

The Journal of Nutritional Biochemistry (JNB) is an international journal devoted to advancements in nutrition science. Its major focus is on investigations about nutrients that overlap with the areas of biochemistry molecular biology, neurochemistry, toxicology, and pharmacology. For details concerning the preparation of manuscripts see Information for Authors on the journal's website at www.jnutbio.com.

JNB: *Journal of Nutritional Biochemistry* (ISSN: 0955-2863) is published monthly by Elsevier, 360 Park Avenue South, New York, NY 10010-1710. Business Office: 1600 John F. Kennedy Blvd., Suite 1800, Philadelphia, PA 19103-2899. Editorial Office: 360 Park Avenue South, New York, NY 10010-1710. Accounting and Circulation Offices: 3251 Riverport Lane, Maryland Heights, MO 63043. Periodicals postage paid at New York, NY and additional mailing offices.

POSTMASTER: Send address changes to JNB: *Journal of Nutritional Biochemistry*, Elsevier Health Sciences Division, Subscription Customer Service, 3251 Riverport Lane, Maryland Heights, MO 63043.

Subscription Rates (2010): Institutional price: US\$1,822.00; Personal price: US\$339.00; Prices include postage and are subject to change without notice. Claims for missing issues can be honored only up to three months for domestic addresses, six months for foreign addresses. Duplicate copies will not be sent to replace one undelivered through failure to notify Elsevier of change of address. Single copy and back volume information available upon request.

Customer service (orders, claims, online, change of address): Elsevier Health Sciences Division, Subscription Customer Service, 3251 Riverport Lane, Maryland Heights, MO 63043. Tel: (800) 654-2452 (U.S. and Canada); (314) 447-8871 (outside U.S. and Canada). Fax: (314) 447-8029. E-mail: JournalsCustomerService-usa@elsevier.com (for print support); JournalsOnlineSupport-usa@elsevier.com (for online support).

Reprints: For copies of 100 or more of articles in this publication, please contact the Commercial Reprints Department, Elsevier Inc., 360 Park Avenue South, New York, NY 10010-1710. Tel: (212) 633-3812; Fax: (212) 462-1935 e-mail: reprints@elsevier.com or visit www.elsevierreprints.com.

© 2010 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.

Permission may be sought directly from Elsevier's Global Rights Department in Oxford, UK; phone: 215-239-3804 or +44 (0) 1865 843830, fax: +44 (0) 1865 853333, e-mail: healthpermissions@elsevier.com. Requests may also be completed online via the Elsevier homepage (<http://www.elsevier.com/permissions>).

In the USA, users may clear permissions and make payments through the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; Tel: (978) 750 8400, Fax: (978) 750-4744, and in the UK through the Copyright Licensing Agency Rapid Clearance Service (CLARCS), 90 Tottenham Court Road, London W1P 0LP, UK; Tel: (+44) 171 436 5931; Fax: (+44) 171 436 3986. Other countries may have a local reprographic rights agency for payments.

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.

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. Contact the publisher at the address indicated.

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.

Address permissions requests to: Elsevier Inc. Rights & Permissions Department, at the mail, fax and e-mail addresses noted above.

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.

©TM This paper meets the requirements of ANSI Standard Z39.48-1992 (Permanence of Paper).

The Journal of Nutritional Biochemistry

Volume 21, Number 5, May 2010

CONTENTS

REVIEWS: CURRENT TOPICS

- 357** N-3 polyunsaturated fatty acids regulate lipid metabolism through several inflammation mediators: mechanisms and implications for obesity prevention
Chen C. Tai, Shih T. Ding
- 364** Mechanisms of n-3 fatty acid-mediated development and maintenance of learning memory performance
Hui-Min Su

RESEARCH ARTICLES

- 374** Suppressive effect of quercetin on acute stress-induced hypothalamic-pituitary-adrenal axis response in Wistar rats
Kyuichi Kawabata, Yoshichika Kawai, Junji Terao
- 381** Astaxanthin protects mitochondrial redox state and functional integrity against oxidative stress
Alexander M. Wolf, Sadamitsu Asoh, Hidenori Hiranuma, Ikuroh Ohsawa, Kumiko Iio, Akira Satou, Masaharu Ishikura, Shigeo Ohta
- 390** Delayed activation of extracellular-signal-regulated kinase 1/2 is involved in genistein- and equol-induced cell proliferation and estrogen-receptor- α -mediated transcription in MCF-7 breast cancer cells
Huaqing Liu, Juan Du, Chunyan Hu, Hong Qi, Xinru Wang, Shoulin Wang, Qizhan Liu, Zhong Li
- 397** Mitochondria accumulate large amounts of quercetin: prevention of mitochondrial damage and release upon oxidation of the extramitochondrial fraction of the flavonoid
Mara Fiorani, Andrea Guidarelli, Manuela Blasa, Catia Azzolini, Manila Candiracci, Elena Piatti, Orazio Cantoni
- 405** Diallyl disulfide causes caspase-dependent apoptosis in human cancer cells through a Bax-triggered mitochondrial pathway
Nagathihalli S. Nagaraj, Kandangath R. Anilakumar, Om V. Singh
- 413** Cardioprotective effect of intermittent fasting is associated with an elevation of adiponectin levels in rats
Ruiqian Wan, Ismayil Ahmet, Martin Brown, Aiwu Cheng, Naomi Kamimura, Mark Talan, Mark P. Mattson
- 418** Mukitake mushroom (*Panellus serotinus*) alleviates nonalcoholic fatty liver disease through the suppression of monocyte chemoattractant protein 1 production in *db/db* mice
Koji Nagao, Nao Inoue, Masashi Inafuku, Bungo Shirouchi, Takanori Morooka, Saori Nomura, Naoki Nagamori, Teruyoshi Yanagita
- 424** Hesperetin stimulates differentiation of primary rat osteoblasts involving the BMP signalling pathway
Anna Trzeciakiewicz, Veronique Habauzit, Sylvie Mercier, Patrice Lebecque, Marie-Jeanne Davicco, Veronique Coxam, Christian Demigne, Marie-Noëlle Horcajada
- 432** Distinctive modulation of inflammatory and metabolic parameters in relation to zinc nutritional status in adult overweight/obese subjects
Laura Costarelli, Elisa Muti, Marco Malavolta, Catia Cipriano, Robertina Giacconi, Silvia Tesei, Francesco Piacenza, Sara Pierpaoli, Nazzarena Gasparini, Emanuela Faloia, Giacomo Tirabassi, Marco Boscaro, Angela Polito, Beatrice Mauro, Francesca Maiani, Anna Raguzzini, Fiorella Marcellini, Cinzia Giuli, Roberta Papa, Monica Emanuelli, Fabrizia Lattanzio, Eugenio Mocchegiani
- 438** Phosphorylated glucosamine inhibits adipogenesis in 3T3-L1 adipocytes
Chang-Suk Kong, Jung-Ae Kim, Tae Kil Eom, Se-Kwon Kim
- 444** Anti-inflammatory effects of EPA and DHA are dependent upon time and dose-response elements associated with LPS stimulation in THP-1-derived macrophages
Anne Mullen, Christine E. Loscher, Helen M. Roche
- 451** ATP-Binding cassette transporter A1 is involved in hepatic α -tocopherol secretion
Mototada Shichiri, Yasukazu Takanezawa, Daisy E. Rotzoll, Yasukazu Yoshida, Tomokuni Kokubu, Kazumitsu Ueda, Hiroshi Tamai, Hiroyuki Arai

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.