DESCRIPTION

*BBA General Subjects* accepts for submission either original, hypothesis-driven studies or reviews covering subjects in *biochemistry* and *biophysics* that are considered to have general interest for a wide audience. Manuscripts with *interdisciplinary* approaches are especially encouraged. Preferred topics are:

**biomedicine:** fundamental and emerging topics in biochemistry/biophysics with potential medical implications  
**nanobiology/nanotechnology:** nanoparticles, nanotoxicology, nanomedicine, (descriptive studies without biochemical mechanistic evidence and insights are discouraged)  
**omics:** genomics, proteomics, lipidomics, glycomics, bioinformatics experimentally addressing a defined biological question  
**chemical biology:** chemical compounds, drug mechanisms, synthesis of novel compounds, click chemistry  
**structural biology:** crystallography, NMR, multimeric proteins, protein dynamics, nucleic acids  
**novel complexes:** nucleic acids, pure natural compounds, synthetic compounds, protein complexes, nucleic acid derivatives  
**cellular signaling:** receptor signaling, protein phosphorylation cascades, phosphatases, secondary messengers, transcription regulation, gene expression  
**glycobiology:** sugar metabolites and metabolism, glycosylated proteins, membrane protein, glycosylation, glycomics  
**redox biology:** redox switches, glutathione and thioredoxin systems, oxygen and nitrogen radical species, superoxide, hydrogen peroxide, hydroxyl radical, nitric oxide, peroxides, hypoxia, redox regulation of transcription factors  
**neurobiology:** neuronal growth factors and nerve signaling, glial cells, autonomic and central nervous systems  
**stem cells:** differentiation, stem cell isolation and cultivation, growth factors  
**mechanistic characterization of compounds** having biochemical importance and general interest (drug leads, toxicants, nutrients, metabolites). *BBA General Subjects* does not consider studies on the biological effects of crude extracts of natural sources unless the exact active molecules are identified, singularly characterized and evaluated.

AUDIENCE

Biochemists, molecular biologists, glycobiologists, developmental biologists

IMPACT FACTOR

2017: 3.679 © Clarivate Analytics Journal Citation Reports 2018
ABSTRACTING AND INDEXING

Science Citation Index
EMBiology
Sociedad Iberoamericana de Informacion Cientifica (SIIC) Data Bases
BIOSIS
Chemical Abstracts
Current Contents/Life Sciences
EMBASE
Index Chemicus
MEDLINE®
Scopus

EDITORIAL BOARD

Executive Editors:
Lee Graves, University of North Carolina School of Medicine, Chapel Hill, North Carolina, USA
Cellular mechanisms of drug resistance in cancer: Protein phosphorylation and protein kinase-mediated signaling pathways; application of proteomics; Protein kinase inhibitors; Regulation of metabolic enzymes by phosphorylation and interacting proteins
Lennart Nilsson, Karolinska Institutet, Huddinge, Sweden
Molecular biophysics, molecular dynamics, nucleic acids
Des Richardson, The University of Sydney, Sydney, New South Wales, Australia
Cancer cell biology, anti-cancer agents, cellular signaling, metastasis suppressors, iron, thiosemicarbazones, copper, Friedreich’s ataxia
Tadashi Suzuki, RIKEN Glycometabolic Biochemistry Laboratory, Saitama, Japan
glycoproteins, Asparagine-linked glycans, metabolism, Peptide:N-glycanase, NGLY1

Scientific Editors (Elsevier, Cambridge, MA, USA):
Claudia Montefusco

Mini Reviews Editor:
Des Richardson, The University of Sydney, Sydney, New South Wales, Australia

Mini Reviews Co-Editor:
Danuta Kalinowski, The University of Sydney, Sydney, New South Wales, Australia

Editorial Board Members:
Fadi Bou-Abdallah, State University of New York (SUNY), New York, New York, USA
Bioinorganic and Physical Chemistry of Biological Processes, Metallo-Biochemistry, Iron Proteins and Complexes, Radicals in Proteins, Biominerlalization, Ligand-Protein and Protein-Portein Interactions
Nancy Dahms, Medical College of Wisconsin, Milwaukee, Wisconsin, USA
Lectins, Insulin-Like Growth Factor II Signaling, Cell Surface Receptors, Molecular Sequence Data, Tertiary Protein Structure, Lysosomes
Marco Falasca, Curtin University, Perth, Western Australia, Australia
Signal transduction, phosphoinositide signalling; PI3-kinase/PDK1 signalling pathway, cell migration and invasion, ABC transporters
Hans-Joachim Gabius, Ludwig-Maximilians-Universität München (LMU), München, Germany
Glycocojugates, Glycome, Glycosciences, Lectins, Sugar Code.
Xiao-Dong Gao, Jiangnan University, Wuxi, China
Glycobiology, glycosylation, congenital disorders of glycosylation (CDG), chemical biology, glyco-engineering
Sara Goldstein, Hebrew University of Jerusalem, Jerusalem, Israel
Pulse radiolysis, kinetics, nitroxides, peroxynitrite, NO-donors, HNO donors, hydroxamic acids, nitroscarbonyls
Raffaella Gozzelino, Universidade NOVA de Lisboa, Lisbon, Portugal
Iron metabolism, Heme, Inflammation, Infection, Neurodegenerative diseases.
Elin Gray, Edith Cowan University, Joondalup, Australia
Kimberly Hamad-Schifferli, University of Massachusetts, Boston, Massachusetts, USA
Nanomedicine; nano-biotechnology; nano-bio interfaces
Yoichiro Harada, Kagoshima University, Kagoshima, Japan
Endoplasmic reticulum, Exosomes, Extracellular vesicles, Glucose metabolism, Glycosylation, Glycan metabolism

Rong-Qiao He, Chinese Academy of Sciences (CAS), Beijing, China
tau Proteins, Xenopus, Kinetics, Atomic Force Microscopy, Protein Denaturation and Folding

Johannes Herrmann, Technische Universität Kaiserslautern, Kaiserslautern, Germany
mitochondrial biogenesis, protein targeting, redox biology, membrane biology, mitochondrial ribosomes, yeast genetics

Michelle Hill, QIMR Berghofer Medical Research Institute, Herston, Queensland, Australia
cell biology, organelle proteomics, systems biology, lipid raft, signal transduction, cancer

Michael Huang, The University of Sydney, Sydney, New South Wales, Australia
Friedreich's ataxia, Mitochondria, Iron metabolism, Neurodegeneration, Oxidative stress

Hidenori Ichijo, The University of Tokyo, Tokyo, Japan
MAP Kinase, Stress Signaling, ER Stress, Apoptosis, Neurodegeneration, Cancer

Patrick Jansson, The University of Sydney, Sydney, New South Wales, Australia
Cancer; Drug Resistance; Drug targeting; Iron metabolism; Multidrug resistance; Oxidative stress

Anders H. Johnsen, Rigshospitalet, Köbenhavn, Denmark
Neuropeptides, Post-Translational Protein Processing, Molecular Sequence Data, High Pressure Liquid Chromatography, Mass Spectrometry, Radioimmunoassay, protein chemistry

Danuta Kalinowski, The University of Sydney, Sydney, New South Wales, Australia
Drug design, medicinal chemistry, cancer, Alzheimer's disease, metallotherapeutics

Yasushi Kizuka, Gifu University, Gifu, Japan
Glycosylation, Glycobiology, Epigenetics, Alzheimer's disease, Sugar analog, Chemical biology

Antonis E. Koromilas, McGill University, Montreal, Quebec, Canada
mRNA translation, translation initiation factor eIF2, environmental stress, mTOR, protein phosphorylation, STATs, oncogenes, tumor suppressors, transgenic mice, lung cancer, breast cancer

Zaklina Kovacevic, The University of Sydney, Sydney, New South Wales, Australia
Metastasis, Epithelial to mesenchymal transition, NDRG1, EGFR signaling, Breast Cancer, Pancreatic Cancer

Sharon La Fontaine, Deakin University, Burwood, Victoria, Australia
copper, copper transport, copper P-type ATPase, copper chaperone, metal transport, metal homeostasis, iron, glutaredoxin, redox biology, Menkes disease, Wilson disease, neurodegenerative disease, distal hereditary motor neuropathy

Darius Lane, Parkville, Australia
Cell culture; Cell signaling; Chelator; Epithelial-Mesenchymal Transition; Erythropoiesis; Ferritin; Hypoxia; Iron; Iron homeostasis; Metal chelator; Metastasis; Mitochondrial Diseases; Reactive Oxygen Species, ROS

Gordan Lauc, Sveučilišta u Zagrebu, Zagreb, Croatia
Glycobiology; Glycomics; Protein glycosylation; High-throughput research; Complex genetics of glycosylation; Glycosylation and disease.

Christopher Horst Lillig, Universitätsmedizin Greifswald, Greifswald, Germany
Glutaredoxins, Oxidation-Reduction, Molecular Sequence Data, Mitochondria, Oxidative Stress, Thioredoxins

Mary Lipton, Pacific Northwest National Laboratory, Richland, Washington, USA
Proteomics, metabolomics, microbial communities, stable isotope probing, microbial ecology

Laurence Motte, Université Paris-Nord (Paris XIII), Paris, France
Inorganic nanoparticles, synthesis, surface functionalisation, nanomedicine, imaging contrast agents

Oliver Rackham, University of Western Australia, Nedlands, Western Australia, Australia
synthetic biology, RNA-binding proteins, ribosomes, protein engineering, directed evolution

Sumit Sahni, The University of Sydney, Sydney, New South Wales, Australia
Hypoxia in Cancer Progression; iron metabolism; Macrophage Biology; metal ions; Nitric Oxide Storage; Nitric Oxide transport

Tomáš Šimůnek, Charles University, Hradec Králové, Czech Republic
mitochondria, oxidative stress, topoisomerase II, anthracycline cardiotoxicity, ton metabolism

Renata Veselska, Masaryk University, Brno, Czech Republic
tumor biology, tumor markers, cancer stem cells, cytoskeleton, pediatric solid tumors

Rebecca Wade, Heidelberg Institute for Theoretical Studies (HITS), Heidelberg, Germany
Molecular modelling and simulation, structure-based drug design, bioinformatics, molecular systems biology, biomolecular recognition, protein-ligand interactions.

Yau-Huei Wei, Changhua Christian Hospital, Changhua City, Taiwan
Mitochondria, mitochondrial disorders, bioenergetics, oxidative stress, metabolic regulation, stem cell research

Christopher West, University of Georgia, Athens, Georgia, USA
Glycobiology, Ubiquitin Ligase, Cell Wall, Hypoxia, O2-Sensing, Prolyl Hydroxylation.
Hans Westerhoff, University of Amsterdam, Amsterdam, Netherlands
Biological Models, Kinetics, Systems Biology, Thermodynamics, Computer Simulation

Yoshiki Yamaguchi, RIKEN, Wako-shi, Saitama, Japan
Structural Glycobiology, NMR, Glycan Recognition, Lectin Receptors, Glycoconjugates

Yu Yu, Curtin University, Perth, Western Australia, Australia
Cancer recurrence and relapse, Anti-cancer therapeutics, Chemotherapy sensitivity/resistance, Gynaecologic oncology, Pre-clinical mouse cancer model, Predictive/treatment bio-markers

Wei Yue, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma, USA
antibiotics; cardiac glycosides, antidiabetic and anticancer agents; Drug interaction; Drug toxicity; Drug transport; drug transport proteins; drug-disease interactions; immunosuppressants; OATP; Organic anion transporting polypeptides; pharmacokinetics; RNA interference; statins

Hong Zhu, Zhejiang University, Hangzhou, Zhejiang, China
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.

BBA General Subjects accepts for submission either original, hypothesis-driven studies or reviews covering subjects in biochemistry and biophysics that are considered to have general interest for a wide audience. Manuscripts with interdisciplinary approaches are especially encouraged. Preferred topics are: 

- **biomedicine**: fundamental and emerging topics in biochemistry/biophysics with potential medical implications
- **nanobiology/nanotechnology**: nanoparticles, nanotoxicology, nanomedicine, (descriptive studies without biochemical mechanistic evidence and insights are discouraged)
- **omics**: genomics, proteomics, lipidomics, glycomics, bioinformatics addressing experimentally a defined biological question
- **chemical biology**: chemical compounds, drug mechanisms, synthesis of novel compounds, click chemistry
- **structural biology**: crystallography, NMR, multimeric proteins, protein dynamics, nucleic acids
- **cellular signaling**: receptor signaling, protein phosphorylation cascades, phosphatases, secondary messengers, transcription regulation, gene expression
- **glycobiology**: sugar metabolites and metabolism, glycosylated proteins, membrane protein, glycosylation, glycomics
- **redox biology**: redox switches, glutathione and thioredoxin systems, oxygen and nitrogen radical species, superoxide, hydrogen peroxide, hydroxyl radical, nitric oxide, peroxides, hypoxia, redox regulation of transcription factors
- **neurobiology**: neuronal growth factors and nerve signaling, glial cells, autonomic and central nervous systems
- **stem cells**: differentiation, stem cell isolation and cultivation, growth factors
- **imaging methodologies**: mechanistic characterization of compounds having biochemical importance and general interest

BBA General Subjects does not consider studies on the biological effects of crude extracts of natural sources unless the exact active molecules are identified, singularly characterized and evaluated.

Structural data
For papers describing structures of biological macromolecules, the atomic coordinates and the related experimental data (structure factor amplitudes/intensities and/or NMR restraints) must be deposited at a member site of the Worldwide Protein Data Bank (http://www.wwpdb.org): RCSB PDB (http://www.pdb.org), EMBL-EBI (http://www.ebi.ac.uk/pdbe/), PDBj (http://www.pdbj.org), or BMRB (http://www.bmrb.wisc.edu). Manuscripts must carry a statement that coordinates and structure factors (or NMR restraints) have been deposited in the Protein Data Bank. The accession number(s) must be cited in the manuscript at the end of the Materials and Methods section. Authors must agree to release the atomic coordinates and experimental data immediately upon publication.

It is increasingly common for coordinates to be deposited in the Protein Data Bank without an associated publication. Before submission to BBA, authors are expected to search the Protein Data Bank for related structures using one or more alignment programs and report the outcome. Prior deposition of related coordinates, without an associated publication, does not necessarily preclude publication in BBA. The primary criteria for publication of a structure in BBA are that it provides novel structural insights or important new functional and biological insights that are likely to be of general interest.

Types of paper
Full-length research articles, Reviews and mini-reviews

Reviews and Mini-Reviews
Reviews and Mini-Reviews are typically commissioned by the Editors. All Review Articles should be authoritative, state-of-the-art accounts of the selected research field, be of high interest, balanced and accurate. Beyond summaries of important scientific developments and ideas, authors are encouraged to identify and discuss how the field may be impacted or develop in the future, including insights that may be of significance to the scientific community. All BBA Review Articles undergo rigorous and full peer review, in the same way as regular research papers, and publication cannot be guaranteed. The number of co-authors of review articles is limited to five and each author is expected to make a substantial contribution to the writing of the manuscript.
Unsolicited reviews will be considered only in exceptional cases and should be preceded by a letter of enquiry from the prospective author, who should be a recognized expert in the field of the proposed article. Pre-submission enquiries may be sent to the Editorial Office bareviews@elsevier.com. Please be sure to specify which one of the ten BBA journals you request to consider your proposal.

Specifically, authors must provide the following in their review proposal: Both your own and any co-author(s) affiliation and full contact details An explanation of the current interest and significance to the broad readership of the journal, that is, compelling reasons why the review should be considered A 500-600 word summary which clearly outlines what will be discussed in the article, plus up to 20 key references that indicate the intended breadth of the proposed article (please note that references should include work published in the past 2-4 years) Only proposals that include this information will be considered.

Contact details for submission
Papers should be submitted using the BBA General Subjects online submission system, http://ees.elsevier.com/bbagen. For questions on the submission and reviewing process, please contact the Editorial Office at bbagen@elsevier.com.

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

Studies in humans and animals
If the work involves the use of 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. The manuscript should be in line with the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals and aim for the inclusion of representative human populations (sex, age and ethnicity) as per those recommendations. The terms sex and gender should be used correctly.

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.

All animal experiments should comply with the ARRIVE guidelines and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, EU Directive 2010/63/EU for animal experiments, or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed. The sex of animals must be indicated, and where appropriate, the influence (or association) of sex on the results of the study.

Conflict of interest
BBA General Subjects follows the ICMJE recommendations regarding conflict of interest disclosures. All authors are required to report the following information with each submission: (1) All third-party financial support for the work in the submitted manuscript. (2) All financial relationships with any entities that could be viewed as relevant to the general area of the submitted manuscript. (3) All sources of revenue with relevance to the submitted work who made payments to you, or to your institution on your behalf, in the 36 months prior to submission. (4) Any other interactions with the sponsor of outside of the submitted work should also be reported. (5) Any relevant patents or copyrights (planned, pending, or issued). (6) Any other relationships or affiliations that may be perceived by readers to have influenced, or give the appearance of potentially influencing, what you wrote in the submitted work. As a general guideline, it is usually better to disclose a relationship than not. This information will be acknowledged at publication in a Transparency Document link directly in the article. Additional information on the ICMJE recommendations can be found at: http://www.icmje.org/. The form for conflict of interest disclosure can be downloaded here: http://www.icmje.org/col_disclosure.pdf (if this link does not display properly in your browser, please right-click the link and select "Save Target As..." or "Save Link as..." from the pop-up menu).

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.

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').

Author contributions
For transparency, we encourage authors to submit an author statement file outlining their individual contributions to the paper using the relevant CRediT roles: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing. Authorship statements should be formatted with the names of authors first and CRediT role(s) following. More details and an example

Authorship
All authors should have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

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.

Elsevier journals comply with current NIH public access policy

**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.

**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 (CC BY)**
Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.
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 4050, excluding taxes.

For all articles submitted before 31-Jan-2019, there is a 33% discount off the open access publication fee so authors pay USD 2700, 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 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, which is 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.

Referees
During the submission process, you will be required to provide the names, addresses, and e-mail addresses of 4 potential referees, as well as a brief description of their expertise relevant to your manuscript. Suggested reviewers should be individuals qualified to evaluate the work you have submitted. The reviewers suggested may not be current, recent or extensive collaborators of yours, and cannot have been involved in the preparation of the manuscript. Please note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

Authors may request exclusion of certain referees if conflicts of interest are anticipated. However, no more than 3 such names should be given. Entire groups or institutions cannot be specified for exclusion.

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 article number or 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.

Please ensure your paper includes page numbers - this is an essential peer review requirement.

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.

Material and methods
Provide sufficient details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also be described.
Key resources table
To enable reproducibility of the research, we encourage authors to submit a Key Resources Table, which helps make the resources clear to readers. The Key Resources Table highlights the genetically modified organisms and strains, cell lines, reagents and other resources essential to reproduce the results presented in a paper. More information is available here https://www.elsevier.com/authors/author-resources/key-resources-table

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.

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 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. 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.

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.

Abstract
Page 2 of the typescript should be reserved for the Abstract which should have no more than 250 words. For Regular Articles, this should follow a structured format, sub-divided into subsections entitled "Background"; "Methods"; "Results"; "Conclusions" and "General Significance". Each subsection should be brief and informative, emphasizing those points that are unique to the paper. Review Articles should also contain a Structured Abstract, sub-divided into subsections entitled "Background"; "Scope of Review"; "Major Conclusions"; and "General Significance". Since summaries are increasingly used by abstracting services which will cut off after a fixed number of words, it is important not to exceed the maximum number of words and to avoid bibliographic references and non-standard abbreviations.
**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.

**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.

**Standards for Reporting Enzymology Data (STRENDA)**

This journal follows the recommendations of the STRENDA (Standards for Reporting Enzymology Data) Commission of the Beilstein-Institut for the reporting of kinetic and equilibrium binding data. Detailed guidelines can be found at (http://www.strenda.org/documents.html) or in this pdf file. All reports of kinetic and binding data must include a description of the identity of the catalytic or binding entity (enzyme, protein, nucleic acid or other molecule). This information should include the origin or source of the molecule, its purity, composition, and other characteristics such as post-translational modifications, mutations, and any modifications made to facilitate expression or purification. The assay methods and exact experimental conditions of the assay must be fully described if it is a new assay or provided as a reference to previously published work, with or without modifications. The temperature, pH and pressure (if other than atmospheric) of the assay must always be included, even if previously published. In instances where catalytic activity or binding cannot be detected, an estimate of the limit of detection based on the sensitivity and error analysis of the assay should be provided. Ambiguous terms such as "not detectable" should be avoided. A description of the software used for data analysis should be included along with calculated errors for all parameters. First-order and second-order rate constants: see pdf for full instructions.
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 \(\text{exp}\). Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

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
Image manipulation
While it is accepted that authors sometimes need to manipulate images for clarity, manipulation for purposes of deception or fraud will be seen as scientific ethical abuse and will be dealt with accordingly. For graphical images, this journal is applying the following policy: no specific feature within an image may be enhanced, obscured, moved, removed, or introduced. Adjustments of brightness, contrast, or color balance are acceptable as long as they are applied to the entire image and do not obscure or eliminate any information present in the original. Nonlinear adjustments (e.g. changes to gamma settings) must be disclosed in the figure legend.

Digital images in manuscripts nearing acceptance for publication may be scrutinized for any indication of improper manipulation. *BBA General Subjects* reserves the right to ask for original data or images and, if these are not satisfactory, we may decide not to accept the manuscript.

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) in addition to color reproduction in print. Further information on the preparation of electronic artwork.
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. 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/bba-general-subjects
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 article number or 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 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:

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 500 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.

MethodsX
You have the option of converting relevant protocols and methods into one or multiple MethodsX articles, a new kind of article that describes the details of customized research methods. Many researchers spend a significant amount of time on developing methods to fit their specific needs or setting, but often without getting credit for this part of their work. MethodsX, an open access journal, now publishes this information in order to make it searchable, peer reviewed, citable and reproducible. Authors are encouraged to submit their MethodsX article as an additional item directly alongside the revised version of their manuscript. If your research article is accepted, your methods article will automatically be transferred over to MethodsX where it will be editorially reviewed. Please note an open access fee is payable for publication in MethodsX. Full details can be found on the MethodsX website. Please use this template to prepare your MethodsX article.
**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.

**Submission checklist**

The following list will be useful during the final checking of an article prior to sending it to the journal for review. Please consult this Guide for Authors for further details of any item.

**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
- Telephone

All necessary files have been uploaded, and contain:

- Keywords
- All figure captions
- All tables (including title, description, footnotes)

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 Web)

For any further information please visit our customer support site at [https://service.elsevier.com](https://service.elsevier.com).

**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 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.

**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.