

in vivo

International Journal of Experimental and Clinical Pathophysiology and Drug Research

Volume 35, Number 1, January-February 2021

Contents

Reviews

Suturing Skills for Medical Students: A Systematic Review. T. EMMANUEL, M. NICOLAIDES, I. THEODOULOU, W. YOONG, N. LYMPEROPOULOS, M. SIDERIS (<i>London, UK</i>).....	1
Therapeutic Application of Mesenchymal Stem Cells for Cochlear Regeneration. N. MAHARAJAN, G.W. CHO, C.H. JANG (<i>Gwangju, Republic of Korea</i>)	13
Sensitivity, Specificity and the Diagnostic Accuracy of PET/CT for Axillary Staging in Patients With Stage I-III Cancer: A Systematic Review of The Literature. J. KASEM, U. WAZIR, K. MOKBEL (<i>London, UK; Peshawar, Pakistan</i>)	23
Circulating Tumor Cells, Circulating Tumor DNA and Other Blood-based Prognostic Scores in Pancreatic Ductal Adenocarcinoma – Mini-Review. M. LIBERKO, K. KOLOSTOVA, A. SZABO, R. GURLICH, M. OLIVERIUS, R. SOUMAROVA (<i>Prague, Czech Republic</i>).....	31
Aortitis – An Interdisciplinary Challenge. T. SHCHETYSNKA-MARINOVA, K. AMENDT, M. SADICK, M. KEESE, M. SIGL (<i>Mannheim, Germany</i>).....	41
The Role of Nutritional Support in Malnourished Patients With Lung Cancer. A. KASPRZYK, K. BILMIN, T. CHMIELEWSKA-IGNATOWICZ, J. PAWLKOWSKI, U. RELIGIONI, P. MERKS (<i>Warsaw; Lublin; Bydgoszcz, Poland</i>)	53
PCSK9 Antibody-based Treatment Strategies for Patients With Statin Intolerance. E. VOUTYRITSA, C. DAMASKOS, P. FARMAKI, G. KYRIAKOS, E. DIAMANTIS, L.V. QUILES-SANCHEZ, A. GARMPI, N. GARMPI, A. PATSOURAS, A. STELIANIDI, S. SAVVANIS (<i>Athens; Piraeus, Greece; Cartagena; Murcia, Spain</i>)	61

Contents continued on the back cover

in vivo

International Journal of Experimental and Clinical Pathophysiology and Drug Research



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

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. BJERKVIK, 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
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
V. GORGOLIS, 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. S. JEONG, Daegu, S. Korea
M. JHANWAR-UNYAL, Valhalla, NY, USA
I. KISS, Pécs, Hungary
M. KOUTSILIERIS, Athens, Greece
G. R. F. KRUEGER, Köln, Germany
N. KYPRIANOU, Lexington, KY, USA
G. LANDBERG, Lund, Sweden
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
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@iia-anticancer.org
Managing Editor: editor@iia-anticancer.org

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

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

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@iia-anticancer.org.

U.S. Branch: Anticancer Research USA, Inc., 111 Bay Avenue, Highlands, NJ, 07732, USA. e-mail: journals@iia-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; 10. Retrospective studies and case reports.

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.iia-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 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\$ 800 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 Current Contents Life Sciences and Medical Sciences, Index Medicus, PubMed, PubMed Central, MEDLINE, Biological Abstracts, Chemical Abstracts, BIOSIS Previous, Science Citation Index Expanded, Essential Science Indicators, 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 Datarstar, BRS), Reference Update (I.S.I.), Research Alert, Biochemistry & Biophysics Citation (I.S.I.), BioBase, MedBase, Google Scholar, Investigational Drugs Database, VINITI Abstracts Journal, PubsHub, SIC 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@iia-anticancer.org. Articles should be submitted only through our online submission system (www.iia-submissions.com).

Copyright© 2021, International Institute of Anticancer Research (Dr. George J. Delinasios), All rights reserved

in vivo

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

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

**Volume 35
2021**

Editorial Board

- I. ABRAHAM, *The HOPE Center, University of Arizona, Tucson, AZ, USA*
- N.J. AGNANTIS, *Department of Pathology, University of Ioannina, Ioannina, Greece*
- D. ANDERSON, *Department of Biomedical Sciences, University of Bradford, Bradford, West Yorkshire, UK*
- V. BARAK, *Department of Oncology, Hadassah University Hospital, Jerusalem, Israel*
- M.H. BARCELLOS-HOFF, *Department of Radiation Oncology, New York University School of Medicine, New York, NY, USA*
- K. BEIER, *Department of Histology, University of Basel, Basel, Switzerland*
- M. BERGQVIST, *Department of Oncology, Radiology and Clinical Immunology, University Hospital, Uppsala, Sweden*
- R. BJERKVIIG, *Norlux Neuro-Oncology, Department of Biomedicine, University of Bergen, Bergen, Norway*
- W. BOWNE, *Department of Surgery, Drexel University College of Medicine, Philadelphia, PA, USA*
- M. CARAGLIA, *Department of Experimental Oncology, National Institute of Tumours Fondazione G. Pascale, Naples, Italy*
- P. CHANDRA, *Department of Molecular Biology, Frankfurt University, Frankfurt am Main, Germany*
- J.-G. CHUNG, *Department of Medicine, China Medical College, Taichung, Taiwan, ROC*
- L.A. COHEN, *Northampton, MA, USA*
- A.I. CONSTANTINOU, *Department of Biological Sciences, University of Cyprus, Nicosia, Cyprus*
- T. DALIANIS, *Department of Pathology-Oncology, Karolinska Institute, Stockholm, Sweden*
- D.T. DENHARDT, *Division of Life Sciences, Rutgers University, Bridgewater, NJ, USA*
- W. DEN OTTER, *VUMC - Department of Urology, Amsterdam, The Netherlands*
- K. DE MEIRLEIR, *Department of Human Physiology and Medicine, Faculty of Physical Education and Physiotherapy, Vrije Universiteit Brussel, Brussels, Belgium*
- L. DE RIDDER, *Department of Anatomy, Embryology and Histology, University of Ghent, Ghent, Belgium*
- E.P. DIAMANDIS, *Department of Pathology and Laboratory Medicine, University of Toronto, Toronto, Ontario, Canada*
- J.M. DRAKE, *Division of Medical Oncology, RBHS-Robert Wood Johnson Medical School, Rutgers Cancer Institute of New Jersey, New Brunswick, NJ, USA*
- T. EFFERTH, *Department of Pharmaceutical Biology, Institute of Pharmacy and Biochemistry, University of Mainz, Germany*
- W. ENGSTRÖM, *Department of Molecular Biosciences, Swedish University of Agricultural Sciences, Uppsala, Sweden*
- M. ESKELINEN, *Department of Surgery, University Hospital of Kuopio, Kuopio, Finland*
- J.A. FERNANDEZ-POL, *Metalloproteomics, LLC, Chesterfield, MO, USA*
- G. FIORENTINI, *UOC Oncologia, Azienda Ospedaliera Marche Nord, Pesaro, Italy*
- P.B. FISHER, *Virginia Commonwealth University, School of Medicine, Richmond, VA, USA*
- I. FREITAS, *Dipartimento di Biologia Animale, University of Pavia, Pavia, Italy*
- M. FRIEDRICH, *Department of Obstetrics and Gynecology, Klinikum Krefeld, Krefeld, Germany*
- R.E. FRIEDRICH, *Department of Oral and Maxillofacial Surgery, Eppendorf University Hospital, Hamburg, Germany*
- R. GANAPATHI, *Levine Cancer Institute, Carolinas HealthCare System, Charlotte, NC, USA*
- V. GORGOLIS, *Department of Histology-Embryology, Medical School, University of Athens, Greece*
- J.S. GREENBERGER, *Department of Radiation Oncology, University of Pittsburgh, Pittsburgh, PA, USA*
- J.W. GREINER, *National Cancer Institute, NIH, Bethesda, MD, USA*
- D.S. GRIDLEY, *Department of Radiation Medicine, Radiation Research Laboratories, Loma Linda University and Medical Center, Loma Linda, CA, USA*
- C.J. GRUBBS, *Department of Nutrition Sciences, University of Alabama, Birmingham, AL, USA*
- F. GUADAGNI, *IRCCS San Raffaele, Rome, Italy*
- J. HAU, *Department of Comparative Medicine, University of Copenhagen, Denmark*

- M. HAUER-JENSEN**, *Arkansas Cancer Research Center, University of Arkansas Medical Sciences, Little Rock, AR, USA*
- K.S. JEONG**, *Department of Pathology, College of Veterinary Medicine, Kyungpook National University, Daegu, S. Korea*
- M. JHANWAR-UNIYAL**, *Department of Neurosurgery, New York Medical College, Valhalla, NY, USA*
- I. KISS**, *Institute of Preventive Medicine, Medical School, University of Pécs, Pécs, Hungary*
- M. KOUTSILIERIS**, *Department of Experimental Physiology, University of Athens Medical School, Athens, Greece*
- G.R.F. KRUEGER**, *Department of Anatomy II, Center for Anatomy, The University of Cologne Medical School, Cologne, Germany*
- B. KRUSLIN**, *Department of Pathology, Ljudevit Jurak University, Sestre milosrdnice University Hospital, Zagreb, Croatia*
- N. KYPRIANOU**, *Department of Urology, University of Kentucky, Lexington, KY, USA*
- G. LANDBERG**, *Department of Laboratory Medicine, Lund University, Lund, Sweden*
- J. LEROY**, *IRCAD, University of Strasbourg, France*
- W. LICHTENEGGER**, *Charité Campus Virchow-Klinikum, Berlin, Germany*
- J. LYKKESFELDT**, *Department of Veterinary Disease Biology, University of Copenhagen, Frederiksberg, Denmark*
- P. MADARNAS**, *Department of Pathology, University of Sherbrooke, Québec, Canada*
- H. MAEDA**, *BioDynamics Research Foundation, Kumamoto, Japan*
- M. MAREEL**, *Laboratory of Experimental Cancerology, State University, Ghent, Belgium*
- L. MARGOLIS**, *Eunice Kennedy Shriver National Institute of Child Health and Human Development, Bethesda, MD, USA*
- G. MARTORANA**, *Policlinico S. Orsola Malpighi, University of Bologna, Bologna, Italy*
- J. MOLNÁR**, *Department of Medical Microbiology and Immunobiology, Faculty of Medicine, University of Szeged, Szeged, Hungary*
- S.L. MOOBERRY**, *Cancer Therapy & Research Center, University of Texas Health Science Center at San Antonio, San Antonio, TX, USA*
- N. MOTOHASHI**, *Department of Medicinal Chemistry, Meiji Pharmaceutical University, Tokyo, Japan*
- R.M. NAGLER**, *Department of Oral and Maxillofacial Surgery, Rambam Medical Center, Haifa, Israel*
- S. NAKANO**, *Graduate School of Health and Nutritional Sciences, Nakamura Gakuen University, Fukuoka, Japan*
- M. NAKASHIMA**, *Department of Tumor and Diagnostic Pathology, Atomic Bomb Disease Institute, Nagasaki University, Nagasaki, Japan*
- M.B. NICHOLL**, *South Texas Veterans Health Care System, San Antonio, TX, USA*
- K. NILSSON**, *Tumor Biology Laboratory, Department of Pathology, University Hospital, Uppsala, Sweden*
- K.R. NORUM**, *Institute for Nutrition Research, University of Oslo, Oslo, Norway*
- K. OGAWA**, *Department of Surgery, Tokyo Womens Medical University Medical Center East, Tokyo, Japan*
- M. PAGÉ**, *Département de Biologie, Division de Biochimie, Université Laval, Québec, Canada*
- C. POLYCHRONAKOS**, *Department of Paediatrics and Human Genetics, McGill University Health Centre Research Institute, Montreal, QC, Canada*
- M.-F. POUPON**, *Institut Curie, Section de Recherche, Paris, France*
- D. RADES**, *Department of Radiation Oncology, University of Lübeck, Lübeck, Germany*
- F.M. ROBERTSON**, *Virginia Commonwealth University, Clinical Research Services, Center for Clinical and Translational Research, Richmond Academy of Medicine, Richmond, VA, USA*
- D. RUBELLO**, *Department of Nuclear Medicine, PET Unit, S. Maria della Misericordia Hospital, IOV, Rovigo, Italy*
- C.A. RUBIO**, *Karolinska Institute, Pathology Research Laboratory, Stockholm, Sweden*
- G.R. RUTTEMAN**, *Department of Clinical Sciences of Companion Animals, University of Utrecht, Utrecht, The Netherlands*
- H. SAKAGAMI**, *Department of Dental Pharmacology, Meikai University School of Dentistry, Saitama, Japan*
- G. SAVA**, *Institutes of Biological Research, Fondazione Callierio-Onlus, Trieste, Italy*
- D. SCHIFFER**, *Neuro-bio-oncology Center, Policlinico di Monza Foundation, University of Turin, Vercelli, Italy*
- L.D. SHULTZ**, *The Jackson Laboratory, Bar Harbor, ME, USA*

continued

- G. SICA**, *Istituto di Istologia ed Embriologia, Universita Cattolica del Sacro Cuore, Roma, Italy*
- J.M. SIEGFRIED**, *Department of Pharmacology, MNPI Center, University of Minnesota, Minneapolis, MN, USA*
- J. SLANSKY**, *Integrated Department of Immunology, School of Medicine, University of Colorado Denver and National Jewish Health, Denver, CO, USA*
- R.M. SNAPKA**, *Department of Radiology, The Ohio State University, Columbus, OH, USA*
- G.-I. SOMA**, *Department of Integrated and Holistic Immunology, Faculty of Medicine, Kagawa University, Kagawa, Japan*
- P.P. SORDILLO**, *Department of Medical Oncology and Hematology, Lenox Hill Hospital, New York, NY, USA*
- T.A. SPRINGER**, *Department of Pathology, Harvard Medical School, Boston, MA, USA*
- D.D. SPYROPOULOS**, *Department of Pathology and Laboratory Medicine, Medical University of South Carolina, Charleston, SC, USA*
- K. SYRJÄNEN**, *Biohit Healthcare Oyj, Helsinki, Finland*
- G.C. TORRE**, *Centro Ippocrate, Vico Cosmelli 4, Finale Ligure (SV), Italy*
- B. TRIBUKAIT**, *Department of Medical Radiobiology, Karolinska Hospital, Stockholm, Sweden*
- J. VADGAMA**, *Department of Internal Medicine, Charles E. Drew University of Medicine and Science, Los Angeles, CA, USA*
- J.K. VISHWANATHA**, *Graduate School of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, TX, USA*
- W. WANG**, *Research Institute of Healthcare Science, University of Wolverhampton, Wolverhampton, UK*
- N. WATANABE**, *Department of Clinical Laboratory Medicine, Sapporo Medical University School of Medicine, Sapporo, Japan*
- W. WEBER**, *Clinical Cancer Etiology Unit, Basel, Switzerland*
- L.M. WEINER**, *Lombardi Comprehensive Cancer Center, Georgetown University Medical Center, Washington, DC, USA*
- J.A. WERNER**, *Department of Otolaryngology, Head and Neck Surgery, Marburg, Germany*
- S. YLÄ-HERTTUALA**, *Department of Molecular Medicine, A.I. Virtanen Institute, University of Kuopio, Finland*
- H. YOSHIDA**, *Department of Pathology, Kagoshima University, Kagoshima, Japan*

Acknowledgements

The following Organisations supported many of the works published in IN VIVO, Volume 34, 2020.

- Adaptable and Seamless Technology Transfer Program (A-Step), Ministry of Education, Culture, Sports, Science and Technology of Japan, Tokyo, Japan
- Akershus University Hospital, Nordbyhagen, Norway
- Asahi University, Mizuho, Japan
- Asan Institute for Life Sciences, Asan Medical Center, Seoul, Republic of Korea
- Asia University, Taichung, Taiwan, R.O.C.
- Asklepios Klinik Altona, Hamburg, Germany
- Association of Healthcare Corporation, Japan
- Athens Genesis Clinic, Athens, Greece
- Augustinus Foundation, Copenhagen, Denmark
- Baden-Württemberg Ministry of Science, Research and the Arts, Germany
- Basic Science Research Program, National Research Foundation of Korea (NRF), Ministry of Education, Science and Technology, Seoul, Republic of Korea
- Bio & Medical Technology Development Program, National Research Foundation of Korea (NRF), Ministry of Education, Science and Technology, Seoul, Republic of Korea
- Biobank of Korea University Guro Hospital, Seoul, Republic of Korea
- Bremer Cancer Society, Bremer, Germany
- Cancer Center, Chang Gung Memorial Hospital, Taipei, Taiwan, R.O.C.
- Cancer Society of Finland, Helsinki, Finland
- Cathay General Hospital, Taipei, Taiwan, R.O.C.
- Center for Drug Delivery Research, Tokyo University of Science, Tokyo, Japan
- Central Taiwan University of Science and Technology, Taichung, Taiwan, R.O.C.
- Chang Bing Show Chwan Memorial Hospital, Changhua, Taiwan, R.O.C.
- Chang Gung Memorial Hospital, Taipei, Taiwan, R.O.C.
- Changhua Christian Hospital, Changhua, Taiwan, R.O.C.
- Charles University Research Fund (PROGRES), Charles University in Prague, Prague, Czech Republic
- Cheng Hsin General Hospital, Taipei, Taiwan, R.O.C.
- China Medical University Hospital, Taichung, Taiwan, R.O.C.
- China Scholarship Council, Beijing, P.R. China
- Chonnam National University Hospital, Gwangju, Republic of Korea
- Chosun University Hospital Clinical Medicine Research Institute, Gwangju, Republic of Korea
- Chosun University, Gwangju, Republic of Korea
- Chungnam National University Hospital Research Fund, National Research Foundation of Korea (NRF), Ministry of Education, Science and Technology, Seoul, Republic of Korea
- Chungnam National University, Daejeon, Republic of Korea
- Clinical Research Center, Dokkyo Medical University School of Medicine, Mibu, Japan
- Collaborative Genome Program for Fostering New Post-Genome Industry, National Research Foundation (NRF), Ministry of Education, Science and Technology, Seoul, Republic of Korea
- Comenius University, Bratislava, Slovak Republic
- Conceptual Development of Research Organization, Faculty Hospital in Pilsen - FNPI, Pilsen, Czech Republic
- Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brasilia, Brazil
- Cooperative Research Program for Agriculture Science and Technology Development, Rural Development Administration, Republic of Korea
- Cross Cancer Institute, University of Alberta, Edmonton, AB, Canada
- Dalin Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Chiayi, Taiwan, R.O.C.
- Dental Research Center, Nihon University School of Dentistry, Tokyo, Japan
- Department of General Surgical Science, Gunma University, Maebashi, Japan
- Department of Head and Neck Oncology, Cancer Institute Hospital, Japanese Foundation for Cancer Research, Japan
- Department of Histology and Embryology of Wrocław Medical University, Wrocław, Poland
- Department of Molecular Diagnostic Pathology, Dokkyo Medical University School of Medicine, Mibu, Japan
- Department of Oral and Maxillofacial Surgery, Ehime University Graduate School of Medicine, Matsuyama, Japan
- Department of Oral Molecular Pathology, Tokushima University Graduate School of Biomedical Sciences, Tokushima, Japan
- Department of Otorhinolaryngology, China Medical University Hospital, Taichung, Taiwan, R.O.C.
- Department of Otorhinolaryngology, Eppendorf University Hospital, Hamburg, Germany
- Department of Pathology, Faculty of Medicine, Prince of Songkla University (PSU), Hat Yai, Thailand
- Department of Pathology, Hanyang University Hospital, Seoul, Republic of Korea
- Department of Pathology, Wrocław University of Environmental and Life Sciences, Wrocław, Poland
- Department of the Human Anatomy Centre, University of Rome La Sapienza, Rome, Italy

- Department of Urology, Cancer Institute Hospital, Japanese Foundation for Cancer Research, Japan
Department of Urology, Saiseikai Kurihashi Hospital, Kuki, Japan
Department of Urology, Tokyo Women's Medical University, Tokyo, Japan
Deutsche Forschungsgemeinschaft (DFG), Bonn, Germany
Division of Clinical Laboratory and Clinical Application, Nanpoh Hospital, Kagoshima, Japan
- Elena Venizelou Hospital, Athens, Greece
ELPEN Pharma, Pikermi, Greece
Eulji University, Daejeon, Republic of Korea
EURAXESS, European Commission, Europe
European Regional Development Fund (ERDF), Brussels, Belgium
European Research Council
European Social Fund (ESF), European Commission, Brussels, Belgium
European Union
Evangelismos Hospital, Athens, Greece
Ewha Womans University Research Grant, Seoul, Republic of Korea
Experimental, Educational and Research Center, ELPEN, Pikermi, Greece
- Faculty of Science of Tunisia, Tunisia
Faxitron Biooptics, LLC, Tucson, AZ, U.S.A.
Featured Areas Research Center Program, Higher Education Sprout Project, Ministry of Education (MOE), Taiwan, R.O.C.
Friedrich-Alexander University of Erlangen-Nürnberg, Erlangen, Germany
Frontier Research Center, Taiwan, R.O.C.
Fuji Micra Inc., Fujinomiya, Japan
Fukuoka Wajiro Hospital, Fukuoka, Japan
Fundação para a Ciência e a Tecnologia (FCT), Ministério da Ciência e Ensino Superior, Portugal
Fundo Europeu de Desenvolvimento Regional (FEDER), Lisbon, Portugal
- Gachon University Gil Medical Center, Incheon, Republic of Korea
General University Hospital in Prague, Prague, Czech Republic
German Cancer Society, Germany
Granada University, Granada, Spain
Grant-in Aid from the Japanese Ministry of Education, Science, Sports and Culture of Japan, Tokyo, Japan
Grants-in-Aid for Scientific Research (KAKENHI), Japan Society for the Promotion of Science, Tokyo, Japan
- Hallym University Research Fund, Chuncheon, Republic of Korea
- Head and Neck department of Surgery, Metaxa Anti-Cancer Hospital, Piraeus, Greece
Health Labor Sciences Research Grant, Ministry of Health, Labor and Welfare of Japan, Japan
Health Research Fund of Central Denmark Region, Denmark
Higher Education Sprout Project, Ministry of Education, Taipei, Taiwan, R.O.C.
Hillman Animal Research Core Facility, University of Pittsburgh Cancer Institute (UPCI), Pittsburgh, PA, U.S.A.
Hiroshima Prefecture Government, Japan
Hitachi, Ltd, Tokyo, Japan
Hospital Ceske Budejovice, Ceske Budejovice, Czech Republic
Hospital Chomutov, Chomutov, Czech Republic
Hospital Jihlava, Jihlava, Czech Republic
Hospital Na Bulovce, Prague, Czech Republic
Hospital Na Homolce, Prague, Czech Republic
Hospital Novy Jicin, Novy Jicin, Czech Republic
Hospital Pardubice, Prague, Czech Republic
Hyogo College of Medicine, Nishinomiya, Japan
Hyogo Innovative Challenge, Hyogo College of Medicine, Nishinomiya, Japan
- Institut de la Santé et la Recherche Médicale (INSERM), Paris, France
Institute for Medical Biometry and Epidemiology, University Hospital Hamburg-Eppendorf, Hamburg, Germany
Institute of Cancer Research, London, U.K.
Institute of Polish Mother's Memorial Hospital, Lodz, Poland
Institute of Polish Mother's Health Center, Lodz, Poland
Institute Salah Azaiz, Tunis, Tunisia
Interreg Deutschland-Danmark, Kiel, Germany
Italian Ministry of Health, Rome, Italy
Iuliu Hatieganu University of Medicine and Pharmacy Cluj-Napoca, Cluj-Napoca, Romania
- János Bolyai Research Scholarship, Hungarian Academy of Sciences, Hungary
Japan Agency for Medical Research and Development (AMED), Tokyo, Japan
Japanese Center for AntiAging MedSciences, Japan
Japanese Ministry of Health, Japan
Japanese Society of Internal Medicine, Japan
Japanese Society of Surgery, Japan
Joint Committee of University Cooperation PHC Utique, France/Tunisia
J-Pharma Co., Ltd., Yokohama, Japan
- Kawaguchi Institute of Periodontology and Implantology, Kawaguchi, Japan
Kawasaki Medical School, Kurashiki, Japan
Knud and Edith Eriksens Memorial Foundation, Denmark

- Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon, Republic of Korea
Kyorin University Hospital, Tokyo, Japan
Kyushu Dental University, Fukuoka, Japan
- Laboratory for Endocrinology, Metabolism and Kidney Diseases, RIKEN Center for Integrative Medical Sciences, Yokohama, Japan
Laboratory of Molecular Medicine, Human Genome Center, Institute of Medical Science, University of Tokyo, Tokyo, Japan
Lippmann Foundation, Denmark
Lithuanian Science Council, Lithuania
- Masaryk Hospital, Usti nad Labem, Czech Republic
Masaryk Memorial Cancer Institute, Brno, Czech Republic
Medical department, Royal Thai Army, Bangkok, Thailand
Medical Research Core Facilities Center, Office of Research & Development, China Medical University, Taichung, Taiwan, R.O.C.
Meikai University Research Fund, Urayasu, Japan
Meikai University School of Dentistry, Urayasu, Japan
Ministry of Education, Science and Culture of Mecklenburg-West Pomerania, Germany
Damp Foundation, Germany
Ministry of Education, Science, Research and Sport of Slovakia, Bratislava, Slovakia
Ministry of Health and Welfare, Executive Yuan, Taipei, Taiwan, R.O.C.
Ministry of Health of the Czech Republic, Prague, Czech Republic
Ministry of Higher Education for Scientific Research of Tunisia, Tunis, Tunisia
Ministry of National Defense-Medical Affairs Bureau, Taiwan, R.O.C.
Ministry of National Education, Romania
Ministry of Science and ICT (MSIT), Gwacheon, Republic of Korea
Ministry of Science and Technology (MOST), Taipei, Taiwan, R.O.C.
Ministry of Science, ICT and Future Planning (MSIP), Gwacheon, Republic of Korea
Miyata Grant for Scientific Research, Japan
Miyata Research Fund, Japan
Multiscan Pardubice, Prague, Czech Republic
- National Biobank of Korea, Republic of Korea
National Cancer Institute of Naples, Italy
National Health Research Institutes, Taipei, Taiwan R.O.C.
National Institute for Health Research (NIHR), London, U.K.
National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), Department of Health and Human Services, Bethesda, MD, U.S.A.
National Institutes of Health (NIH), Department of Health and Human Services, Bethesda, MD, U.S.A.
National League Against Cancer, France
National Research Council of Thailand (NRCT), Thailand
National Research Foundation of Korea (NRF), Republic of Korea
National Strategic Reference Framework (NSRF), European Commission, Brussels, Belgium
National University of Malaysia (UKM), Bangi, Malaysia
New National Excellence Program, Ministry of Human Capacities of Hungary, Hungary
Nihon Institute of Medical Science, Moroyama, Japan
Nihon University Multidisciplinary Research Grant, Tokyo, Japan
- Office of Higher Education Commission (OHEC), Thailand
One Research One Grant (OROG) Scholarship, Thailand
Oral Neuroscience and Molecular Biology, Dental Pulp and Bone Cell Research Unit, Prince of Songkla University, Songkhla, Thailand
Oslo University Hospital, Oslo, Norway
- Päivikki and Sakari Sohlberg Foundation, Finland
Paoli-Calmettes Institute, Marseille, France
Phramongkutklo College of Medicine, Bangkok, Thailand
Phramongkutklo Hospital, Bangkok, Thailand
Polish Ministry of Science & Higher Education, Poland
PPP Grant, University of Malaya, Kuala Lumpur, Malaysia
Programa Operacional Competitividade e Internacionalização (POCI), COMPETE2020, Lisboa, Portugal
Project for Cancer Research and Therapeutic Evolution (P-CREATE), Japan Agency for Medical Research and Development (AMED), Tokyo, Japan
Project for Cooperative Research Program for Agriculture Science and Technology, Republic of Korea
- Radiation Biology Core Laboratory and Particle Physics and Irradiation Core Laboratory, Institute for Radiological Research, Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan, R.O.C.
RaySearch Japan K.K., Tokyo, Japan
Regional Hospital Liberec, Liberec, Czech Republic
Research Center for Radiation Oncology, Shonan Kamakura General Hospital Affiliated Clinical Research Center, Japan
Research Center of the Faculty of Dentistry, Prince of Songkla University, Songkhla, Thailand
Research Council of Lithuania, Lithuania
Research Fund from the Chosun University, Gwangju, Republic of Korea
Research Project of Heilongjiang Bayi Agricultural University, Daqing, P.R. China
Royal Marsden NHS Foundation Trust, London, U.K.
Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany
Rural Development Administration, Republic of Korea

- Saiseikai Yokohamashi Nanbu Hospital, Yokohama, Japan
Saitama Medical University International Medical Center,
Saitama, Japan
Samsung Medical Center, Seoul, Republic of Korea
School of Medicine, National and Kapodistrian University of
Athens, Athens, Greece
Scientific Research Foundation of Heilongjiang Provincial
Education Department of China, Heilongjiang Province,
P.R. China
Scientific Research Projects Coordination Unit of Istanbul,
Turkey
SENSHIN Medical Research Foundation, Japan
Seoul National University Bundang Hospital Research Fund,
Seongnam, Republic of Korea
Shin Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan,
R.O.C.
Shizuoka Cancer Center, Shizuoka, Japan
Show Chwan Memorial Hospital, Changhua, Taiwan, R.O.C.
Showa University Grant-in-Aid for Innovative Collaborative
Research Projects, Shinagawa City, Tokyo
Sites de Recherche Intégrée sur le Cancer (SIRIC), Institut
National du Cancer, France
Slovak Research and Development Agency, Bratislava,
Slovakia
SNBL, Ltd., Japan
Social Health Corporation Foundation Pond Friends
Association, Fukuoka Wajiro Hospital, Fukuoka, Japan
SofSera Corporation, Tokyo, Japan
Søster and Verner Lipperts Foundation, Denmark
Special Research Grant-in-Aid for Development of
Characteristic Education, Japanese Ministry of Education,
Culture, Sports, Science, and Technology, Japan
St. Anne's University Hospital, Brno, Czech Republic
Städtisches Klinikum, Dessau, Germany
State Budget of the Czech Republic
State of Hungary
State Scholarships Foundation (IKY), Athens, Greece
Stavros Niarchos Foundation (SNF), Athens, Greece
Suranaree University of Technology (SUT), Nakhon
Ratchasima, Thailand
Suzuken Memorial Foundation, Japan
Sysmex Corporation, Kobe, Japan
- Taichung Tzu Chi Hospital, Buddhist Tzu Chi Medical
Foundation, Taichung, Taiwan, R.O.C.
Taichung Veterans General Hospital, Taichung, Taiwan,
R.O.C.
Taipei Medical University, Taipei, Taiwan, R.O.C.
Taipei Veterans General Hospital, Yuan-Shan/Su-Ao Branch,
Yilan, Taiwan, R.O.C.
Taiwan Ministry of Health and Welfare (MOHW), Taipei,
Taiwan, R.O.C.
- Taiwan Ministry of Science and Technology (MOST), Taipei,
Taiwan, R.O.C.
Társadalmi Megújulás Operatív Program (TÁMOP),
Hungary
Terry Fox Cancer Research Lab, Taipei, Taiwan, R.O.C.
Thermo Fisher Scientific, Vilnius, Lithuania
Thomayer Hospital, Prague, Czech Republic
Tissue Bank, China Medical University, Taichung, Taiwan,
R.O.C.
Tokyo Medical University, Tokyo, Japan
Tokyo Shinagawa Hospital, Minato, Japan
Tomas Bata Regional Hospital, Zlin, Czech Republic
Translational R&D Project, Institute for Bio-Medical
Convergence, Incheon St. Mary's Hospital, College of
Medicine, The Catholic University of Korea, Incheon,
Republic of Korea
TULUNG Registry, Czech Republic
Tumour and Angiogenesis Research Group, Athens, Greece
- Uemura Fund, Dental Research Center, Nihon University
School of Dentistry, Chiyoda, Japan
Unitatea Executiva Pentru Finantarea Invatamantului Superior
a Cercetarii Dezvoltarii si Inovarii (UEFISCDI), Romania
University Hospital Brno, Brno, Czech Republic
University Hospital Hradec Králove, Hradec Králove, Czech
Republic
University Hospital in Motol, Prague, Czech Republic
University Hospital in Pilsen, Pilsen, Czech Republic
University Hospital Kralovske Vinohrady, Prague, Czech
Republic
University Hospital Olomouc, Olomouc, Czech Republic
University Hospital Ostrava, Ostrava, Czech Republic
University Medical Center Groningen, Groningen, the
Netherlands
University of Alabama, Tuscaloosa, AL, U.S.A.
University of Bremen, Bremen, Germany
University of Tunis El Manar, Tunis, Tunisia
Veterans Administration Merit Review Grant, U.S.A.
VGHKS Grant, Kaohsiung Veterans General Hospital,
Kaohsiung, Taiwan, R.O.C.
Victor Babes University of Medicine and Pharmacy,
Timișoara, Romania
- Wilhelm Sander-Stiftung, Munich, Germany
- Yamaga City Medical Center, Yamaga, Japan
Yamaguchi University, Yamaguchi, Japan
Yokohama Surgical Research Group, Yokohama,
Japan
Yoshiki Dermatology Clinic Ginza, Tokyo, Japan

Instructions for Authors 2021

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 frames 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; Each article should include a concrete conclusion constituting of a “new piece of knowledge” backed up by scientific evidence. 10. Retrospective studies and case reports. The principal aim of IN VIVO is to provide for the prompt online publication for accepted articles, generally within 1-2 months from final acceptance.

Manuscripts will be accepted on the understanding that they report original unpublished works that are not under consideration for publication by another journal, and that they will not be published again in the same form. All authors should sign a submission letter confirming the approval of their article contents. All material submitted to IN VIVO will be subject to peer-review, when appropriate, by two members of the Editorial Board. All manuscripts submitted to IN VIVO are urgently treated with absolute confidence, with access restricted to the Managing Editor, the journal’s secretary, the reviewers and the printers. The Editors reserve the right to improve manuscripts on grammar and style.

The use of animals in biomedical research should take place under careful supervision of a person adequately trained in this field and the animals must be treated humanely at all times. Such research should adhere to the Guiding Principles in the Care and Use of Animals approved by the Council of the American Physiological Society.

The Editors and Publishers of IN VIVO accept no responsibility for the contents and opinions expressed by the contributors. Authors should warrant due diligence in the creation and issuance of their work.

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 pay an online publication fee of USD 800.00 (effective January 1, 2021) for articles up to 8 online pages (including figures and tables). Each additional excess page will be charged USD 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 and issue numbers, as well as page numbering.

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.

Format. Two types of papers may be submitted: (i) Full papers containing completed original work, and (ii) review articles concerning fields of recognisable progress. Papers should contain all essential data in order to make the presentation clear. Papers should be written in clear, concise English. Spelling should follow that given in the “Shorter Oxford English Dictionary”.

Manuscripts. Manuscripts should be divided into the following sections: (a) *First page* including the title of the presented work [not exceeding fifteen (15) words], full names and full postal addresses of all Authors, name of the Author to whom proofs are to be sent, key words, an abbreviated running title, an indication “review”, “clinical”, “epidemiological”, or “experimental” study, and the date of submission. (Note: The order of the Authors is not necessarily indicative of their contribution to the work. Authors may note their individual contribution(s) in the appropriate section(s) of the presented work); (b) *Abstract* not exceeding 150 words, organized according to the following headings: Background/Aim – Materials and Methods/Patients and Methods – Results – Conclusion; (c) *Introduction*; (d) *Materials and Methods/Patients and Methods*; (e) *Results*; (f) *Discussion*; (g) *Conflicts of Interest*; (h) *Authors’ contributions*; (i) *Acknowledgements*; (j) *References*. All pages must be numbered consecutively. Footnotes should be avoided. Review articles may follow a different style according to the subject matter and the Author’s opinion. Review articles should not exceed 35 pages (approximately 250 words per double-spaced typed page) including all tables, figures, and references.

Figures. All figures should appear **at the end** of the submitted document file. Once a manuscript is accepted all figures and graphs should be submitted separately in either jpg, tiff or pdf format and at a minimum resolution of 300 dpi. Graphs must be submitted as pictures made from drawings and must not require any artwork, typesetting, or size modifications. Symbols, numbering and lettering should be clearly legible. The number and top of each figure must be indicated. Pages that include color figures are not subject to color charges.

Tables. All tables should appear **at the end** of the submitted document file. Once a manuscript is accepted, each table should be submitted separately, typed double-spaced. Tables should be numbered with Roman numerals and should include a short title.

References. Authors must assume responsibility for the accuracy of the references used. Citations for the reference sections of submitted works should follow the form below and must be numbered consecutively. In the text, references should be cited by number in parenthesis. Examples: 1 Kenyon J, Liu W and Dalglish A: Report of objective clinical responses of cancer patients to pharmaceutical-grade synthetic cannabidiol. *Anticancer Res* 38(10): 5831-5835, 2018. PMID: 30275207. DOI: 10.21873/anticancer.12924. (PMIDs and DOIs only if applicable). 2 McGuire WL and Chamnes GC: Studies on the oestrogen receptor in breast cancer. In: *Receptors for Reproductive Hormones*. O' Malley BW, Chamnes GC (eds.). New York, Plenum Publ Corp., pp 113-136, 1973. 3 Global Health Estimates 2015: Disease Burden by Cause, Age, Sex, by Country and by Region, 2000-2015. Geneva, World Health Organisation, 2016. Available at http://www.who.int/healthinfo/global_burden_disease/estimates/en/index2.html. Last accessed on 3rd April 2018. (The web address should link directly to the cited information and not to a generic webpage).

Nomenclature and Abbreviations. Nomenclature should follow that given in "Chemical Abstracts", "Index Medicus", "Merck Index", "IUPAC -IUB", "Bergey's Manual of Determinative Bacteriology", The CBE Manual for Authors, Editors and Publishers (6th edition, 1994), and MIAME Standard for Microarray Data. Human gene symbols may be obtained from the HUGO Gene Nomenclature Committee (HGNC) (<http://www.gene.ucl.ac.uk/>). Approved mouse nomenclature may be obtained from <http://www.informatics.jax.org/>. Standard abbreviations are preferable. If a new abbreviation is used, it must be defined on first usage.

Clinical Trials. Authors of manuscripts describing clinical trials should provide the appropriate clinical trial number in the correct format in the text.

For International Standard Randomised Controlled Trials (ISRCTN) Registry (a not-for-profit organization whose registry is administered by Current Controlled Trials Ltd.) the unique number must be provided in this format: ISRCTNXXXXXXXX (where XXXXXXXX represents the unique number, always prefixed by "ISRCTN"). Please note that there is no space between the prefix "ISRCTN" and the number. Example: ISRCTN47956475.

For Clinicaltrials.gov registered trials, the unique number must be provided in this format: NCTXXXXXXXX (where XXXXXXXX represents the unique number, always prefixed by "NCT"). Please note that there is no space between the prefix "NCT" and the number. Example: NCT00001789.

Ethical Policies and Standards. IN VIVO agrees with and follows the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" established by the International Committee of Medical Journal Editors in 1978 and updated in October 2001 (www.icmje.org). Microarray data analysis should comply with the "Minimum Information About Microarray Experiments (MIAME) standard". Specific guidelines are provided at the "Microarray Gene Expression Data Society" (MGED) website. Presentation of genome sequences should follow the guidelines of the NHGRI Policy on Release of Human Genomic Sequence Data. Research involving human beings must adhere to the principles of the Declaration of Helsinki and Title 45, U.S. Code of Federal Regulations, Part 46, Protection of Human Subjects, effective December 13, 2001. Research involving animals must adhere to the Guiding Principles in the Care and Use of Animals approved by the Council of the American Physiological Society. The use of animals in biomedical research should be under the careful supervision of a person adequately trained in this field and the animals must be treated humanely at all times. Research involving the use of human foetuses, foetal tissue, embryos and embryonic cells should adhere to the U.S. Public Law 103-41, effective December 13, 2001.

Submission of Manuscripts. Please follow the Instructions for Authors regarding the format of your manuscript and references. Manuscripts must be submitted only through our online submission system at: <http://www.iar-submissions.com/login.html> In case a submission is incomplete, the corresponding Author will be notified accordingly. Questions regarding difficulties in using the online submission system should be addressed to: email: journals@iar-anticancer.org

Galley Proofs. Unless otherwise indicated, galley proofs will be sent to the corresponding Author of the submission. Corrections of galley proofs should be limited to typographical errors. Galley proofs should be returned corrected to the Editorial Office by email within two days.

Specific information and additional instructions for Authors

1. In Vivo (IV) will consider the publication of conference proceedings and/or abstracts provided that the material submitted fulfils the quality requirements and instructions of the journal, following the regular review process by two suitable referees.
2. An acknowledgement of receipt, including the article number, title and date of receipt is sent to the corresponding author of each manuscript upon receipt. If this receipt is not received within 20 days from submission, the author should call or write to the Editorial Office to ensure that the manuscript (or the receipt) was not lost in the mail.

3. Each manuscript submitted to IV is sent for peer-review in confidence to two suitable referees with the request to return the manuscript with their comments to the Editorial Office within 12 days from receipt. If reviewers need a longer time or wish to send the manuscript to another expert, the manuscript may be returned to the Editorial Office with a delay. All manuscripts submitted to IV, are treated in confidence, without access to any person other than the Managing Editor, the journal's secretary, the reviewers and the printers.
4. All accepted manuscripts are carefully corrected in style and language, if necessary, to make presentation clear. (There is no fee for this service). Every effort is made (a) to maintain the personal style of the author's writing and (b) to avoid change of meaning. Authors will be requested to examine carefully manuscripts which have undergone language correction at the pre-proof or proof stage.
5. Authors should pay attention to the following points when writing an article for IN VIVO:
 - The Instructions to Authors must be followed in every detail.
 - The presentation of the experimental methods should be clear and complete in every detail facilitating reproducibility by other scientists.
 - The presentation of results should be simple and straightforward in style. Results and discussion should not be combined into one section, unless the paper is short.
 - Results given in figures should not be repeated in tables.
 - Figures (graphs or photographs) should be prepared at a width of 8 or 17 cm with legible numbers and lettering.
 - Photographs should be clear with high contrast, presenting the actual observation described in the legend and in the text. Each legend should provide a complete description, being self-explanatory, including technique of preparation, information about the specimen and magnification.
 - Statistical analysis should be elaborated wherever it is necessary. Simplification of presentation by giving only numerical or % values should be avoided.
 - Fidelity of the techniques and reproducibility of the results, should be points of particular importance in the discussion section. Authors are advised to check the correctness of their methods and results carefully before writing an article. Probable or dubious explanations should be avoided.
 - Authors should not cite results submitted for publication in the reference section. Such results may be described briefly in the text with a note in parenthesis (submitted for publication by... authors, year).
 - References. Each article should address, list and discuss the entire spectrum of current publications relevant to its field.
 - By following these instructions, Authors will facilitate a more rapid review and processing of their manuscripts and will provide the readers with concise and useful papers.
6. Following review and acceptance, a manuscript is examined in language and style, and galley proofs are rapidly prepared. Second proofs are not sent unless required.
7. Authors should correct their galley proofs very carefully and preferably twice. An additional correction by a colleague always proves to be useful. Particular attention should be paid to chemical formulas, mathematical equations, symbols, medical nomenclature etc. Any system of correction marks can be used in a clear manner, preferably with a red pen. Additions or clarifications are allowed provided that they improve the presentation but do not bring new results (no fee).
8. Articles submitted to IN VIVO may be rejected without review if:
 - they do not fall within the journal's policy.
 - they do not follow the instructions for authors.
 - language is unclear.
 - results are not sufficient to support a final conclusion.
 - results are not objectively based on valid experiments.
 - they repeat results already published by the same or other authors before the submission to IV.
 - plagiarism is detected by plagiarism screening services.(Rejection rate (2020): 64%).
9. Authors who wish to prepare a review should contact the Managing Editor of the journal in order to get confirmation of interest in the particular topic of the review and to allow programming of space availability. The expression of interest by the Managing Editor does not necessarily imply acceptance of the review by the journal.
10. Authors may inquire information about the status of their manuscript(s) by calling the Editorial Office at +30-22950-53389, Monday to Friday 9.00-16.00 (Athens time), or by sending an e-mail to journals@iiar-anticancer.org.
11. Authors who wish to edit a special issue on a particular topic should contact the Managing Editor.
(This text is a combination of advice and suggestions contributed by Editors, Authors, Readers and the Managing Editor of IV).