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Dear Colleague,

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

RESEARCH UPDATE: ON THE CLINICAL FRONT

DIM Modulates Estrogen Metabolism

3,3'-diindolylmethane (DIM), a bioactive compound in cruciferous vegetables, is known to have cancer preventive activities by counteracting the adverse effects of estrogen. In a pilot study, Rajoria and colleagues ([Thyroid 2011;21\(3\):299](#)) assessed the effects of DIM supplementation on women with thyroid proliferative disease (TPD), a disease which comprises goiter and cancer. After 14 days of supplementation with 300 mg/day of DIM, the women underwent thyroidectomies. DIM was detectable in thyroid tissue, serum and urine. Further, the ratio of urinary 2-hydroxyestrone to 16 α -hydroxyestrone increased significantly in two-thirds of the patients, consistent with antiestrogenic activity. A larger study to assess DIM's efficacy as a therapeutic adjuvant in TPD is underway.



RESEARCH UPDATE: WHAT'S NEW IN BASIC SCIENCE

Folate Status and Colorectal Cancer Risk



How folate intake protects against colorectal cancer risk is not well understood. *SHMT1* acts as a metabolic switch in folate-mediated one carbon metabolism. Using the *Apc^{min}*-mediated intestinal cancer model in mice, MacFarlane and colleagues ([Cancer Res 2011;71:2098-2107](#)) modified the expression of *SHMT1* to determine its influence on de novo purine, thymidylate, and methionine synthesis. Mice were randomly assigned to either a folic acid and choline bitartrate supplemented diet or a folate/choline-deficient diet. *SHMT1* hemizygosity and

Upcoming Events

October 16-18, 2011
[5th Congress of the International Society of Nutrigenetics/Nutrigenomics \(ISNN\)](#), Beijing, China

November 02, 2011
[Stars in Nutrition and Cancer](#), Dr. Max Wicha, NIH Main Campus, Bethesda, MD

November 03-04, 2011
Food, Nutrition, Physical Activity and Cancer, [American Institute for Cancer Research Annual Research Conference](#), Washington, DC

November 29-30, 2011
Using Nanotechnology to Improve Nutrition through Enhanced Bioavailability and Efficacy, Bethesda North Marriott Hotel and Conference Center

November 2011
NCI's [Frontiers in Nutrition and Cancer Prevention Online CME Series](#): Vitamin D and Cancer Prevention (*stay tuned for date and time*)

March 12-16, 2012
[Nutrition and Cancer Prevention Research Practicum](#), application deadline December 2011

dietary folate/choline deficiency resulted in modified thymidylate synthesis and increased risk for intestinal cancer in *Apc^{min/+}* mice, indicating a possible mechanism by which folate-dependent thymidylate synthesis and subsequent changes to genomic stability contribute to Apc-mediated intestinal cancer.

SPOTLIGHT: ANNE MCTIERNAN



Anne McTiernan, MD, PhD is a member of the Fred Hutchinson Cancer Research Center and a Research Professor at University of Washington. Dr. McTiernan earned an MD in Internal Medicine from New York Medical College and a PhD in epidemiology from the University of

Washington. In her research, Dr. McTiernan identifies ways to prevent new or recurrent breast and colorectal cancer, especially through physical activity, diet, obesity prevention, and chemoprevention. As the PI of the Seattle Transdisciplinary Research on Energetics and Cancer (TREC) program, Dr. McTiernan studies the mechanisms linking obesity and inactivity with cancer. She was awarded a R21 for her project titled, [*Weight Loss and Exercise Effects on Telomere Length in Postmenopausal Women*](#).

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SPOTLIGHT: LILLIAN MAGGIO-PRICE



Lillian Maggio-Price, VMD, PhD received her VMD and PhD from the University of Pennsylvania. Currently, she is a laboratory animal veterinarian, Professor, and Vice Chairman of the Department of Comparative Medicine, School of Medicine, University of Washington. Her research interests include nutritional

chemoprevention in inflammation-associated colon cancer and the role of infectious agents like mouse norovirus (related to Norwalk virus) in inflammatory diseases such as inflammatory bowel disease and atherosclerosis. She was awarded a R21 for her project titled, [*Control of Colonic Inflammation and Tumor Growth by TGF \$\beta\$ and Dietary Vitamin D*](#).

[Read more »](#)

DID YOU KNOW?

Chewing Can Combat Obesity



Controlling your calories can be as simple as chewing mindfully. Regardless of being obese or lean, individuals consume nearly 12% fewer calories by chewing more, 40 times instead of the typical 15 times per bite. More chews also changed gut hormone secretions, resulting in lower postprandial ghrelin and higher postprandial glucagon-like peptide-1 and cholecystokinin concentrations.

Reference: [*AmJClinNutr. Ajcn.015164; First published online July 20, 2011.*](#)

Sincerely,

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