oxidative Stress—Response
Catherine Duggan, Myron D. Gross, and Anne McTiernan

AC icon indicates Author Choice

For more information please visit www.aacrjournals.org

Table of Contents

ABOUT THE COVER

Seven of the top 10 causes of death in the US are due to chronic diseases such as cancer, cardiovascular disease, and type 2 diabetes. Altered gut bacterial ecosystems due to environmental factors have been associated with greater risk for chronic diseases. To counter the global epidemic of chronic diseases, it is critical to understand the interaction between environmental factors (e.g., high-calorie diet, HCD), gut microbiota, and intestinal mucosa in a human-relevant model during health and disease. We show that pigs, which have gut bacterial profiles and immune systems similar to humans, also maintain two distinct colonic stem cell populations (ASCL-2 and BMI-1). Mice lack colonic BMI-1 stem cells that play a critical role in colon carcinogenesis. Additionally, we discovered that when exposed to HCD, stem cells move up along the colon crypt – an early marker of colon carcinogenesis. Observed changes in stem cells are independent of food intake, body weight, and serum iron levels, and they occurred before the onset of insulin resistance. Given that colonic stem cell kinetics play a central role not only in colon carcinogenesis but also in gut inflammation and permeability and endotoxemia, we correlated this to the gut bacterial phyla and colonic inflammatory markers. Changes in the stem cell position (stem cell zone) and their function (proliferative index) positively correlated with proteobacteria phylum levels and inflammatory markers, which are associated with type 2 diabetes, colitis, and colon cancer. The figure on the cover shows a correlation heat map between bacterial phylum levels and colonic stem cell/epithelial cell kinetics markers. Red and blue represents positive and negative correlations, respectively. In the central insert, a BMI-1 stem cell is seen in green at the bottom of pig colon crypt. See article by Charepalli, Reddivari, et al. (beginning on page 442) for more information.

Cancer Prevention Research

10 (8)

Cancer Prev Res 2017;10:431-487.