DESCRIPTION

Devoted to advancements in nutritional sciences, The Journal of Nutritional Biochemistry presents experimental nutrition research as it relates to: biochemistry, molecular biology, toxicology, or physiology.

Rigorous reviews by an international editorial board of distinguished scientists ensure publication of the most current and key research being conducted in nutrition at the cellular, animal and human level. In addition to its monthly features of critical reviews and research articles, The Journal of Nutritional Biochemistry also periodically publishes emerging issues, experimental methods, and other types of articles.

Benefits to authors
We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our author services.

Please see our Guide for Authors for information on article submission. If you require any further information or help, please visit our Support Center.

AUDIENCE

Nutritionists, Physicians, Cell and Molecular Biologists, Biochemists, Dietitians.

IMPACT FACTOR

2018: 4.490 © Clarivate Analytics Journal Citation Reports 2019
ABSTRACTING AND INDEXING

PubMed/Medline
BIOSIS Citation Index
Elsevier BIOBASE
Web of Science
Science Citation Index
Research Alert
Current Contents
Embase
Scopus

EDITORIAL BOARD

Editor-in-Chief
Bernhard Hennig, University of Kentucky, Lexington, Kentucky, United States

Associate Editors
Kristina Martinez-Guryn, Midwestern University - Downers Grove Campus, Downers Grove, Illinois, United States
Steven Post, UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES, Little Rock, Arkansas, United States
Michal Toborek, University of Miami, Miami, Florida, United States

Editorial Manager
Joseph Ryan Richardson, University of Kentucky, Lexington, Kentucky, United States

Founding Editor
Steven H. Zeisel, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States

Board of Editors
Ludwig Aigner, Paracelsus Medical Private University, Salzburg, Austria
G. Harvey Anderson, University of Toronto, Toronto, Ontario, Canada
Xabier Arzuaga, US Environmental Protection Agency, Washington, District of Columbia, United States
Reto Asmis, Wake Forest University School of Medicine, Winston-Salem, North Carolina, United States
Fariba M. Assadi-Porter, University of Wisconsin Madison, Madison, Wisconsin, United States
Hans-Christian Bauer, University of Salzburg, Salzburg, Austria
Ina Bergheim, University of Vienna, Wien, Austria
Sarah Berry, King's College London, London, United Kingdom
Jesse Bertinato, Health Canada, Ottawa, Ontario, Canada
Amanda Bird, OHIO STATE UNIVERSITY, Columbus, Ohio, United States
Chris Blesso, University of Connecticut, Storrs, Connecticut, United States
Peggy R. Borum, UNIVERSITY OF FLORIDA, Gainesville, Florida, United States
Richard S. Bruno, OHIO STATE UNIVERSITY, Columbus, Ohio, United States
Margherita Cantorna, Pennsylvania State University, University Park, Pennsylvania, United States
Jay J. Cao, USDA-ARS Grand Forks Human Nutrition Research Center, Grand Forks, North Dakota, United States
Matthew C. Cave, University of Louisville Health Sciences Center, Louisville, Kentucky, United States
Jin-Ran Chen, UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES, Little Rock, Arkansas, United States
Yan Chen, Institute for Nutritional Sciences Shanghai Institutes for Biological Sciences Chinese Academy of Sciences, Shanghai, China
Zhiyong Cheng, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, United States
Adam J. Chicco, Colorado State University, Fort Collins, Colorado, United States
Chia-Chi Chuang Key, Wake Forest University School of Medicine, Winston-Salem, North Carolina, United States
Kate J (Claycombe) Larson, USDA-ARS Northeast Area, Beltsville, Maryland, United States
Jimmy W. Crott, Tufts University, Medford, Massachusetts, United States
Juan Cui, University of Nebraska-Lincoln, Lincoln, Nebraska, United States
Dana Dolinoy, UNIVERSITY OF MICHIGAN, Ann Arbor, Michigan, United States
Sarah Egert, University of Bonn, Bonn, Germany
Ahmed El-Sohemy, University of Toronto, Toronto, Ontario, Canada
Jennifer I. Fenton, Michigan State University, East Lansing, Michigan, United States
Jan Frank, University of Hohenheim, Stuttgart, Germany
Kevin L. Fritsche, University of Missouri, Columbia, Missouri, United States
Wenjiang J. Fu, University of Houston, Houston, Texas, United States
Naomi K. Fukagawa, University of Vermont, Burlington, Vermont, United States
Ying Gao, Shanghai Institutes for Biological Sciences Chinese Academy of Sciences, Shanghai, China
Christopher L. Gentile, Colorado State University, Fort Collins, Colorado, United States
Wendy Hall, King's College London, London, United Kingdom
Sung Gu Han, Konkuk University Department of Food Science and Biotechnology of Animal Resources, Gwangjingu, Korea, Republic of
Jason M. Hansen, Brigham Young University, Provo, Utah, United States
Claus Hellerbrand, University of Regensburg, Regensburg, Germany
Andrea Hill-McAlester, BAYLOR COLLEGE OF MEDICINE, Webster, Texas, United States
Emily Ho, Oregon State University, Corvallis, Oregon, United States
Yongqing Hou, Wuhan University of Technology, Wuhan, China
Guowei Huang, Tianjin Medical University, Tianjin, China
Fahimi Y. Israaullah, University of North Carolina at Chapel Hill Nutrition Research Institute, Kannapolis, North Carolina, United States
Qing Jiang, Purdue University, West Lafayette, Indiana, United States
Nishan Kalupahana, University of Peradeniya, Peradeniya, Sri Lanka
Erik Karlsson, Institut Pasteur Cambodia, Phnom Penh, Cambodia
Carl L. Keen, University of California Davis, Davis, California, United States
Arion Kennedy, North Carolina State University Department of Molecular and Structural Biochemistry, Raleigh, North Carolina, United States
Young-In Kim, University of Toronto, Toronto, Ontario, Canada
Dorothy Klimis-Zacas, University of Maine, Orono, Maine, United States
Sung I. Koo, University of Connecticut, Storrs, Connecticut, United States
Joshua D. Lambert, Pennsylvania State University, University Park, Pennsylvania, United States
Ji-Young Lee, University of Connecticut, Storrs, Connecticut, United States
Vanessa Leone, UNIVERSITY OF CHICAGO, Chicago, Illinois, United States
Duo Li, Qingdao University, Qingdao, China
Xiang-An Li, University of Kentucky, Lexington, Kentucky, United States
Dingbo Daniel Lin, Oklahoma State University Stillwater, Stillwater, Oklahoma, United States
Jian Liu, Hefei University of Technology, Hefei, China
Bo L. Lönnerdal, University of California Davis, Davis, California, United States
Daniel Lupu, Esoterix Genetic Laboratories LLC, Research Triangle Park, North Carolina, United States
Ruth S. MacDonald, Iowa State University, Ames, Iowa, United States
Eunice Mah, Merieux NutriSciences Corporation, Glen Ellyn, Illinois, United States
Craig J. McClain, University of Louisville School of Medicine, Louisville, Kentucky, United States
Michael K McIntosh, University of North Carolina at Greensboro, Greensboro, North Carolina, United States
Hui cui Meng, Sun Yat-Sen University, Guangzhou, China
L. Preston Mercer, University of South Florida Department of Chemistry, Lakeland, Florida, United States
Gregory D. Miller, National Dairy Council, Rosemont, Illinois, United States
Naima Moustaid-Moussa, TEXAS TECH UNIVERSITY, Lubbock, Texas, United States
Hye-Kyung Na, Sungshin Women's University College of Knowledge Based Services Engineering, Seoul, Korea, Republic of
Shanmguam Nagarajan, University of Pittsburgh McGowan Institute for Regenerative Medicine, Pittsburgh, Pennsylvania, United States
Andrew Neilson, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, United States
Mihai Niculescu, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States
Michael Petriello, University of Kentucky, Lexington, Kentucky, United States
Joseph F. Pierre, University of Tennessee, Knoxville, Tennessee, United States
Lothar Rink, University Hospital Aachen Department of Nephrology Rheumatology and Immunology, Aachen, Germany
Patrizia Riso, University of Milan, Milan, Italy
Francisco Rivera, University of Southern Chile, Valdivia, Chile
Donato F. Romagnolo, University of Arizona, Tucson, Arizona, United States
Rebecca J. Schmidt, University of California Davis, Davis, California, United States
Helmut Schröder, Hospital del Mar Institute for Medical Research, Barcelona, Spain
Saame Raza Shaikh, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States
Chwan-Li (Leslie) Shen, TEXAS TECH UNIVERSITY, Lubbock, Texas, United States
Rebecca A. Simmons, University of Pennsylvania Department of Psychiatry, Philadelphia, Pennsylvania, United States
Carolyn M. Slupsky, University of California Davis, Davis, California, United States
Pamela E. Starke-Reed, USDA-ARS Northeast Area, Beltsville, Maryland, United States
Matam Vijay-Kumar, UNIVERSITY OF TOLEDO, Toledo, Ohio, United States
Saraswathi Viswanathan, UNIVERSITY OF NEBRASKA MEDICAL CENTER, Omaha, Nebraska, United States
Jan Vondracek, Czech Academy of Sciences, Praha, Czech Republic
Banrida Wahlang, University of Louisville School of Medicine, Louisville, Kentucky, United States
Shu Wang, TEXAS TECH UNIVERSITY, Lubbock, Texas, United States
Walter H. Watson, University of Louisville School of Medicine, Louisville, Kentucky, United States
Chaodong Wu, Texas A&M University College Station, College Station, Texas, United States
Dayong Wu, Jean Mayer USDA Human Nutrition Research Center on Aging, Boston, Massachusetts, United States
Guoyao Wu, Texas A&M University College Station, College Station, Texas, United States
Zhenlong Wu, China Agricultural University, Beijing, China
Hang Xiao, University of Massachusetts Amherst Department of Food Science, Amherst, Massachusetts, United States
Michael B. Zemel, University of Tennessee, Knoxville, Tennessee, United States
Janos Zempleni, University of Nebraska-Lincoln, Lincoln, Nebraska, United States
Chen-Yu Zhang, Nanjing University, Nanjing, China
Ling Zhao, University of Tennessee, Knoxville, Tennessee, United States
Wey-un Zhu, Nanjing Agricultural University, Nanjing, China
GUIDE FOR AUTHORS

INTRODUCTION
The editors of The Journal of Nutritional Biochemistry (JNB) welcome the submission of original manuscripts on experimental and clinical nutrition as it interfaces with biochemistry, molecular biology, physiology, and toxicology. The scope of the journal includes the broad area of in vitro and in vivo studies of mechanistic aspects of nutritional sciences. The criteria for acceptance of papers submitted for publication are originality, quality and clarity of the content. Each manuscript is internally reviewed and prioritized before a full external review takes place. All contributions must be based on original, unpublished research and will be peer reviewed. All authors bear responsibility for ensuring the integrity and quality of their reported research. It is the author’s responsibility to secure permission to use figures or tables that have been published elsewhere.

Contributions may be classified as original research or review articles. Most review articles are invited by the editor. Authors interested in submitting a review article should contact the editorial office. The rapid publication of original manuscripts is a goal of the journal. Manuscripts must be written in English. Each manuscript is considered for publication with the understanding that it has not been submitted to any other journal. Upon acceptance for publication, papers are subject to editorial review and revision.

All manuscripts submitted to JNB are checked for plagiarism. Any suspect of plagiarism or data manipulation will result in automatic rejection of a manuscript, independent of stage of review or publication process. JNB does not have any page charges.

Contact Information
Dr. Bernhard Hennig, Editor-in-Chief
The Journal of Nutritional Biochemistry
University of Kentucky
900 Limestone Street
Rm. 599, Wethington Health Sciences Building
Lexington, KY 40536-0200
E-mail address: JNB@uky.edu
Fax: 859-257-1811

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
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

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.

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Sources of funding for the article should be acknowledged in a footnote on the title page. Affiliations of authors should include corporate appointments relating to or in connection with products or companies mentioned in the article, or otherwise bearing on the subject matter thereof. Other pertinent financial relationships, such as consultancies, stock ownership or other equity interests or patent-licensing arrangements, should be disclosed to the Editor-in-Chief in the cover letter at the time of submission. Such relationships may be disclosed in the Journal at the discretion of the Editor-in-Chief in footnotes appearing on the title page. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. See also https://www.elsevier.com/conflictsofinterest. Further information and an example of a Conflict of Interest form can be found at: http://service.elsevier.com/app/answers/detail/a_id/286/supporthub/publishing.

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.

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.

For human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. All animal experiments should comply with the ARRIVE guidelines ], and authors should clearly indicate in the manuscript that such guidelines have been followed. Animal experiments should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act 1986 and associated guidelines, or the EU Directive 2010/63/ EU Directive 2010/63/EU on the protection of animals used for scientific purposes or the U.S. Public Health Service Policy on Humane Care and Use of Laboratory Animals and, as applicable, the Animal Welfare Act.
Preprints
Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

The cover letter must state that: all authors listed have contributed to the work, all authors have read, approved and agreed to submit the manuscript to JNB, no part of the work has been published before, except in abstract form, and all human and animal studies have been reviewed by the appropriate ethics committees. All authors listed in a manuscript submitted to JNB must have contributed substantially to the work, participated in the writing of the manuscript, and seen and approved the submitted version. All individuals who have contributed to the writing of the manuscript must be listed as authors. The editor reserves the right to reject manuscripts that do not comply with the above-mentioned requirements.

Authorship
All authors should meet the following criteria:
(1) Authors must have been involved in the conception and design of the study, or acquisition of data, or analysis and interpretation of data,
(2) Authors must have drafted the article or revised it critically for important intellectual content,
(3) Authors must have given final approval of the version to be submitted,
(4) Authors must agree to be accountable for all aspects of the work in ensuring that questions that may arise related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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.

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 3400**, excluding taxes. Learn more about Elsevier's pricing policy: 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 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.

Elsevier Researcher Academy
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

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 Author Services.

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.

Submit your article
Please submit your article via https://www.evise.com/profile/api/navigate/JNB.

Please submit with the manuscript, the names, addresses and e-mail addresses of 4 to 6 potential reviewers. Please be sure to give complete contact information with the e-mail address being the most important. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

PREPARATION

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.

Use of word processing software
It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. 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

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
Title Page
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
• Author names and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case 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. Ensure that phone numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address. Contact details must be 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 (up to 250 words) 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.

Highlights
Highlights are optional yet highly encouraged for this journal, as they increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the examples here: example Highlights.

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.

Manuscript Sections/Subdivisions
Divide your article into clearly defined and numbered sections consisting of Introduction, Materials and Methods, Results, and Discussion. 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.

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.
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.

Units
Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI.

Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Embedded math equations
If you are submitting an article prepared with Microsoft Word containing embedded math equations then please read this (related support information).

SI Units

Footnotes
Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Artwork
Electronic artwork
General points
• Make sure you use uniform lettering and sizing of your original artwork.
• Embed the used fonts if the application provides that option.
• Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Provide captions to illustrations separately.
• Size the illustrations close to the desired dimensions of the published version.
• Submit each illustration as a separate file.
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
If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.
Regardless of the application used other than Microsoft Office, 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 all used fonts.
TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:
• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
• 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.

Illustration services
Elsevier's Author Services 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. Supply captions separately, not attached to the figure. 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.

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.
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 journal publication with an article number:

Reference to a book:

Reference to a chapter in an edited book:
Reference to a website:

Reference to a dataset:


Note shortened form for last page number. e.g., 51–9, and that for more than 6 authors the first 6 should be listed followed by 'et al.' For further details you are referred to 'Uniform Requirements for Manuscripts submitted to Biomedical Journals' (J Am Med Assoc 1997;277:927–34) (see also Samples of Formatted References).

Reference links
Increased discoverability of research and high quality peer review are ensured by online links to the sources cited. In order to allow us to create links to abstracting and indexing services, such as Scopus, CrossRef and PubMed, please ensure that data provided in the references are correct. Please note that incorrect surnames, journal/book titles, publication year and pagination may prevent link creation. When copying references, please be careful as they may already contain errors. Use of the DOI is highly encouraged.

A DOI is guaranteed never to change, so you can use it as a permanent link to any electronic article. An example of a citation using DOI for an article not yet in an issue is: VanDecar J.C., Russo R.M., James D.E., Ambeh W.B., Franke M. (2003). Aseismic continuation of the Lesser Antilles slab beneath northeastern Venezuela. Journal of Geophysical Research, https://doi.org/10.1029/2001JB000884. Please note the format of such citations should be in the same style as all other references in the paper.

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.

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. Using citation 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 from different reference management software.

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

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.

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.

**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 material**

Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

**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. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. 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 in Brief**
You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for *Data in Brief* as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to *Data in Brief* where it will be editorially reviewed and published in the open access data journal, *Data in Brief*. Please note an open access fee of 600 USD is payable for publication in *Data in Brief*. Full details can be found on the *Data in Brief* website. Please use this template to write your Data in Brief.

**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.

**Revised Manuscripts**
Please provide a separate file that clearly addresses the reviewers concerns. Authors should use a red colored font to mark any changes to the text in the revised manuscript. Once a revised manuscript is accepted for publication, a proof is prepared and submitted for final review to the corresponding author. Subsequently, the corrected proof will be published in *JNB* online as an 'article-in-press' available for immediate citation. The authors are solely responsible for the accuracy of their articles. Once a manuscript is selected for inclusion in an issue, the article will be updated with volume, issue, and page information.

**Scientific Correspondence**
Letters to the Editor will be considered for publication at the discretion of the editor. Submission of a letter constitutes permission for publication. Letters are subject to editing and abridgement.

**AFTER ACCEPTANCE**

**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 Author Services. 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.

**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.

© Copyright 2018 Elsevier | https://www.elsevier.com