



NATIONAL
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DCP Division of
Cancer Prevention



NUTRITION FRONTIERS

A newsletter of the Nutritional Science Research Group

Spring 2013

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Dear Colleague,

Welcome to the Spring 2013 issue of the *Nutrition Frontiers*, a quarterly newsletter from the Nutritional Science Research Group (NSRG), Division of Cancer Prevention, NCI. In this issue, you will learn about the effects of green tea catechins in patients with CLL, the Warburg effect on butyrate cell growth and much more.

RESEARCH UPDATE: ON THE CLINICAL FRONT

Higher Doses of EGCG & Polyphenols Induce Biological Response



Epigallocatechin gallate (EGCG), a major catechin in green tea, is a well-tolerated intervention that decreases the risk of lymphoid malignancies and has potential clinical benefits. In a phase 2 trial, early stage asymptomatic and EGCG-naïve patients with chronic lymphocytic leukemia were given

pharmaceutical-grade Polyphenon E containing a mix of polyphenols including 2,000 mg of EGCG twice a day for six months. [Shanafelt et al.](#) observed 31% of participants experienced a 20% reduction in absolute lymphocyte count (ALC) and 69% experienced a 50% reduction in lymphadenopathy. The rapid decline in ALC and/or lymphadenopathy, although a moderate clinical effect, suggests a potential treatment effect. Future research is needed to determine the most effective EGCG dose and polyphenols mixture for improved bioavailability and maximum antitumor effect and to determine whether EGCG can prevent or delay need for traditional chemotherapy treatment.

RESEARCH UPDATE: WHAT'S NEW IN BASIC SCIENCE

The Warburg Effect on Butyrate Cell Growth

The Warburg effect causes cancer cells to utilize higher rates of aerobic glycolysis compared to rates that appear in most normal cells, which utilize oxidative metabolism as the predominant energy production pathway. In a



Announcements

The Stars in Nutrition and Cancer lecture, [Micronutrients and Cancer Prevention: A Complex World](#) by Dr. Susan Taylor Mayne is available for viewing and CPEs for RDs.

Save the date

The 2014 *Nutrition and Cancer Prevention Research Practicum* will be held March 17-21, 2014 in Rockville, MD. This educational opportunity provides specialized instruction in the role of diet and bioactive food components as modifiers of cancer incidence and tumor behavior. The practicum is intended for graduate students, RDs, and students enrolled in a CADE-accredited supervised practice program. More information about how to apply will be forthcoming. Past practicums can be viewed [here](#).

The Division of Cancer Prevention has moved to the new NCI Shady Grove building, 9609 Shady Grove Road, Rockville, Maryland. Our contact information has changed, please find us [here](#).

Upcoming Events

June 12, 2013

[Probiotics, Prebiotics, and the Host Microbiome: The Science of](#)

series of studies by [Donohoe and colleagues](#), the Warburg effect was perturbed in order to observe butyrate's role in cell growth of normal and cancerous colonocytes. When the Warburg effect was prevented in cancerous colonocytes or absent in normal colonocytes, butyrate stimulated cellular proliferation. Conversely, in the presence of the Warburg effect, butyrate inhibited cellular proliferation. These results indicate that impaired butyrate metabolism in cancer cells may explain butyrate's opposing effects on cell growth as it inhibits cancer cell proliferation as histone deacetylase inhibitor but stimulates the proliferation of noncancerous cells by being oxidized as an energy source. Because butyrate is generated in the gut by the interaction of dietary fiber and gut microbiota, human studies are needed to better understand this interaction and ultimately how it influences colon cancer risk.

SPOTLIGHT: PAUL MACLEAN



Paul MacLean, PhD, is an Associate Professor of Medicine and Research Director in the Division of Endocrinology, Metabolism, and Diabetes at the University of Colorado Anschutz Medical Campus. He also serves as the Director of the Energy Metabolism Program and is the Associate Director of the Metabolic Core and the Energy Balance Laboratory. Dr. MacLean received his

BS and MS from Brigham Young University and a PhD from East Carolina University. His research focuses on obesity, particularly on women's health and how obesity affects the development of the mammary gland during gestation, lactation, menopause, and postmenopausal breast cancer. Dr. MacLean and his colleagues developed a novel preclinical model for studying obesity's effects for prevention and treatment. He was recently awarded an NCI sponsored R01 entitled, [A Narrowed Window for Targeting Metabolic Flexibility in Breast Cancer Prevention](#).

[Read more »](#)

SPOTLIGHT: JOELLEN WELSH

JoEllen Welsh, PhD is an Empire Innovations Professor at the University at Albany Cancer Research Center. She received her PhD in Nutritional Biochemistry at Cornell University, Ithaca, NY. After post-doctoral training, Dr. Welsh took positions with the Department of Biochemistry at the University of Ottawa, the W. Alton Jones Cell Science Center in Lake Placid, NY and the University of Notre Dame. Dr. Welsh's scientific contributions include the impact of dietary calcium and magnesium on bone, obesity and brown fat metabolism, vitamin D and breast cancer, among others. Her current research focuses on nutrition and steroid hormones in the context of disease, particularly cancer. She was recently awarded an NCI sponsored R21 entitled [Vitamin D, Metabolic Flux and Breast Cancer](#).



[Translation](#)

The New York Academy of Sciences, NY

September 9-10, 2013

[Mushrooms & Health Summit](#)

Washington, DC

September 22-24, 2013

American Society of Animal Science and American Society of Nutrition, [Innovations in Animal Growth and Health: The Next Generation of Cell Biology](#)

Braselton, GA

October 19-22, 2013

Academy of Nutrition and Dietetics, [Food & Nutrition Conference & Expo](#)

Houston, TX

October 27-30, 2013

[AACR International Conference on Frontiers in Cancer Prevention Research](#)

National Harbor, MD

November 7-8, 2013

[AICR Research Conference on Food, Nutrition, Physical Activity and Cancer](#)

Bethesda, MD

December 5-7, 2013

[ASN's Advances & Controversies in Clinical Nutrition](#)

Washington, DC

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DID YOU KNOW?

Cherry Picked Offers a Healthy Punch



The deepest red-purple colored tart cherry (*Prunus cerasus* L.) aka "sour cherry" originated from the region between the Caspian and Black Seas where they still grow wild. First cultivated in Greece, around 300 B.C. their popularity spread and eventually European colonists

brought cherry seeds to North America. Today 75% of tart cherries in the U.S. come from Michigan along the Great Lakes. Cherries are nutritionally dense in anthocyanins, in particular, cyanidin-3-glucosylrutinoside, known for its potential capacity to reduce oxidative stress.

References:

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Damar I, Eksi A. Food Chem. 2012 Dec 15; 135(4):2910-. Epub 2012 Jul 15.
McCune LM, et al. Crit Rev Food Sci Nutr. 2011 Jan; 51(1):1-12.

Sincerely,

Your friends at the Nutritional Science Research Group

Division of Cancer Prevention
National Cancer Institute
National Institutes of Health
U.S. Department of Health & Human Services

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