

# in vivo

**International Journal of Experimental and Clinical Pathophysiology and Drug Research**

**Volume 33, Number 4, July-August 2019**

## Contents

### Reviews

Chemoprevention of Breast Cancer With Vitamins and Micronutrients: A Concise Review. K. MOKBEL, K. MOKBEL ( <i>London, UK</i> ) .....	983
Potential Applications of Non-thermal Plasma in Animal Husbandry to Improve Infrastructure. T. KWON, N. CHANDIMALI, D.-H. LEE, Y. SON, S.-B. YOON, J. LEE, S. LEE, K.J. KIM, S.-Y. LEE, S.-Y. KIM, Y.-J. JO, M. KIM, B.-J. PARK, J.-K. LEE, D.K. JEONG, J.-S. KIM ( <i>Jeonbuk; Daejeon; Jeju, Republic of Korea</i> ) .....	999
Plasma Medicine: A Field of Applied Redox Biology. T. VON WOEDTKE, A. SCHMIDT, S. BEKESCHUS, K. WENDE, K.-D. WELTMANN ( <i>Greifswald, Germany</i> ) .....	1011
Circulating Tumor Cells in Diagnosis and Treatment of Lung Cancer. V. MALY, O. MALY, K. KOLOSTOVA, V. BOBEK ( <i>Prague; Usti nad Labem, Czech Republic; Wroclaw, Poland</i> ) .....	1027
Screening and Risk Assessment of Coronary Artery Disease in Patients With Type 2 Diabetes: An Updated Review. A. PATSOURAS, P. FARMAKI, A. GARMPI, C. DAMASKOS, N. GARMPIS, D. MANTAS, E. DIAMANTIS ( <i>Athens, Greece</i> ) .....	1039
Pharmacogenetic Implications of eNOS Polymorphisms ( <i>Glu298Asp, T786C, 4b/4a</i> ) in Cardiovascular Drug Therapy. A. COZMA, A. FODOR, O.H. ORASAN, R. VULTURAR, D. SAMPLELEAN, V. NEGREAN, C. MURESAN, R. SUHAROSCHI, A. SITAR-TAUT ( <i>Cluj-Napoca, Romania</i> ) .....	1051
Incisional Hernias Post Liver Transplantation: Current Evidence of Epidemiology, Risk Factors and Laparoscopic Versus Open Repair. A Review of the Literature. N. GARMPIS, E. SPARTALIS, D. SCHIZAS, D. PATSOURAS, C. DAMASKOS, M. SPARTALIS, A. GARMPI, N.I. NIKITEAS, D. DIMITROULIS ( <i>Athens, Greece</i> ) .....	1059

*Contents continued on the back cover*

### Editorial Board

I. ABRAHAM, Tucson, AZ, USA  
N. J. AGNANTIS, Ioannina, Greece  
D. ANDERSON, Bradford, West Yorkshire, UK  
V. BARAK, Jerusalem, Israel  
M. H. BARCELLOS-HOFF, New York, NY, USA  
K. BEIER, Basel, Switzerland  
M. BERGQVIST, Uppsala, Sweden  
R. BJERKVIG, Bergen, Norway  
W. BOWNE, Philadelphia, PA, USA  
M. CARAGLIA, Naples, Italy  
P. CHANDRA, Frankfurt am Main, Germany  
J.-G. CHUNG, Taichung, Taiwan, ROC  
L. A. COHEN, Northampton, MA, USA  
A. I. CONSTANTINOU, Nicosia, Cyprus  
T. DALIANIS, Stockholm, Sweden  
G. DELICONSTANTINOS, Athens, Greece  
D. T. DENHARDT, Bridgewater, NJ, USA  
W. DEN OTTER, Amsterdam, The Netherlands  
K. DE MEIRLEIR, Brussels, Belgium  
L. DE RIDDER, Ghent, Belgium  
E. P. DIAMANDIS, Toronto, ON, Canada  
J.M. DRAKE, New Brunswick, NJ, USA  
T. EFFERTH, Mainz, Germany  
W. ENGSTRÖM, Uppsala, Sweden  
M. ESKELINEN, Kuopio, Finland  
J. A. FERNANDEZ-POL, Chesterfield, MO, USA  
G. FIORENTINI, Pesaro, Italy  
P. B. FISHER, New York, NY, USA  
I. FREITAS, Pavia, Italy  
M. FRIEDRICH, Krefeld, Germany  
R. E. FRIEDRICH, Hamburg, Germany  
R. GANAPATHI, Charlotte, NC, USA  
G. GITSCHE, Freiburg, Germany  
V. GORGULIS, Athens, Greece  
J. S. GREENBERGER, Pittsburgh, PA, USA  
J. W. GREINER, Bethesda, MD, USA  
C. J. GRUBBS, Birmingham, AL, USA  
F. GUADAGNI, Rome, Italy  
J. HAU, Copenhagen, Denmark  
M. HAUER-JENSEN, Little Rock, AR, USA  
K. HIBI, Kakamigahara, Japan  
S. A. IMAM, Pasadena, CA, USA  
K. S. JEONG, Daegu, S. Korea  
M. JHANWAR-UNIYAL, Valhalla, NY, USA  
I. KISS, Pécs, Hungary  
E. KONDO, Niigata, Japan  
M. KOUTSILIERIS, Athens, Greece  
G. R. F. KRUEGER, Köln, Germany  
N. KYPRIANOU, Lexington, KY, USA  
S. A. LAMPRECHT, New York, NY, USA  
G. LANDBERG, Lund, Sweden  
I. LELONG-REBEL, Illkirch, France  
J. LEROY, Strasbourg, France

W. LICHTENEGGER, Berlin, Germany  
J. LYKKESFELDT, Frederiksberg, Denmark  
P. MADARNAS, Sherbrooke, QC, Canada  
H. MAEDA, Kumamoto, Japan  
M. MAREEL, Ghent, Belgium  
L. MARGOLIS, Bethesda, MD, USA  
G. MARTORANA, Bologna, Italy  
J. MOLNÁR, Szeged, Hungary  
S.L. MOOBERRY, San Antonio, TX, USA  
N. MOTOHASHI, Tokyo, Japan  
R. M. NAGLER, Haifa, Israel  
S. NAKANO, Fukuoka, Japan  
M. NAKASHIMA, Nagasaki, Japan  
R. NARAYANAN, Boca Raton, FL, USA  
M.B. NICHOLL, San Antonio, TX, USA  
K. NILSSON, Uppsala, Sweden  
K. R. NORUM, Oslo, Norway  
K. OGAWA, Tokyo, Japan  
M. PAGÉ, Laval, QC, Canada  
C. POLYCHRONAKOS, Montreal, QC, Canada  
M.-F. POUPON, Paris, France  
D. RADES, Lübeck, Germany  
F. M. ROBERTSON, Richmond, VA, USA  
D. RUBELLO, Rovigo, Italy  
C. A. RUBIO, Stockholm, Sweden  
G. R. RUTTEMAN, Utrecht, The Netherlands  
H. SAKAGAMI, Saitama, Japan  
G. SAVA, Trieste, Italy  
D. SCHIFFER, Vercelli, Italy  
L. D. SHULTZ, Bar Harbor, ME, USA  
G. SICA, Rome, Italy  
J. SIEGFRIED, Minneapolis, MN, USA  
J. SLANSKY, Denver, CO, USA  
R. M. SNAPKA, Columbus, OH, USA  
G.-I. SOMA, Kagawa, Japan  
P. P. SORDILLO, New York, NY, USA  
T. A. SPRINGER, Boston, MA, USA  
D. D. SPYROPOULOS, Charleston, SC, USA  
K. SYRJÄNEN, Helsinki, Finland  
G. C. TORRE, Finale Ligure (SV), Italy  
B. TRIBUKAIT, Stockholm, Sweden  
J. VADGAMA, Los Angeles, CA, USA  
J.K. VISHWANATHA, Fort Worth, TX, USA  
W. WANG, Wolverhampton, UK  
N. WATANABE, Sapporo, Japan  
W. WEBER, Basel, Switzerland  
L. M. WEINER, Washington, DC, USA  
J. A. WERNER, Marburg, Germany  
S. YLÄ-HERTTUALA, Kuopio, Finland  
H. YOSHIDA, Kagoshima, Japan

G. J. DELINASIOS, Athens, Greece  
Managing Editor and Executive Publisher

Editorial Office: journals@iilar-anticancer.org

Managing Editor: editor@iilar-anticancer.org

For more information about IN VIVO, IIAR and the International Conferences of Anticancer Research, please visit the IIAR website: www.iilar-anticancer.org

J. G. DELINASIOS, Athens, Greece  
Managing Editor and Executive Publisher  
(1987-2016)

ISSN (print): 0258-851X, ISSN (online): 1791-7549

**Editorial Office:** International Institute of Anticancer Research, 1st km Kapandritou-Kalamou Rd., Kapandriti, P.O. Box 22, Attiki 19014, Greece. Tel / Fax: +30-22950-53389. e-mail: journals@iilar-anticancer.org.

**U.S. Branch:** Anticancer Research USA, Inc., 111 Bay Avenue, Highlands, NJ, 07732, USA. e-mail: journals@iilar-anticancer.org.

**General Policy:** IN VIVO is a multidisciplinary journal designed to bring together original high quality works and reviews on experimental and clinical biomedical research within the framework of human physiology, pathology and disease management. The topics of IN VIVO include: 1. Experimental development and application of new diagnostic and therapeutic procedures; 2. Pharmacological and toxicological evaluation of new drugs, drug combinations and drug delivery systems; 3. Clinical trials; 4. Development and characterization of models of biomedical research; 5. Cancer diagnosis and treatment; 6. Immunotherapy and vaccines; 7. Radiotherapy, Imaging; 8. Tissue engineering, Regenerative medicine; 9. Carcinogenesis.

IN VIVO supports: (a) the activities of the INTERNATIONAL INSTITUTE OF ANTICANCER RESEARCH (IIAR; Kapandriti, Attiki, Greece) and (b) the organization of the International Conferences of Anticancer Research ([www.iilar-anticancer.org](http://www.iilar-anticancer.org)).

**Publication Data:** IN VIVO is published bimonthly online-only and open access by the International Institute of Anticancer Research. Each annual volume comprises six issues. Annual Author and Subject Indexes are included in the sixth issue of each volume. IN VIVO Vol. 18 (2004) and onwards appears online with Stanford University HighWire Press. All published articles are deposited in PubMed Central.

**Copyright:** Authors retain copyright. The unrestricted non-commercial use, distribution and reproduction in any medium of IN VIVO articles for academic reasons is allowed, provided that the original work is properly cited. The Authors grant the permanent right to the publisher to use any articles published in this journal without any restriction, including academic advertising purposes. PDF, XML and HTML files of all articles published in IN VIVO are the property of the publisher.

**Open Access Policy:** Open Access Policy: IN VIVO appears bimonthly as an online-only open access journal through the Stanford University HighWire Press. Upon acceptance, Authors will be asked to contribute an online publication fee of US\$ 600 for articles up to 8 online pages (including figures and tables). Each additional excess page will be charged US\$ 60.00. Color will not be charged. Authors from developing countries may apply for a 25% discount after the acceptance of their paper. IN VIVO online will keep the volume, issue, and page numbering.

Articles in IN VIVO are regularly indexed in bibliographic services, including Index Medicus, PubMed, MEDLINE, Biological Abstracts, Chemical Abstracts, BIOSIS, Chemical Abstracts, Excerpta Medica, Elsevier Bibliographic Database, EMBASE, Compendex, GEOBASE, EMBiology, Elsevier BIOBASE, FLUIDEX, World Textiles, Scopus, CANCER-LIT Database, University of Sheffield Biomedical Information Service (SUBIS), Current Clinical Cancer, AIDS Abstracts, Progress in Palliative Care, Update-Research Information Systems Inc., Inpharma-Reactions Datastar, BRS), Reference Update (I.S.I.), Research Alert, Science Citation Index Expanded, Biochemistry & Biophysics Citation (I.S.I.), BioBase, MedBase, Google Scholar, Investigational Drugs Database, VINITI Abstracts Journal, Pubshub, SIIC Data Bases.

The Editors and Publishers of IN VIVO accept no responsibility for the opinions expressed by the contributors or for the content of advertisements appearing therein.

**All correspondence** status of submitted manuscripts, change of address, general editorial matters, advertising rate requests) should be addressed to the Editorial Office, e-mail: journals@iilar-anticancer.org. Articles should be submitted only through our online submission system ([www.iilar-submissions.com](http://www.iilar-submissions.com)).

Copyright© 2019, International Institute of Anticancer Research (Dr. George J. Delinasios), All rights reserved

## Reviews