

in vivo

International Journal of Experimental and Clinical Pathophysiology and Drug Research

Volume 24, Number 6, November-December 2010

Contents

Experimental Studies

- Intraesophageal Administration of GS-Nitroxide (JP4-039) Protects Against Ionizing Irradiation-induced Esophagitis. M.W. EPPERLY, J.P. GOFF, S. LI, X. GAO, P. WIPF, T. DIXON, H. WANG, D. FRANICOLA, H. SHEN, J.-C.M. RWIGEMA, V. KAGAN, M. BERNARD, J.S. GREENBERGER (Pittsburgh, PA, USA)..... 811
- Comparison of the Degree of Hip Joint Luxation Induced by the Lateral and Medial Surgical Approaches Used to Generate Vascular Deprivation-induced Necrosis of the Femoral Head in Rats. J.M. KIM, T.S. HAN, J. PARK, B.C. SUTRADHAR, G. KIM, S.S. KANG, S.H. CHOI (Cheongju; Gwangju, South Korea)..... 821
- Circadian Profile of Peripheral Hormone Levels in Sprague-Dawley Rats and in Common Marmosets (*Callithrix jacchus*). S. BERTANI, L. CARBONI, A. CRIADO, F. MICHIELIN, L. MANGIARINI, E. VICENTINI (Verona, Italy) 827
- Diurnal Changes in Salivary Amino Acid Concentrations. Y. NAKAMURA, H. KODAMA, T. SATOH, K. ADACHI, S. WATANABE, Y. YOKOTE, H. SAKAGAMI (Saitama, Japan)..... 837
- Hormetic and Anti-radiation Effects of Tropolone-related Compounds. K. KANTOH, M. ONO, YUKO NAKAMURA, YUKIO NAKAMURA, K. HASHIMOTO, H. SAKAGAMI, H. WAKABAYASHI (Saitama, Japan)..... 843
- Changes in Salivary Amino Acid Composition During Aging. S. TANAKA, M. MACHINO, S. AKITA, Y. YOKOTE, H. SAKAGAMI (Saitama, Japan) 853
- Changes in Amino Acid Metabolism During Activation of Mouse Macrophage-like Cell Lines. A. NISHIYAMA, Y. YOKOTE, H. SAKAGAMI (Saitama, Japan)..... 857

Contents continued on the back cover



Editorial Board

- N. J. AGNANTIS, Ioannina, Greece
D. ANDERSON, Bradford, West Yorkshire, UK
V. BARAK, Jerusalem, Israel
M. H. BARCELLOS-HOFF, Berkeley, CA, USA
Y. BECKER, Jerusalem, Israel
K. BEIER, Basel, Switzerland
S. BEN-EFRAIM, Tel-Aviv, Israel
M. BERGQVIST, Uppsala, Sweden
R. BJERKVIG, Bergen, Norway
B. BODEY, Reseda, CA, USA
D. A. BUTTERFIELD, Lexington, KY, USA
M. CARAGLIA, Naples, Italy
P. CHANDRA, Frankfort am Main, Germany
J.-G. CHUNG, Taichung, Taiwan, ROC
L. A. COHEN, Valhalla, NY, USA
A. I. CONSTANTINOU, Nicosia, Cyprus
J. G. CORY, Greenville, NC, USA
T. DALIANIS, Stockholm, Sweden
G. DELICONSTANTINOS, Athens, Greece
D. T. DENHARDT, Piscataway, NJ, USA
W. DEN OTTER, Amsterdam, The Netherlands
K. DE MEIRLEIR, Brussels, Belgium
L. DE RIDDER, Ghent, Belgium
E. P. DIAMANDIS, Toronto, ON, Canada
T. EFFERTH, Mainz, Germany
I. EMBER, Pécs, Hungary
W. ENGSTRÖM, Uppsala, Sweden
M. ESKELINEN, Kuopio, Finland
J. A. FERNANDEZ-POL, Chesterfield, MO, USA
S. FERRONE, Pittsburgh, PA, USA
G. FIORENTINI, Empoli (FI), Italy
P. B. FISHER, New York, NY, USA
I. FREITAS, Pavia, Italy
M. FRIEDRICH, Krefeld, Germany
R. E. FRIEDRICH, Hamburg, Germany
R. GANAPATHI, Cleveland, OH, USA
Z. GATALICA, Omaha, NE, USA
D. H. GILDEN, Aurora, CO, USA
G. GITTSCH, Freiburg, Germany
J. S. GREENBERGER, Pittsburgh, PA, USA
J. W. GREINER, Bethesda, MD, USA
D. S. GRIDLEY, Loma Linda, CA, USA
C. J. GRUBBS, Birmingham, AL, USA
F. GUADAGNI, Rome, Italy
F. HALBERG, Minneapolis, MN, USA
R. R. HARDY, Philadelphia, PA, USA
J. HAU, Copenhagen, Denmark
M. HAUER-JENSEN, Little Rock, AR, USA
G. H. HEPPNER, Detroit, MI, USA
K. HIBI, Yokohama, Japan
S. A. IMAM, Pasadena, CA, USA
C. G. IOANNIDES, Houston, TX, USA
- J. R. IZBICKI, Hamburg, Germany
K. S. JEONG, Daegu, S. Korea
M. KOUTSILIERIS, Athens, Greece
G. R. F. KRUEGER, Köln, Germany
B. KRUSLIN, Zagreb, Croatia
S. A. LAMPRECHT, New York, NY, USA
G. LANDBERG, Lund, Sweden
I. LELONG-REBEL, Illkirch, France
J. LEROY, Strasbourg, France
B. LÉYLAND-JONES, Atlanta, GA, USA
W. LICHTENEGGER, Berlin, Germany
P. MADARNAS, Sherbrooke, QC, Canada
H. MAEDA, Kumamoto, Japan
M. MAREEL, Ghent, Belgium
G. MARTORANA, Bologna, Italy
D. P. MIKHAILIDIS, London, UK
H. C. MORSE III, Rockville, MD, USA
N. MOTOHASHI, Tokyo, Japan
R. M. NAGLER, Haifa, Israel
R. NARAYANAN, Boca Raton, FL, USA
K. NILSSON, Uppsala, Sweden
K. R. NORUM, Oslo, Norway
R. F. NOVAK, Detroit, MI, USA
J. O'KELLY, Los Angeles, CA, USA
M. PAGÉ, Laval, QC, Canada
P. PANTAZIS, Oklahoma City, OK, USA
M.-F. POUPON, Paris, France
F. M. ROBERTSON, Houston, TX, 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
R. M. SNAPKA, Columbus, OH, USA
G.-I. SOMA, Tokushima, Japan
T. A. SPRINGER, Boston, MA, USA
T. TAKAHASHI, Nagoya, Japan
N. TANAKA, Chiba, Japan
H. TAPIERO, Villejuif, France
K. D. TEW, Charleston, SC, USA
G. C. TORRE, Finale Ligure (SV), Italy
B. TRIBUKAIT, Stockholm, Sweden
J. VADGAMA, Los Angeles, CA, USA
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

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

Editorial Office: journals@iiar-anticancer.org
Managing Editor: editor@iiar-anticancer.org

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

Editorial Office: International Institute of Anticancer Research, 1st km Kapandritiou-Kalamou Rd., Kapandriti, P.O. Box 22, Attiki 19014, Greece. Tel / Fax: +30-22950-53389. e-mail: journals@iiar-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 comparative physiology and pathology. The special focus of the journal is the publication of works on: (a) experimental development and application of new diagnostic procedures; (b) pharmacological and toxicological evaluation of new drugs and drug combinations; (c) development and characterization of models for biomedical research.

IN VIVO supports: (a) the establishment and the activities of the INTERNATIONAL INSTITUTE OF ANTICANCER RESEARCH (IIAR; Kapandriti, Attiki, Greece) and (b) the organization of the International Conferences of Anticancer Research.

Publication Data: IN VIVO is published bimonthly. 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 will appear online with Stanford University HighWire Press from April 2009.

Copyright: On publication of a manuscript in IN VIVO, which is a copyrighted publication, the legal ownership of all published parts of the paper passes from the Author(s) to the Journal.

Annual Subscription Rates 2010: Institutional, Euro 855.00 - online; Euro 875.00 - print; 890.00 - print & online; Personal, Euro 452.00 - online; Euro 472.00 - print; Euro 490.00 - print & online. Prices include rapid delivery and insurance. Previous volumes of IN VIVO (Vol. 1-23, 1987-2009) are available at 50% discount on the above rates.

Subscription Orders: Orders can be placed at agencies, bookstores, or directly with the Publisher. Cheques should be made payable to J.G. Delinassios, Athens, Greece.

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, 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.

Authorization to photocopy items for internal or personal use, or the internal or personal clients, is granted by IN VIVO, provided that the base fee of \$2.00 per copy, plus 0.40 per page is paid directly to the Copyright Clearance Center, 27 Congress Street, Salem, MA 01970, USA. For those organizations that have been granted a photocopy license by CCC, a separate system of payment has been arranged. The fee code for users of the Transactional Reporting Service is 0258-851 X 2010 \$2.00 + 0.40.

All correspondence (subscription orders, reprint orders, status of submitted manuscripts, change of address, general editorial matters, advertising rate requests) should be addressed to: Dr. J.G. Delinassios. e-mail: editor@iiar-anticancer.org