



April 2009 • Volume 139 • Number 4

Contents

Articles

■ EDITORIAL

Progress and New Features, 2008–2009

A. Catharine Ross

635

■ RECENT ADVANCES IN NUTRITIONAL SCIENCES

Long Chain PUFA Transport in Human Term Placenta

Phil Cunningham and Lindsay McDermott

636

■ BIOCHEMICAL, MOLECULAR, AND GENETIC MECHANISMS

Dietary Green Tea Extract Lowers Plasma and Hepatic Triglycerides and Decreases the Expression of Sterol Regulatory Element-Binding Protein-1c mRNA and Its Responsive Genes in Fructose-Fed, Ovariectomized Rats

Sudeep Shrestha, Sarah J. Ehlers, Ji-Young Lee, Maria-Luz Fernandez, and Sung I. Koo

640

The Flavonols Quercetin, Kaempferol, and Myricetin Inhibit Hepatocyte Growth Factor-Induced Medulloblastoma Cell Migration

David Labb  , Mathieu Proven  al, Sylvie Lamy, Dominique Boivin, Denis Gingras, and Richard B  liveau

646

Enterolactone Inhibits Insulin-Like Growth Factor-1 Receptor Signaling in Human Prostatic Carcinoma PC-3 Cells

Li-Hua Chen, Jing Fang, Zhijian Sun, Huaixing Li, Ying Wu, Wendy Demark-Wahnefried, and Xu Lin

653

■ NUTRIENT PHYSIOLOGY, METABOLISM, AND NUTRIENT-NUTRIENT INTERACTIONS

Intravenous Administration of L-Citrulline to Pregnant Ewes Is More Effective Than L-Arginine for Increasing Arginine Availability in the Fetus

Arantzu Lassala, Fuller W. Bazer, Timothy A. Cudd, Peng Li, Xilong Li, M. Carey Satterfield, Thomas E. Spencer, and Guoyao Wu

660

Production of 1-Carbon Units from Glycine Is Extensive in Healthy Men and Women

Yvonne Lamers, Jerry Williamson, Douglas W. Theriaque, Jonathan J. Shuster, Lesa R. Gilbert, Christine Keeling, Peter W. Stacpoole, and Jesse F. Gregory III

666

■ INGESTIVE BEHAVIOR AND NEUROSCIENCES

Iron Is Essential for Neuron Development and Memory Function in Mouse Hippocampus

Erik S. Carlson, Ivan Tkac, Rhamy Magid, Michael B. O'Connor, Nancy C. Andrews, Timothy Schallert, Hiromi Gunshin, Michael K. Georgieff, and Anna Petryk

672

■ NUTRITION AND DISEASE

Baseline Serum C-Reactive Protein Is Associated with Lipid Responses to Low-Fat and High-Polyunsaturated Fat Diets

Marie-Pierre St-Onge, Sijian Zhang, Betty Darnell, and David B. Allison

680

Mucosal Maltase-Glucoamylase Plays a Crucial Role in Starch Digestion and Prandial Glucose Homeostasis of Mice

Buford L. Nichols, Roberto Quezada-Calvillo, Claudia C. Robayo-Torres, Zihua Ao, Bruce R. Hamaker, Nancy F. Butte, Juan Marini, Farook Jahoor, and Erwin E. Sterchi 684

Hepatic Fatty Acid Composition Differs between Chronic Hepatitis C Patients with and without Steatosis

Bianca M. Arendt, Saira S. Mohammed, Elaheh Aghdassi, Nita R. Prayitno, David W. L. Ma, Augustin Nguyen, Maha Guindi, Morris Sherman, E. Jenny Heathcote, and Johane P. Allard 691

Vitamin A Deficiency in Rats Induces Anatomic and Metabolic Changes Comparable with Those of Neurodegenerative Disorders

Nadirah Ghenimi Rahab, Marie-Christine Beauvieux, Marc Biran, Véronique Pallet, Paul Higueret, and Jean-Louis Gallis 696

Long-Term Marginal Zinc Supply Is Not Detrimental to the Skeleton of Aged Female Rats

Reinhold G. Erben, Katja Lausmann, Paul Roschger, Christiane Schüler, Monika Skalicky, Klaus Klaushofer, and Wilhelm Windisch 703

Glutamine Deprivation Alters Intestinal Tight Junctions via a PI3-K/Akt Mediated Pathway in Caco-2 Cells

Nan Li and Josef Neu 710

Leucine Supplementation of Drinking Water Does Not Alter Susceptibility to Diet-Induced Obesity in Mice

Ali Nairizi, Pengxiang She, Thomas C. Vary, and Christopher J. Lynch 715

■ NUTRIENT REQUIREMENTS AND OPTIMAL NUTRITION

Intestinal Inflammation Increases Gastrointestinal Threonine Uptake and Mucin Synthesis in Enterally Fed Minipigs

Didier Rémond, Caroline Buffière, Jean-Philippe Godin, Philippe Patureau Mirand, Christiane Obled, Isabelle Papet, Dominique Dardevet, Gary Williamson, Denis Breuillé, and Magali Faure 720

Choline Intake, Plasma Riboflavin, and the Phosphatidylethanolamine N-Methyltransferase G5465A Genotype Predict Plasma Homocysteine in Folate-Deplete Mexican-American Men with the Methylenetetrahydrofolate Reductase 677TT Genotype

Marie A. Caudill, Neele Dellschaft, Claudia Solis, Sabrina Hinkis, Alexandre A. Ivanov, Susan Nash-Barboza, Katharine E. Randall, Brandi Jackson, Gina N. Solomita, and Francoise Vermeyen 727

■ NUTRITIONAL EPIDEMIOLOGY

Dietary Quality Is Associated with Diabetes and Cardio-Metabolic Risk Factors

Sarah A. McNaughton, David W. Dunstan, Kylie Ball, Jonathan Shaw, and David Crawford 734

Urinary Potassium Is a Clinically Useful Test to Detect a Poor Quality Diet

Andrew Mente, E. Jan Irvine, R. John D'A. Honey, and Alexander G. Logan 743

Maternal Anthropometry Is Associated with the Body Mass Index and Waist:Height Ratio of Offspring at 23 Years of Age

Ana Lilia Lozada Tequeanes, Denise Petrucci Gigante, Maria Cecilia Formoso Assunção, David Alejandro Gonzalez Chica, and Bernardo Lessa Horta 750

The Positive Deviance Approach Can Be Used to Create Culturally Appropriate Eating Guides Compatible with Reduced Cancer Risk

Marieke Vossenaar, Evelyn Mayorga, María José Soto-Méndez, Susana B. Medina-Monchez, Raquel Campos, Annie S. Anderson, and Noel W. Solomons 755

■ COMMUNITY AND INTERNATIONAL NUTRITION

Development of Nutritionally At-Risk Young Children Is Predicted by Malaria, Anemia, and Stunting in Pemba, Zanzibar

Deanna K. Olney, Patricia K. Kariger, Rebecca J. Stoltzfus, Sabra S. Khalfan, Nadra S. Ali, James M. Tielsch, Sunil Sazawal, Robert Black, Lindsay H. Allen, and Ernesto Politte 763

Supplementary Feeding with Fortified Spreads Results in Higher Recovery Rates Than with a Corn/Soy Blend in Moderately Wasted Children

Danielle K. Matilsky, Kenneth Maleta, Tony Castleman, and Mark J. Manary

773

B NUTRITIONAL IMMUNOLOGY

Glycerol-3-Phosphate Acyltransferase 1 Is Essential for the Immune Response to Infection with Coxsackievirus B3 in Mice

Erik A. Karlsson, Shuli Wang, Qing Shi, Rosalind A. Coleman, and Melinda A. Beck

779

B METHODOLOGY AND MATHEMATICAL MODELING

A Mathematical Model Gives Insights into the Effects of Vitamin B-6 Deficiency on 1-Carbon and Glutathione Metabolism

H. Frederik Nijhout, Jesse F. Gregory, Courtney Fitzpatrick, Eugenia Cho, K. Yvonne Lamers, Cornelia M. Ulrich, and Michael C. Reed

784

B ERRATA

792

Announcements

794

Supplement: 8th International Symposium on the Role of Soy in Health Promotion and Chronic Disease Prevention and Treatment: Highlights, Review, and Commentary

Report on the 8th International Symposium on the Role of Soy in Health Promotion and Chronic Disease Prevention and Treatment

Mark Messina, Shaw Watanabe, Kenneth D. R. Setchell

796

Supplement: Towards Dietary Reference Intakes for Eicosapentaenoic and Docosahexaenoic Acids

Towards Establishing Dietary Reference Intakes for Eicosapentaenoic and Docosahexaenoic Acids

William S. Harris, Dariush Mozaffarian, Michael Lefevre, Cheryl D. Toner, John Colombo, Stephen C. Cunnane, Joanne M. Holden, David M. Klurfeld, Martha Clare Morris, and Jay Whelan

804