

Publication information: *Journal of Nutritional Biochemistry* (ISSN: 0955-2863) is published monthly by Elsevier, 360 Park Avenue South, New York, NY 10010-1710. Periodicals postage paid at New York, NY, and additional mailing offices.

USA POSTMASTER: Send address changes to *Journal of Nutritional Biochemistry*, Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA.

Annual subscription rates: United States and possessions: individual, \$395; institution, \$2271; single issues, \$209. All other countries: individual, \$451; institution, \$2579.

Orders, claims, and journal inquiries: Please contact the Elsevier Customer Service Department nearest you:

St. Louis: Elsevier Customer Service Department, 3251 Riverport Lane, Maryland Heights, MO 63043, USA; phone: (800) 654-2452 [toll free within the USA]; (+1) (314) 447-8871 [outside the USA]; fax: (+1) (314) 447-8029; e-mail: JournalCustomerService-usa@elsevier.com.

Oxford: Elsevier Customer Service Department, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK; phone: (+44) (1865) 843434; fax: (+44) (1865) 843970; e-mail: JournalCustomerServiceEMEA@elsevier.com.

Tokyo: Elsevier Customer Service Department, 4F Higashi-Azabu, 1-Chome Bldg, 1-9-15 Higashi-Azabu, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5037; fax: (+81) (3) 5561 5047; e-mail: JournalCustomerServiceJapan@elsevier.com.

Singapore: Elsevier Customer Service Department, 3 Killiney Road, #08-01 Winsland House I, Singapore 239519; phone: (+65) 63490222; fax: (+65) 67331510; e-mail: JournalCustomerServiceAPAC@elsevier.com.

Advertising information: Advertising orders and inquiries can be sent to: USA, Canada and South America: John Marmaro, Elsevier Inc., 360 Park Avenue South, New York, NY 10010-1710, USA; phone: (+1) (212) 633-3657; e-mail: j.marmaro@elsevier.com.

Reprints: To order 100 or more reprints for educational, commercial, or promotional use, contact the Commercial Reprints Department, Elsevier Inc., 360 Park Avenue South, New York, NY 10010-1710; E-mail: reprints@elsevier.com.

Guide for Authors: For a full and complete Guide for Authors, please go to <http://jnutbio.com/authorinfo>.

Author inquiries: For inquiries relating to the submission of articles (including electronic submission) please visit this journal's homepage at <http://jnutbio.com>. Contact details for questions arising after acceptance of an article, especially those relating to proofs, will be provided by the publisher. You can track accepted articles at <http://www.elsevier.com/trackarticle>. You can also check our AuthorFAQ and/or contact Customer Support via <http://support.elsevier.com>.

Funding body agreements and policies: Elsevier has established agreements and developed policies to allow authors whose articles appear in journals published by Elsevier, to comply with potential manuscript archiving requirements as specified as conditions of their grant awards. To learn more about existing agreements and policies please visit <http://www.elsevier.com/fundingbodies>.

© 2013 Elsevier Inc. All rights reserved. This journal and the individual contributions contained in it are protected under copyright by Elsevier Inc., and the following terms and conditions apply to their use:

Photocopying: Single photocopies of single articles may be made for personal use as allowed by national copyright laws. Permission of the Publisher and payment of a fee is required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale, and all forms of document delivery. Special rates are available for educational institutions that wish to make photocopies for non-profit educational classroom use. For information on how to seek permission visit www.elsevier.com/permissions or call: (+44) 1865 843830 (UK) / (+1) 215 239 3804 (USA).

Derivative Works: Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution. Permission of the Publisher is required for all other derivative works, including compilations and translations (please consult www.elsevier.com/permissions).

Electronic Storage or Usage: Permission of the Publisher is required to store or use electronically any material contained in this journal, including any article or part of an article (please consult www.elsevier.com/permissions). Except as outlined above, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the Publisher.

Notice: No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made.

Although all advertising material is expected to conform to ethical (medical) standards, inclusion in this publication does not constitute a guarantee or endorsement of the quality or value of such product or of the claims made of it by its manufacturer.

© The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper)

The Journal of

Nutritional Biochemistry

Volume 24, Number 1, January 2013

CONTENTS

REVIEWS: CURRENT TOPICS

- 1 Biochemical and metabolic mechanisms by which dietary whey protein may combat obesity and Type 2 diabetes
Daniela Jakubowicz, Oren Froy

RESEARCH ARTICLES

- 6 Maternal high-fat intake during pregnancy programs metabolic-syndrome-related phenotypes through liver mitochondrial DNA copy number and transcriptional activity of liver *PPARGC1A*
Adriana Laura Burgueño, Romina Cabrerizo, Noelia Gonzales Mansilla, Silvia Sookoian, Carlos Jose Pirola
- 14 Curcumin restores Nrf2 levels and prevents quinolinic acid-induced neurotoxicity
Iván Carmona-Ramírez, Abel Santamaría, Julio C. Tobón-Velasco, Marisol Orozco-Ibarra, Irma G. González-Herrera, José Pedraza-Chaverri, Perla D. Maldonado
- 25 Maternal dietary folate and/or vitamin B₁₂ restrictions alter body composition (adiposity) and lipid metabolism in Wistar rat offspring
Kalle Anand Kumar, Anumula Lalitha, Dhandapani Pavithra, Inagadapa J.N. Padmavathi, Manisha Ganesan, Kalashikam Rajender Rao, Lagishetty Venu, Nagala Balakrishna, Nemani Hari Shanker, Singi Umakar Reddy, Giriraj Ratan Chandak, Shantanu Sengupta, Manchala Raghunath
- 32 Phosphorylated S6K1 (Thr389) is a molecular adipose tissue marker of altered glucose tolerance
José María Moreno-Navarrete, Francisco Ortega, Miguel Ángel Sánchez-Garrido, Mònica Sabater, Wifredo Ricart, Antonio Zorzano, Manuel Tena-Sempere, José Manuel Fernández-Real
- 39 Phytosterols inhibit the tumor growth and lipoprotein oxidizability induced by a high-fat diet in mice with inherited breast cancer
Gemma Llaverias, Joan Carles Escolà-Gil, Enrique Lerma, Josep Julve, Cristina Pons, Anna Cabré, Montserrat Cofán, Emilio Ros, José Luis Sánchez-Quesada, Francisco Blanco-Vaca
- 49 Differential effects of dietary sodium intake on blood pressure and atherosclerosis in hypercholesterolemic mice
Hong Lu, Congqing Wu, Deborah A. Howatt, Anju Balakrishnan, Richard J. Charnigo Jr, Lisa A. Cassis, Alan Daugherty
- 54 Transcriptomic and metabolomic signatures of an n-3 polyunsaturated fatty acids supplementation in a normolipidemic/normocholesterolemic Caucasian population
Iwona Rudkowska, Ann-Marie Paradis, Elisabeth Thifault, Pierre Julien, André Tchernof, Patrick Couture, Simone Lemieux, Olivier Barbier, Marie-Claude Vohl
- 62 Indole-3-carbinol blocks platelet-derived growth factor-stimulated vascular smooth muscle cell function and reduces neointima formation in vivo
Hongjing Guan, Changgui Chen, Lihua Zhu, Changping Cui, Yuanyuan Guo, Mingyue Fu, Lang Wang, Qizhu Tang

(continued on next page)

This journal is indexed in BIOSIS; Current Awareness in Biological Sciences; Scisearch; Science Citation Index; Research Alert; EMBASE/Excerpta Medica; Medline; PubMed; and Current Contents.

The Journal of
**Nutritional
Biochemistry**
Volume 24, Number 1, January 2013

- 70** Exposure to a maternal n-3 fatty acid-deficient diet during brain development provokes excessive hypothalamic–pituitary–adrenal axis responses to stress and behavioral indices of depression and anxiety in male rat offspring later in life
Hui-Feng Chen, Hui-Min Su
- 81** Oxidative stress programming in a rat model of postnatal early overnutrition — role of insulin resistance
Ellen P.S. Conceição, Juliana G. Franco, Elaine Oliveira, Angela C. Resende, Taline A.S. Amaral, Nayara Peixoto-Silva, Magna C.F. Passos, Egberto G. Moura, Patrícia C. Lisboa
- 88** Genistein accelerates refractory wound healing by suppressing superoxide and FoxO1/iNOS pathway in type 1 diabetes
Lu Tie, Yu An, Jing Han, Yuan Xiao, Yilixiati Xiaokaiti, Shengjun Fan, Shaoqiang Liu, Alex F. Chen, Xuejun Li
- 97** Soluble plantain fibre blocks adhesion and M-cell translocation of intestinal pathogens
Carol L. Roberts, Asa V. Keita, Bryony N. Parsons, Maelle Prorok-Hamon, Paul Knight, Craig Winstanley, Niamh O’Kennedy, Johan D. Söderholm, Jonathan M. Rhodes, Barry J. Campbell
- 104** Protective effects of dietary EPA and DHA on ischemia–reperfusion-induced intestinal stress
Viral Brahmabhatt, Manuel Oliveira, Muriel Briand, Geneviève Perrisseau, Viktoria Bastic Schmid, Frédéric Destailats, Cecil Pace-Asciak, Jalil Benyacoub, Nabil Bosco
- 112** Glucose acts as a regulator of serum iron by increasing serum hepcidin concentrations
Elmar Aigner, Thomas K. Felder, Hannes Oberkofler, Penelope Hahne, Simon Auer, Selma Soyal, Andreas Stadlmayr, Karin Schwenoha, Christian Pirich, Paul Hengster, Christian Datz, Wolfgang Patsch
- 118** Quercetin intake during lactation modulates the AMP-activated protein kinase pathway in the livers of adult male rat offspring programmed by maternal protein restriction
Shin Sato, Yuuka Mukai, Takeshi Saito
- 124** Protective effects of (–)-epigallocatechin-3-gallate against TNF- α -induced lung inflammation via ROS-dependent ICAM-1 inhibition
I-Ta Lee, Chih-Chung Lin, Chi-Yin Lee, Pei-Wen Hsieh, Chuen-Mao Yang
- 137** Vitamin A deficiency disturbs collagen IV and laminin composition and decreases matrix metalloproteinase concentrations in rat lung. Partial reversibility by retinoic acid
Guillermo Esteban-Pretel, M. Pilar Marín, Jaime Renau-Piqueras, Yoshikazu Sado, Teresa Barber, Joaquín Timoneda
- 146** Attenuation of high-glucose-induced inflammatory response by a novel curcumin derivative B06 contributes to its protection from diabetic pathogenic changes in rat kidney and heart
Yong Pan, Guanghui Zhu, Yi Wang, Lu Cai, Yuepiao Cai, Jie Hu, Yilan Li, Yongbo Yan, Zengshou Wang, Xiaokun Li, Tiemin Wei, Guang Liang
- 156** Nobiletin improves obesity and insulin resistance in high-fat diet-induced obese mice
Young-Sil Lee, Byung-Yoon Cha, Sun-Sil Choi, Bong-Keun Choi, Takayuki Yonezawa, Toshiaki Teruya, Kazuo Nagai, Je-Tae Woo
- 163** Lycopene intervention reduces inflammation and improves HDL functionality in moderately overweight middle-aged individuals
Jane McEneny, Lauren Wade, Ian S. Young, Lindsey Masson, Garry Duthie, Ann McGinty, Cyril McMaster, Frank Thies

(continued on next page)

The Journal of
**Nutritional
Biochemistry**
Volume 24, Number 1, January 2013

- 169** Effects of biotin supplementation in the diet on insulin secretion, islet gene expression, glucose homeostasis and beta-cell proportion
M.L. Lazo de la Vega-Monroy, E. Larrieta, M.S. German, A. Baez-Saldana, C. Fernandez-Mejia
- 178** Pomegranate phytoconstituents blunt the inflammatory cascade in a chemically induced rodent model of hepatocellular carcinogenesis
Anupam Bishayee, Roslin J. Thoppil, Altaf S. Darvesh, Vahagn Ohanyan, J. Gary Meszaros, Deepak Bhatia
- 188** DHA-fluorescent probe is sensitive to membrane order and reveals molecular adaptation of DHA in ordered lipid microdomains
Heather Teague, Ron Ross, Mitchel Harris, Drake C. Mitchell, Saame Raza Shaikh
- 196** Supplementation of a γ -tocopherol-rich mixture of tocopherols in healthy men protects against vascular endothelial dysfunction induced by postprandial hyperglycemia
Eunice Mah, Sang K. Noh, Kevin D. Ballard, Hea Jin Park, Jeff S. Volek, Richard S. Bruno
- 204** Docosahexaenoic acid inhibition of inflammation is partially via cross-talk between Nrf2/heme oxygenase 1 and IKK/NF- κ B pathways
Ya-Chen Yang, Chong-Kuei Lii, Yu-Ling Wei, Chien-Chun Li, Chia-Yang Lu, Kai-Li Liu, Haw-Wen Chen
- 213** A novel bioactive peptide from yoghurts modulates expression of the gel-forming MUC2 mucin as well as population of goblet cells and Paneth cells along the small intestine
Pascale Plaisancié, Jean Claustre, Monique Estienne, Gwénaële Henry, Rachel Boutrou, Armelle Paquet, Joëlle Léonil
- 222** Positive and negative regulation of insulin action by genistein in the endothelium
Xuejiao Gao, Kang Liu, Fang Huang, Dongyan Zhang, Xudan Guo, Min Wang, Baolin Liu
- 231** Piperine, a dietary phytochemical, inhibits angiogenesis
Carolyn D. Doucette, Ashley L. Hilchie, Robert Liwski, David W. Hoskin
- 240** The role of T-bet in obesity: lack of T-bet causes obesity in male mice
Kyu-Yeob Kim, Hyun-Ja Jeong, Hyung-Min Kim
- 248** Dietary fish oil increases the proportion of a specific neutrophil subpopulation in blood and total neutrophils in peritoneum of mice following endotoxin-induced inflammation
Hildur H. Arnardottir, Jona Freysdottir, Ingibjorg Hardardottir
- 256** Prenatal zinc deficiency-dependent epigenetic alterations of mouse metallothionein-2 gene
Hisaka Kurita, Seiichiroh Ohsako, Shin-ichi Hashimoto, Jun Yoshinaga, Chiharu Tohyama
- 267** Effects of dietary fat energy restriction and fish oil feeding on hepatic metabolic abnormalities and insulin resistance in KK mice with high-fat diet-induced obesity
Takeshi Arai, Hyoun-ju Kim, Satoshi Hirako, Maki Nakasatomi, Hiroshige Chiba, Akiyo Matsumoto
- 274** High levels of arachidonic acid and peroxisome proliferator-activated receptor- α in breast cancer tissues are associated with promoting cancer cell proliferation
Nai-Wen Chang, Chen-Teng Wu, Dar-Ren Chen, Chung-Yi Yeh, Chingju Lin
- 282** Glucose as a fetal nutrient: dynamic regulation of several glucose transporter genes by DNA methylation in the human placenta across gestation
Boris Novakovic, Lavinia Gordon, Wendy P. Robinson, Gernot Desoye, Richard Saffery

(continued on next page)

The Journal of
**Nutritional
Biochemistry**
Volume 24, Number 1, January 2013

- 289** Zinc deficiency induces production of the proinflammatory cytokines IL-1 β and TNF α in promyeloid cells via epigenetic and redox-dependent mechanisms
Inga Wessels, Hajo Haase, Gabriela Engelhardt, Lothar Rink, Peter Uciechowski
- 298** Epigallocatechin-3-gallate prevents systemic inflammation-induced memory deficiency and amyloidogenesis via its anti-neuroinflammatory properties
Young-Jung Lee, Dong-Young Choi, Yeo-Pyo Yun, Sang Bae Han, Ki-Wan Oh, Jin Tae Hong
- 311** Therapeutic effect of organoselenium dietary supplementation in a sporadic dementia of Alzheimer's type model in rats
Simone Pinton, César A. Brünig, Carla E. Sartori Oliveira, Marina Prigol, Cristina Wayne Nogueira
- 318** Postprandial changes in the proteome are modulated by dietary fat in patients with metabolic syndrome
Antonio Camargo, Oriol Alberto Rangel-Zúñiga, Patricia Peña-Orihuela, Carmen Marín, Pablo Pérez-Martínez, Javier Delgado-Lista, Francisco Miguel Gutierrez-Mariscal, María M. Malagón, Helen M. Roche, Francisco José Tinahones, Francisco Perez-Jimenez, José Lopez-Miranda
- 325** Metabolic response to green tea extract during rest and moderate-intensity exercise
Adrian B. Hodgson, Rebecca K. Randell, Niels Boon, Ursula Garczarek, David J. Mela, Asker E. Jeukendrup, Doris M. Jacobs
- 335** Green tomato extract attenuates high-fat-diet-induced obesity through activation of the AMPK pathway in C57BL/6 mice
Kyeong-Mi Choi, Youn-Sun Lee, Dong-Mi Shin, Seunghyun Lee, Kwang-Sik Yoo, Mi Kyeong Lee, Jae-Hak Lee, Sun Yeou Kim, Yong-Moon Lee, Jin-Tae Hong, Yeo-Pyo Yun, Hwan-Soo Yoo
- 343** Plant stanols induce intestinal tumor formation by up-regulating Wnt and EGFR signaling in *Apc*^{Min} mice
Maija Marttinen, Essi Päävärinta, Markus Storvik, Laura Huikko, Heli Luoma-Halkola, Vieno Piironen, Anne-Maria Pajari, Marja Mutanen
- 353** Increased inflammatory response in aged mice is associated with age-related zinc deficiency and zinc transporter dysregulation
Carmen P. Wong, Kathy R. Magnusson, Emily Ho
- 360** Anthocyanin-enriched bilberry and blackcurrant extracts modulate amyloid precursor protein processing and alleviate behavioral abnormalities in the APP/PS1 mouse model of Alzheimer's disease
Saila Vepsäläinen, Henna Koivisto, Elina Pekkarinen, Petra Mäkinen, Gary Dobson, Gordon J. McDougall, Derek Stewart, Annakaisa Haapasalo, Reijo O. Karjalainen, Heikki Tanila, Mikko Hiltunen
- 371** Treatment with n-3 polyunsaturated fatty acids reverses endothelial dysfunction and oxidative stress in experimental menopause
Gianluca Gortan Cappellari, Pasquale Losurdo, Sara Mazzucco, Emiliano Panizon, Mitja Jevnicar, Loredana Macaluso, Bruno Fabris, Rocco Barazzoni, Gianni Biolo, Renzo Carretta, Michela Zanetti
- 380** Rat neural stem cell proliferation and differentiation are durably altered by the in utero polyunsaturated fatty acid supply
Bénédict Goustard-Langelier, Mélanie Koch, Monique Laviolle, Christine Heberden
- 388** Mammary tumor development is directly inhibited by lifelong n-3 polyunsaturated fatty acids
Mira B. MacLennan, Shannon E. Clarke, Kate Perez, Geoffrey A. Wood, William J. Muller, Jing X. Kang, David W.L. Ma
- 396** Association between the plasma proteome and plasma α -tocopherol concentrations in humans
Laura A. Da Costa, Bibiana García-Bailo, Christoph H. Borchers, Alaa Badawi, Ahmed El-Sohemy