DESCRIPTION

New Editor-in-Chief per 1 January 2017

We are pleased to announce that Dr. R. John Solaro will be appointed as new Editor-in-Chief of the *Journal of Molecular and Cellular Cardiology* per 1 January 2017. We look forward to collaborating with Dr. Solaro in this new position and to welcoming his new editorial team to the journal.

The *Journal of Molecular and Cellular Cardiology* publishes work advancing knowledge of the mechanisms responsible for both normal and diseased cardiovascular function. To this end papers are published in all relevant areas. These include (but are not limited to): structural biology; genetics; proteomics; morphology; stem cells; molecular biology; metabolism; biophysics; electrophysiology; pharmacology and physiology. Papers are encouraged with both basic and translational approaches. The journal is directed not only to basic scientists but also to clinical cardiologists who wish to follow the rapidly advancing frontiers of basic knowledge of the heart and circulation.

US National Institutes of Health (NIH) voluntary posting ("Public Access") policy

Journal of Molecular and Cellular Cardiology and Elsevier facilitate the author's response to the NIH Public Access Policy. For more details please see the Guide for authors

IMPACT FACTOR

2016: 5.680 © Clarivate Analytics Journal Citation Reports 2017

ABSTRACTING AND INDEXING

Scopus
EMBASE
EMBiology
EDITORIAL BOARD

Editor-in-Chief:
John Solaro, Department of Physiology and Biophysics M/C 901, University of Illinois at Chicago, 835 South Wolcott Avenue, Chicago, Illinois, IL 60612, USA

Associate Editors
J. Backs, Universitätssklinikum Heidelberg, Heidelberg, Germany
D.M. Bers, University of California, Davis, Davis, California, USA
P.P. de Tombe, Loyola University Chicago, Maywood, Illinois, USA
P. A Lucchesi, The Commonwealth Medical College (TCMC), Scranton, Pennsylvania, USA
T. Minamino, Niigata University, Niigata, Japan
E. Murphy, Columbia, MD, USA
J. Sadoshima, Rutgers New Jersey Medical School, Newark, New Jersey, USA
T. Thum, Hannover Medical School (MHH), Hannover, Germany
H.-T. Yang, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai, China

Editorial Board
J. I. Abe, Houston, Texas, USA
W. Aird, Boston, Massachusetts, USA
D.G. Allen, Sydney, New South Wales, Australia
M.E. Anderson, Baltimore, Maryland, USA
D. Angoulvant, Chambray-lès-Tours, France
P. Backx, Toronto, Ontario, Canada
X. Bai, Milwaukee, USA
C. Baines, Columbia, Missouri, USA
J.L. Balligand, Brussels, Belgium
A. Barbuti, Milan, Italy
A.S. Barth, Baltimore, Maryland, USA
V.L. Bautch, Chapel Hill, North Carolina, USA
J.P. Benitah, Chatenay-Malabry, France
C.R. Bezzina, Amsterdam, Netherlands
A. Bhatnagar, Kentuck, USA
B. Blaxall, Cincinnati, Ohio, USA
I. Bock-Marquette, Dallas, Texas, USA
K. Boengler, Essen, Germany
M.R. Boyett, Manchester, UK
R.P. Brandes, Frankfurt, Germany
P.S. Brookes, Rochester, New York, USA
K.R. Brunt, Toronto, Ontario, Canada
P.M. Buttrick, Aurora, Colorado, USA
S. Calaghan, Leeds, UK
J.W. Calvert, Atlanta, Georgia, USA
L. Carrier, Hamburg, Germany
M. Chandra, Pullman, Washington, USA
F. Charpentier, Nantes, France
H. Cheng, Beijing, China
Y. Chen-Izu, Davis, California, USA
M. Chin, Seattle, Washington, USA
C.E. Clancy, Davis, California, USA
G. Condorelli, Milan, Italy
L. Cribbs, Kansas City, Kansas, USA
B. Dawn, Kansas City, Kansas, USA
L.E. de Castro Brás, Greenville, North Carolina, USA
L. De Windt, Maastricht, Netherlands
F. del Monte, Charleston, South Carolina, USA
L. Dolbridge, Melbourne, Australia
C. Des Rosiers, Montreal, Quebec, Canada
I. Deschenes, Cleveland, Ohio, USA
F. Di Lisa, Padova, Italy
K. Dibb, Manchester, England, UK
S. Dimmel, Frankfurt, Germany
D. Dobrev, Essen, Germany
J.M. Downey, Mobile, Alabama, USA
J. Dyck, Edmonton, Alberta, Canada
J. Eddinger, Milwaukee, Wisconsin, USA
P.J. Mohler, Iowa City, Iowa, USA
J.D. Molkentin, Cincinnati, Ohio, USA
S. Morimoto, Higashi-ku, Japan
M. Moser, Freiburg, Germany
R.L. Moss, Madison, Wisconsin, USA
T. Murohara, Aichi, Japan
A.M. Murphy, Baltimore, Maryland, USA
C.E. Murry, Seattle, Washington, USA
A.J. Muslin, St Louis, Missouri, USA
S. Nattel, Quebec, Quebec, Canada
J.M. Neronne, St Louis, Missouri, USA
E. Niggli, Bern, Switzerland
H. Oh, Okayama, Japan
E.N. Olson, Dallas, Texas, USA
C.H. Orchard, Bristol, UK
B. O'Rourke, Baltimore, Maryland, USA
M. Ovize, Lyon, France
S. Pepe, Parkville, Victoria, Australia
M. Periasamy, Columbus, Ohio, USA
K. Peter, Melbourne, Australia
P. Ping, Los Angeles, California, USA
J. Pinto, Tallahassee, USA
S.D. Prabhu, Birmingham, Alabama, USA
S.G. Priori, Pavia, Italy
B.L. Prosser, Philadelphia, Pennsylvania, USA
V. Puntmann, Frankfurt, Germany
G.F. Pyle, Guelph, Ontario, Canada
A. Raes, Leuven, Belgium
T. Rassaf, Essen, Germany
J. Ren, Cheyenne, Wyoming, USA
S. Richard, Montpellier, France
J. Robbins, Cincinnati, Ohio, USA
M.N. Sack, Bethesda, Maryland, USA
S. Sadayappan, Cincinnati, Ohio, USA
A.M. Samarel, Maywood, Illinois, USA
M. Sano, Tokyo, Japan
L.F. Santana, Seattle, Washington, USA
M. Sata, Bunkyo-Ku, Japan
M.D. Schneider, London, England, UK
A. Shah, London, England, UK
T. Shannon, Chicago, Illinois, USA
K. Shinmura, Tokyo, Japan
N. Sibinga, Bronx, New York, USA
PC. Simpson, Jr., San Francisco, California, USA
K.R. Sipido, Leuven, Belgium
F.G. Spinale, Columbia, South Carolina, USA
K. Spitzer, Salt Lake City, Utah, USA
D. Srivastava, San Francisco, California, USA
C. Steenbergen, Baltimore, Maryland, USA
S.F. Steinberg, New York, New York, USA
M.A. Sussman, San Diego, California, USA
H. Taegtmeyer, Houston, Texas, USA
M. Takahashi, Tochigi, Japan
Y. Takeishi, Japan
J.C. Tardiff, Bronx, New York, USA
R. Tian, Boston, Massachusetts, USA
C. Tong, College Station, Texas, USA
A.W. Trafford, Manchester, England, UK
M. Ushio-Fukai, Chicago, Illinois, USA
H. Valdivia, Ann Arbor, Michigan, USA
G. Valen, Oslo, Norway
J. Van Eyk, Baltimore, Maryland, USA
H. van Rijen, Utrecht, Netherlands
E. van Rooij, Utrecht, Netherlands
D. van Wagoner, Cleveland, Ohio, USA
A. Varro, Hungary
F. Villarreal, La Jolla, California, USA
T. Vondriska, Los Angeles, California, USA
K. Walsh, Boston, Massachusetts, USA
D. Wang, Boston, Massachusetts, USA
H. Wang, Philadelphia, Pennsylvania, USA
Y. Wang, Los Angeles, California, USA
X.H.T. Wehrens, Houston, Texas, USA
B. Weiss, Baltimore, Maryland, USA
M.V. Westfall, Ann Arbor, Michigan, USA
M.Y. White, Sydney, New South Wales, Australia
D.F. Wieczorek, Cincinnati, Ohio, USA
M.S. Willis, Chapel Hill, North Carolina, USA
R.L. Winslow, Baltimore, Maryland, USA
L.E. Wold, Columbus, Ohio, USA
B.M. Wolska, Chicago, Illinois, USA
G. Wright, Johnson city, Tennessee, USA
R.P. Xiao, Baltimore, Maryland, USA
C. Yan, West Henrietta, New York, USA
K. Yaumachi-Takahara, Osaka, Japan
S. Yuasa, Tokyo, Japan
A. Zampetaki, London, England, UK
C. Zeng, Chongqing City, China
W.H. Zimmermann, Göttingen, Germany
M. Ziolo, Columbus, Ohio, USA

Consulting Editors
R. Bolli, Louisville, Kentucky, USA
D. Eisner, Manchester, UK
M. Endoh, Yamagata, Japan
J.P. Jin, Detroit, Michigan, USA
C. Patterson, Chapel Hill, North Carolina, USA
H.M. Piper, Düsseldorf, Germany
G.L. Smith, Glasgow, Scotland, UK
M.B. Taubman, New York, New York, USA
GUIDE FOR AUTHORS

Your Paper Your Way
We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

INTRODUCTION

Journal Categories

Full Length Articles
To accelerate publication, preference is given to manuscripts no longer than approximately 6000 words containing 6-8 Figures and/or Tables. Full Length articles are reviewed on average within 23 days of receipt by the editorial office.

Short communication
To provide for the rapid publication of data of special interest (including preliminary data and novel methods), short papers may be submitted for review within seven days of receipt by the editorial office. Short Communication manuscripts should not exceed 2000 words plus no more than 15 references. Results and Discussion sections may be combined. No more than 2 Figures and/or Tables should be included. A brief statement explaining the general importance of the results and why rapid publication is desired must accompany the manuscript. Decisions on Rapid Communications may be on a 'yes-no' basis and detailed referee's opinion may not be obtained.

Correspondence
These will normally be comments on a paper previously published in JMCC and should be no more than 2000-3000 words in length including references. Correspondence will be reviewed by the Editor and the author of the original paper may be invited to respond.

Review Articles
Review Articles may be requested by the Editor, but authors are encouraged to submit Review Articles after consultation with the Associate Editor for Special Issues and Review Articles (Donald Bers). All such articles are subject to normal review process for full length articles. Review Articles should generally be no longer than 6000 words and should include an abstract.

Replication Studies
This journal encourages the submission of replication studies. When submitting your manuscript ensure the original study is clearly referenced, and provide a link to the original study. Replication studies should include [brief] introduction and discussion sections that succinctly report the goal of the original paper. The original paper should be the work of a different author or group of authors.

Submission checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:
• E-mail address
• Full postal address

All necessary files have been uploaded:
Manuscript:
• Include keywords
• All figures (include relevant captions)
• All tables (including titles, description, footnotes)
• Ensure all figure and table citations in the text match the files provided
• Indicate clearly if color should be used for any figures in print
Graphical Abstracts / Highlights files (where applicable)
Supplemental files (where applicable)

Further considerations
- Manuscript has been 'spell checked' and 'grammar checked'
- All references mentioned in the Reference List are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Internet)
- A competing interests statement is provided, even if the authors have no competing interests to declare
- Journal policies detailed in this guide have been reviewed
- Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.

BEFORE YOU BEGIN

Ethics in Publishing
Reporting standards

Authors of reports of original research should present an accurate account of the work performed as well as an objective discussion of its significance. Underlying data should be represented accurately in the paper. A paper should contain sufficient detail and references to permit others to replicate the work. Fraudulent or knowingly inaccurate statements constitute unethical behavior and are unacceptable.

Review and professional publication articles should also be accurate and objective, and editorial opinion works should be clearly identified as such.

Data Access and Retention

Authors may be asked to provide the raw data in connection with a paper for editorial review, and should be prepared to provide public access to such data (consistent with the ALPSP-STM Statement on Data and Databases), if practicable, and should in any event be prepared to retain such data for a reasonable time after publication.

Originality and Plagiarism

The authors should ensure that they have written entirely original works, and if the authors have used the work and/or words of others, that this has been appropriately cited or quoted.

Plagiarism takes many forms, from passing off another paper as the author(s) own paper, to copying or paraphrasing substantial parts of another(s) paper (without attribution), to claiming results from research conducted by others. Plagiarism in all its forms constitutes unethical publishing behavior and is unacceptable.

Multiple, Redundant or Concurrent Publication

An author should not in general publish manuscripts describing essentially the same research in more than one journal or primary publication. Submitting the same manuscript to more than one journal concurrently constitutes unethical publishing behaviour and is unacceptable.

In general, an author should not submit for consideration in another journal a previously published paper. Publication of some kinds of articles (e.g., clinical guidelines, translations) in more than one journal is sometimes justifiable, provided certain conditions are met. The authors and editors of the journals concerned must agree to the secondary publication, which must reflect the same data and interpretation of the primary document. The primary reference must be cited in the secondary publication. Further detail on acceptable forms of secondary publication can be found at http://www.icmje.org/

Acknowledgement of Sources
Proper acknowledgment of the work of others must always be given. Authors should cite publications that have been influential in determining the nature of the reported work. Information obtained privately, as in conversation, correspondence, or discussion with third parties, must not be used or reported without explicit, written permission from the source. Information obtained in the course of confidential services, such as refereeing manuscripts or grant applications, must not be used without the explicit written permission of the author of the work involved in these services.

**Authorship of the Paper**

Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where there are others who have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors.

The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper, and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

**Hazards and Human or Animal Subjects**

If the work involves chemicals, procedures or equipment that have any unusual hazards inherent in their use, the author must clearly identify these in the manuscript. If the work involves the use of animal or human subjects, the author should ensure that the manuscript contains a statement that all procedures were performed in compliance with relevant laws and institutional guidelines and that the appropriate institutional committee(s) have approved them. Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

**Disclosure and Conflicts of Interest**

All authors should disclose in their manuscript any financial or other substantive conflict of interest that might be construed to influence the results or interpretation of their manuscript. All sources of financial support for the project should be disclosed.

Examples of potential conflicts of interest which should be disclosed include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Potential conflicts of interest should be disclosed at the earliest stage possible.

**Fundamental errors in published works**

When an author discovers a significant error or inaccuracy in his/her own published work, it is the authors obligation to promptly notify the journal editor or publisher and cooperate with the editor to retract or correct the paper. If the editor or the publisher learn from a third party that a published work contains a significant error, it is the obligation of the author to promptly retract or correct the paper or provide evidence to the editor of the correctness of the original paper.

**Declaration of interest**

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double-blind) or the manuscript file (if single-blind). If there are no interests to declare then please state this: 'Declarations of interest: none'. This summary statement will be ultimately published if the article is accepted. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. More information.
Submission declaration and verification
Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service Crossref Similarity Check.

Changes to authorship
Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Article transfer service
This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal. More information.

Copyright
Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

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 and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.

Role of the funding source
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.
Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.
After acceptance, open access papers will be published under a noncommercial license. For authors requiring a commercial CC BY license, you can apply after your manuscript is accepted for publication.

Open access
This journal offers authors a choice in publishing their research:

Subscription
- Articles are made available to subscribers as well as developing countries and patient groups through our universal access programs.
- No open access publication fee payable by authors.
- The Author is entitled to post the accepted manuscript in their institution's repository and make this public after an embargo period (known as green Open Access). The published journal article cannot be shared publicly, for example on ResearchGate or Academia.edu, to ensure the sustainability of peer-reviewed research in journal publications. The embargo period for this journal can be found below.

Gold open access
- Articles are freely available to both subscribers and the wider public with permitted reuse.
- A gold open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For gold open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)
For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The gold open access publication fee for this journal is **USD 2400**, excluding taxes. Learn more about Elsevier's pricing policy: [https://www.elsevier.com/openaccesspricing](https://www.elsevier.com/openaccesspricing).

Green open access
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our green open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. Find out more.

This journal has an embargo period of 12 months.

Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop.

Submission
Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

PREPARATION
NEW SUBMISSIONS
Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process.

As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

References
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

Formatting requirements
There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.

If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes. Divide the article into clearly defined sections.

Figures and tables embedded in text
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

Peer review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

REVISED SUBMISSIONS
Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Article structure
Subdivision - numbered sections
Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. (the abstract is not included in section numbering). Use this numbering also for internal cross-referencing: do not just refer to the text. Any subsection may be given a brief heading. Each heading should appear on its own separate line.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Results
Results should be clear and concise.
Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Glossary
Please supply, as a separate list, the definitions of field-specific terms used in your article.

Appendices
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

Essential title page information
- Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- Author names and affiliations. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
- Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.
- Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract
A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

Graphical abstract
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

Highlights
Highlights are mandatory for this journal. They consist of a short collection of bullet points that convey the core findings of the article and should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). You can view example Highlights on our information site.
Keywords
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations
Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources
List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Nomenclature and units
Follow internationally accepted rules and conventions: use the international system of units (SI). If other quantities are mentioned, give their equivalent in SI. You are urged to consult IUPAC: Nomenclature of Organic Chemistry for further information.

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article.

Artwork
Electronic artwork
General points
- Make sure you use uniform lettering and sizing of your original artwork.
- Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Indicate per figure if it is a single, 1.5 or 2-column fitting image.
- For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
- Please note that individual figure files larger than 10 MB must be provided in separate source files.
A detailed guide on electronic artwork is available.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats
Regardless of the application used, when your electronic artwork is finalized, please 'save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):
EPS (or PDF): Vector drawings. Embed the font or save the text as 'graphics'.
TIFF (or JPG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
TIFF (or JPG): Bitmapped line drawings: use a minimum of 1000 dpi.
TIFF (or JPG): Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

Please do not:
• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low.
• Supply files that are too low in resolution.
• Submit graphics that are disproportionately large for the content.

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.

Color artwork
The Publisher will not charge authors for color figures where its use is integral to the useful illustration of the data.

Manipulation and Editing of Figures
It is important that any editing of figures (particularly gels and fluorescence images) be done in a way that does not distort the meaning of the results. The same processing must be performed on all parts of the image or gel. Any cropping of images to selectively remove parts of gels or blots should be explicitly noted in the legend and discontinuities should be visibly apparent in the figure. It is not permissible to add or remove data from figures. Any image processing used in preparing the figure (other than simple changes of brightness and contrast) should be described in the legend. Finally, the Editors may request copies of original, unprocessed data.

Illustration services
Elsevier’s WebShop offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier’s expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image ‘polishing’ is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.

Figure captions
Ensure that each illustration has a caption. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Tables
Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.
Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references
This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley and Zotero, as well as EndNote. Using the word processor plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference formatting
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style
Text: Indicate references by number(s) in square brackets in line with the text. The actual authors can be referred to, but the reference number(s) must always be given.
Example: '..... as demonstrated [3,6]. Barnaby and Jones [8] obtained a different result ....'
List: Number the references (numbers in square brackets) in the list in the order in which they appear in the text.
Examples:
Reference to a journal publication:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a website:
Reference to a dataset:

Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

AudioSlides
The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

Supplementary Data
Elsevier accepts electronic supplementary material to support and enhance your scientific research. Supplementary files offer the author additional possibilities to publish supporting applications, high-resolution images, background datasets, sound clips and more. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier Web products, including ScienceDirect: http://www.sciencedirect.com. In order to ensure that your submitted material is directly usable, please provide the data in one of our recommended file formats. Authors should submit the material in electronic format together with the article and supply a concise and descriptive caption for each file. All supplementary material except videos, spreadsheets, audio slides and 3D molecular models should be combined into a single PDF. The Supplemental PDF file should be in a "presentation style" (i.e. not double-spaced) with Figures and their legends integrated within the text. For more detailed instructions please visit our artwork instruction pages at http://www.elsevier.com/artworkinstructions.

When submitting your manuscript select the replication study article type from the drop down menu in EES. Also ensure that the original study is clearly referenced by providing a link to the original study. Replication studies should include [brief] introduction and discussion sections that succinctly report the goal of the original paper. The original paper should be the work of a different author or group of authors.
For replication studies please also deposit your data in Mendeley data or another trusted repository and ensure your data is properly cited. Please refer to the section on Research data for further guidance on data deposition and citation.
**Research data**

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

**Data linking**

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Mendeley Data**

This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. Before submitting your article, you can deposit the relevant datasets to Mendeley Data. Please include the DOI of the deposited dataset(s) in your main manuscript file. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.

**Data statement**

To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

**AFTER ACCEPTANCE**

Authors have 48 hours to respond to proofs unless otherwise requested. If no response occurs within this time, the manuscript will be published exactly as the proof reads.

**Online proof correction**

Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor.

Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.

If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.
We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

**Offprints**
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Webshop. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**Additional information**
The directives for preparing the paper in the style of the journal as set out in the Instructions for Authors must be followed; i.e. ensure the document is in the following order: Title; Authors; Addresses; Short title; Abstract; Introduction; Materials and Methods; Results; Discussion; Acknowledgements; References. Tables, Figure legends and Footnotes, should be saved in a separate file. Use two carriage returns to end headings and paragraphs. Type text without end of line hyphenation, except for compound words. Do not use lower case "I" for "1" (one) or "O" for "0" (zero). (They have different typesetting values.) Footnotes, Abbreviations, Tables and Figure legends should be saved in a separate file from the main text. Be consistent with punctuation and only insert a single space between words and after punctuation. Please include a list of any special characters you have had to use, e.g. Greek, maths.

**AUTHOR INQUIRIES**
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch. You can also check the status of your submitted article or find out when your accepted article will be published.