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NUTRITION | FRONTIERS

A newsletter of the Nutritional Science Research Group

Spring 2011

Volume 2, Issue 2

Dear Colleague,

Welcome to the spring issue of Nutrition Frontiers, a quarterly newsletter from the Nutritional Science Research Group, Division of Cancer Prevention, NCI. Emerging research on folate and sulforaphane is highlighted, along with outstanding scientists, upcoming events, and more.

RESEARCH UPDATE: ON THE CLINICAL FRONT Folate Levels and DNA Methylation in Normal Colorectal Mucosa

A new study finds that CpG island (CGI) methylation in normal colorectal mucosa --hypothesized to predispose to tumorigenesis may differ by age, race, large bowel location, and red blood cell (RBC) folate levels. Wallace and colleagues ([Cancer Prev Res 2010; 3\(12\):1552](#)) investigated the association of blood folate levels, dietary and lifestyle factors with CGI methylation in patients with normal colorectal mucosa. They measured DNA methylation of estrogen receptor alpha (*ERa*) and secreted frizzled related protein-1 (SFRP1) in colonic and rectal biopsies. Higher levels of the *ERa* and SFRP1 methylation were associated with increasing age, rectal location and higher RBC folate levels. Compared to Caucasians and Hispanics, African Americans had lower CGI methylation levels. Given the hypothesis that methylation in normal mucosa may predispose to colorectal neoplasia, the study raises safety concerns of supplementary folate administration in healthy adults. *This study was supported by an NCI award.*



RESEARCH UPDATE: WHAT'S NEW IN BASIC SCIENCE Sulforaphane Affects Pancreatic Cancer Stem Cells

Upcoming Events

May 17, 2011, 1:00 - 2:30 pm
Is Curcumin the Spice of Life? A Look at Cancer Prevention Evidence, first free webinar in NCI's *Frontiers in Nutrition and Cancer Prevention Online CME Series*.

[Register today!](#)

May 19, 2011, 2:00 pm Eastern
The National Collaborative on Childhood Obesity Research has launched a free, searchable online registry of measures and resources to use in childhood obesity research. The Measures Registry is available [here](#). [Register here](#) for the webinar on the features and uses of the registry.

Announcements

NCI Cancer Prevention Fellowship Program now accepting applications for Cancer Prevention Fellows, May 1-August 25, 2011. Click [here](#) to learn more about the Fellowship Program.

Click [here](#) to view the Stars in Nutrition & Cancer Lecture, *False Positives, False Negatives, and Small Effects: Genome, Exposome, and Nutrition* given on March 15 by Dr. John



Sulforaphane (SFN), found in cruciferous vegetables, may alter pancreatic cancer stem cell behavior. Unlike most cells within the tumor, cancer stem cells are resistant to chemotherapy and radiotherapy, and may contribute to tumor recurrence and metastasis. In human pancreatic cancer cell lines, Srivastava and colleagues (*Front Biosci* 2011;3:515) found that SFN inhibited various properties of pancreatic cancer stem cells including the self-renewal capacity, tumor spheroid formation, and in a dose-dependent manner, the expression of epithelial-mesenchymal transition markers such as twist-1 and vimentin. *This study was supported by an NCI award.*

SPOTLIGHT: A CLINICIAN

Harvey Murff, MD, MPH

Dr Murff is an Assistant Professor of Medicine at the Institute for Medicine and Public Health and in the Division of General Internal Medicine and Public Health at Vanderbilt University. Dr. Murff completed an Internal Medicine residency at Mount Sinai Medical Center in New York City, a fellowship in General Internal Medicine at the Brigham and Women's Hospital in Boston, and a Masters in Public Health at the Harvard School of Public Health. His research interests include nutritional epidemiology and gene-nutrient interaction in colorectal and breast cancers. He is investigating the impact of dietary intake of long chain polyunsaturated fatty acids (PUFAs) on eicosanoid production, oxidative stress, and colorectal adenoma risk. Dr. Murff is interested in how genetic variants in long chain PUFA biosynthesis may modify the beneficial effects of n-3 PUFAs on neoplasm risk. He was awarded a R01 for his project titled, [Long Chain Fatty Acids, Oxidative Stress and Colorectal Neoplasm Risk](#).



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SPOTLIGHT: A BASIC SCIENTIST

Leonard Augenlicht, PhD

Dr. Augenlicht received his PhD from Syracuse University in Developmental Biology, and completed his postdoctoral work at Temple Medical School and the Max Planck Institute in Tübingen. He currently is Professor of

Ioannidis.

Quick Links

- [Funding Opportunities](#)
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Medicine and Cell Biology, Associate Director of the Cancer Center and Colon Program Leader at the Albert Einstein College of Medicine-Montefiore Medical Center. He published and patented the first methods of computerized expression arrays. His research focuses on interactions among nutritional, stromal, and genetic signals and pathways in normal intestinal cell maturation and lineage specific allocation, and perturbations that modulate probability of tumor development. Dr. Augenlicht was the NCI's Star's in Nutrition and Cancer lecturer in 2007. He has served on numerous program planning and review committees, and is an associate editor of Cancer Research and Cancer Prevention Research. He was recently awarded an R01 for his project titled, [Dietary Risk for Colon Cancer in the Mouse](#).

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DID YOU KNOW?



Carrots originated in present day Afghanistan, Pakistan and Iran about 5000 years ago. Folklore has it that the cultivated carrot was originally a variety of red, purple, black, yellow and even white hues until some patriotic Dutch farmers cross bred yellow and red carrots in the seventeenth century to honor their king, William of Orange.

More likely, nature took a hand and produced mutants and natural hybrids, crossing the cultivated carrot (*Daucus carota*, sub species *sativus*) and wild varieties (*Daucus carota*, *carota*). Eventually, some motivated Dutch growers took these mutant orange carrots under their horticultural wings and developed a sweeter and juicier variety known as the Western Carrot or the carotene carrot.

Reference: <http://www.carrotmuseum.co.uk/reference.html>

Sincerely,

Your friends at the Nutritional Science Research Group

Division of Cancer Prevention
National Cancer Institute
National Institutes of Health

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