IJC Heart & Vasculature is an online-only, open-access journal dedicated to publishing original articles and reviews (also Editorials and Letters to the Editor) which report on structural and functional cardiovascular pathology, with an emphasis on imaging and disease pathophysiology.

Articles must be authentic, educational, clinically relevant, and original in their content and scientific approach.

IJC Heart & Vasculature requires the highest standards of scientific integrity in order to promote reliable, reproducible and verifiable research findings. All authors are advised to consult the Principles of Ethical Publishing in the International Journal of Cardiology before submitting a manuscript. Submission of a manuscript to this journal gives the publisher the right to publish that paper if it is accepted. Manuscripts may be edited to improve clarity and expression.

Included in the Directory of Open Access Journals (https://doaj.org/).

Contact the Publisher: k.admiraal@elsevier.com

ABSTRACTING AND INDEXING

ScienceDirect
EMBASE/Excerpta Medica
Scopus
Directory of Open Access Journals (DOAJ)

EDITORIAL BOARD

Editor-in-Chief
Dobromir Dobrev, Universitätsklinikum Essen, Essen, Germany

Managing Editor
Melania Giordano

Associate Editors
Enrico Ammirati, San Raffaele University Hospital, Milan, Italy
GUIDE FOR AUTHORS

Introduction
IJC Heart & Vasculature is a companion journal to International Journal of Cardiology

IJC Heart & Vasculature is an online-only, open-access journal dedicated to publishing original articles and reviews (also Editorials and Letters to the Editor) which report on structural and functional cardiovascular pathology, with an emphasis on imaging and disease pathophysiology. Articles must be authentic, educational, clinically relevant, and original in their content and scientific approach.

IJC Heart & Vasculature requires the highest standards of scientific integrity in order to promote reliable, reproducible and verifiable research findings. All authors are advised to consult the Principles of Ethical Publishing in the International Journal of Cardiology before submitting a manuscript. Submission of a manuscript to this journal gives the publisher the right to publish that paper if it is accepted. Manuscripts may be edited to improve clarity and expression.

Types of Manuscripts

TYPES OF MANUSCRIPT

The journal invites Original Articles, Reviews, Editorials and Letters to the Editor. Case Reports will be considered only in the form of Letters to the Editor. Please follow the instructions relevant to type of manuscript being submitted. If the article to be submitted reports a randomized trial the authors are requested to consult the CONSORT (Consolidated Standards of Reporting Trials) Statement (see web link www.consort-statement.org) for advice on specific features of the trial to report on in the manuscript.

1. ORIGINAL ARTICLES

Original Articles should report original research not previously published or being considered for publication elsewhere, meeting high standards of scientific integrity. There is no maximum word count. The standard layout is given below.

Layout Of Original Articles

Divide the manuscript into the following sections: Title page, Structured Abstract, Key words (3-6), Introduction, Methods, Results, Discussion, Acknowledgments, References. The editors will consider the use of other sections if more suitable for certain manuscripts. Type double-spaced.

The Title Page should include:

1. The title (not to exceed 25 words)

2. The full list of authors and for each author a numbered footnote. The footnote should state the author's academic affiliation and the following statement of authorship: "This author takes responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation". Any author unable to make this statement must instead state their specific contribution to the manuscript.

3. Corresponding author and contact details

4. Acknowledgement of grant support

5. Any potential conflicts of interest, including related consultancies, shareholdings and funding grants

6. A list of up to 6 keywords

The Next Page Should Include:
A Structured Abstract, of no more than 250 words. As this may be the only part of the article read by some readers it must include sufficient detail for an adequate summary of the whole manuscript. The preferred subheadings are Background, Methods, Results and Conclusions, although a merged Methods and Results subheading is also permitted if this permits more economical expression.

The Next Page should commence the main article subdivided into the following sections:

The Introduction should be brief and set out why the study has been performed along with a review of relevant previous work only where essential.

The Methods should be sufficiently detailed so that readers and reviewers can understand precisely what has been done. Standard methods can be referenced. Manuscripts reporting data obtained from research conducted in human subjects must include a statement of assurance in the Methods section of the manuscript that (1) informed consent was obtained from each patient and (2) the study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a priori approval by the institution's human research committee. Manuscripts reporting experiments using animals must include a statement giving assurance that all animals received humane care and that study protocols comply with the institution's guidelines.

A Statistical Methods Section must be included where relevant. This should include the statistical methods used with sufficient clarity for the findings to be reproduced by independent analysis of the dataset, a statement on how the data presented were selected including prospective sample size calculations, the reasons for including/excluding subjects or data points, and what steps the authors have taken, if any, to exclude intentional or unintentional bias in recruitment, measurement, data retention, analysis, reporting and comment.

The Results should be presented precisely. Keep discussion of their importance to a minimum in this section of the manuscript. Present 95% confidence intervals with p values. When describing normal distributions, denote the standard deviation explicitly, e.g. with the abbreviation SD, rather than a ± sign. When describing uncertainty of a mean, denote the standard error of the mean explicitly, e.g. with the abbreviation SEM, rather than a ± sign. It is a condition of final acceptance of manuscripts, for the purpose of scientific integrity, that for each figure, raw numerical values should be uploaded in an Online Data Supplement. These supplement files should be one or more standard spreadsheet files. Raw x and y values for all scatterplots should be given. For bar charts and histograms, underlying raw values and categories should be given. For each Kaplan-Meier survival curve, for each patient a time-to-event-or-censoring and censor status should be given. Authors may additionally optionally upload comprehensive numerical datasets of the study.

The Discussion should directly relate to the study being reported rather than a general review of the topic.

A Study limitations subsection must be included and should disclose any reasons the findings may not be applicable more broadly.

Conclusions should be limited to a brief summary and the implications of the data presented.

References

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 within ScienceDirect and to abstracting and indexing services, such as Scopus, CrossRef or 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 the link creation. When copying references, please be careful as they may already contain an error.

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. Author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume and issue/book chapter and the pagination must be present. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that incorrect or missing data will be highlighted at proof stage for the author to correct. The reference style used by this journal is Vancouver Numbered. If you do wish to format the references yourself they should be arranged according to the following examples Examples: [1]

Please note that all authors should be listed when six or less; when seven or more, list only the first three and add et al. Do not include references to personal communications, unpublished data or manuscripts either "in preparation" or "submitted for publication". If essential, such material may be incorporated into the appropriate place in the text. Recheck references in the text against reference list after your manuscript has been revised.

Tables should be typed with double spacing and each should be on a separate sheet. They should be numbered consecutively with Arabic numerals, and contain only horizontal lines. Provide a short descriptive heading above each table with footnotes and/or explanations underneath. Figures should ideally be submitted in high-resolution TIF format, or alternatively in GIF, JPEG/JPG, or EPS format. The figures should be placed in separate files, named only with the figure numbers (e.g. "Figure1.tif").

The cost of colour figures will be paid by the author.

Please ensure figures have the appropriate resolution:

- Halftones: 300 dpi
- Combinations: 500 dpi
- Colour: 300 dpi
- Colour combinations: 500 dpi.

Figures can appear in colour in the online journal at no additional cost to the author, but if the author requires the paper journal to show the figures in colour there is an additional cost to pay.

For further information on the preparation of electronic artwork, please see http://authors.elsevier.com/artwork.

Legends for Figures should be typed with double-spacing on a separate sheet.

For each and every gene accession number cited in an article, authors should type the accession number in bold, underlined text. Letters in the accession number should always be capitalised. Example: (GenBank accession nos. AI631510, AI631511, AI632198, and BF223228,) a B-cell tumor from a chronic lymphatic leukemia (GenBank accession no. BE675048,) and a T-cell lymphoma (GenBank accession no. AA361117).

2. REVIEW ARTICLES

Reviews should have an unstructured abstract of up to 250 words. Authors are encouraged to use section headings for ease of reading. They do not have an introduction, methods, results or discussion sections. Type double-spaced. For instructions on references and figures please refer to the section on original manuscripts.

3. EDITORIALS

Editorials are written on invitation but unsolicited topical commentaries of interest of maximum 1500 words will also be welcomed for consideration. Editorials should have an unstructured abstract of up to 250 words and a maximum of 12 references and 2 figures/tables. They do not have an introduction, methods, results or discussion sections. Type double-spaced. For instructions on references and figures please refer to the section on original manuscripts.

4. LETTERS TO THE EDITOR
Readers are encouraged to write about any topic that relates to cardiology: clinical, scientific, educational, social or economic and may include discussions on material previously printed in the Journal. The International Journal of Cardiology publishes Letters to the Editor as either printed pages or in the on-line correspondence section. On-line letters will have a volume/issue and e-number and will be citable and searchable via Medline. Authors will be informed at the time of acceptance as to the publication format for their letters. Case Reports will only be considered if formatted as a letter.

Letters may include up to 1000 words, 2 figures/tables and 10 references. These should have no abstract and no sub-headings. Type double-spaced. If the letter contains original research findings a short description of methods, results and conclusions is required. Letters reporting data obtained from research conducted in human subjects must include a statement of assurance that (1) informed consent was obtained from each patient and (2) the study protocol conforms to the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a priori approval by the institution’s human research committee. Letters reporting experiments using animals must include a statement giving assurance that all animals received humane care and that study protocols comply with the institution’s guidelines.

**Process of Submission**

IJC Heart & Vasculature is a fully electronic journal. All manuscripts MUST be submitted via the Internet to the following Elsevier website: [https://www.evise.com/profile/api/navigate/IJCHA](https://www.evise.com/profile/api/navigate/IJCHA).

**Author Agreement Form**

All authors and contributors must submit a form stating their role in the article. This form is available to download directly from the last screen in the submission process. IJC Heart & Vasculature requires all authors to sign this form. Articles will not be published until these are received.

**Changes to Authorship**

This policy concerns the addition, deletion, or rearrangement of author names in the authorship of accepted manuscripts:

Before the accepted manuscript is published in an online issue: Requests to add or remove an author, or to rearrange the author names, must be sent to the Journal Manager from the corresponding author of the accepted manuscript and must include:

(a) the reason the name should be added or removed, or the author names rearranged and

(b) written signed confirmation 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. Requests that are not sent by the corresponding author will be forwarded by the Journal Manager to the corresponding author, who must follow the procedure as described above.

Note that: (1) Journal Managers will inform the Journal Editors of any such requests and (2) publication of the accepted manuscript in an online issue is suspended until authorship has been agreed. After the accepted manuscript is published in an online issue: Any requests to add, delete, or rearrange author names in an article already published online must follow the same policies as noted above. If accepted, the change will be noted by the publication of a corrigendum.

**Preparation of supplementary data**

IJC Heart& Vasculature publishes electronic supplementary material to enhance your scientific research presentation, increase transparency, and support scientific integrity. It is required that raw data for figures should be presented, and the author is invited voluntarily to publish in full the detailed dataset of the study. Supplementary files may also include supporting applications, movies, animation sequences, high-resolution images, background datasets, sound clips or other helpful items. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier web products, including ScienceDirect: [http://www.sciencedirect.com](http://www.sciencedirect.com).

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

Language Editing

The language of the Journal is English.

International Science Editing and Asia Science Editing can provide English language and copyediting services to authors who want to publish in scientific, technical and medical journals and need assistance before they submit their article or, before it is accepted for publication. Authors can contact these services directly: International Science Editing (http://www.internationalscienceediting.com) and Asia Science Editing (http://www.asiascienceediting.com) or, for more information about language editing services, please visit our Support Center.

AFTER ACCEPTANCE

PROOFS will be sent to the authors to be carefully checked for printer's errors. Changes or additions to the edited manuscript cannot be allowed at this stage. Corrected proofs should be returned to the publisher within 2 days of receipt.

Online proof correction

Corresponding authors will receive an e-mail with a link to our ProofCentral 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 upload all of your corrections within 48 hours. 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. Note that Elsevier may proceed with the publication of your article if no response is received.

Page charges

Page Charges will not be levied.

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.

Human and animal rights
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; Uniform Requirements for manuscripts submitted to Biomedical journals. 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.

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 conflicts of interest 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.

Conflict of interest statements for authors
All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work. See also http://www.elsevier.com/conflictsofinterest.

IJCHV requires full disclosure of all potential conflicts of interest. Please download the disclosure from the submission site, https://www.evise.com/profile/api/navigate/IJCHA at the 'Attach Files' stage of manuscript submission

Potential Conflicts of Interest Related to Individual Authors' Commitments When authors submit a manuscript, whether an article or a letter, they are responsible for disclosing all financial and personal relationships that might bias their work. To prevent ambiguity, authors must state explicitly whether potential conflicts do or do not exist.

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 or as part of a published lecture or academic thesis or as an electronic preprint, see ‘Multiple, redundant or concurrent publication’ section of our ethics policy 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 CrossCheck.

Contributors
Each author is required to declare his or her individual contribution to the article: all authors must have materially participated in the research and/or article preparation, so roles for all authors should be described. The statement that all authors have approved the final article should be true and included in the disclosure.

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.

Clinical trial results
In line with the position of the International Committee of Medical Journal Editors, the journal will not consider results posted in the same clinical trials registry in which primary registration resides to be prior publication if the results posted are presented in the form of a brief structured (less than 500 words) abstract or table. However, divulging results in other circumstances (e.g., investors’ meetings) is discouraged and may jeopardise consideration of the manuscript. Authors should fully disclose all posting in registries of results of the same or closely related work.

Reporting clinical trials
Randomized controlled trials should be presented according to the CONSORT guidelines. At manuscript submission, authors must provide the CONSORT checklist accompanied by a flow diagram that illustrates the progress of patients through the trial, including recruitment, enrollment, randomization, withdrawal and completion, and a detailed description of the randomization procedure. The CONSORT checklist and template flow diagram are available online.

Patient consent
Studies on patients or volunteers require ethics committee approval and informed consent which should be documented in your paper. Patients have a right to privacy. Therefore identifying information, including patients' faces, names, initials, or hospital numbers, should not be included in videos, recordings, written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and you have obtained written informed consent for publication in print and electronic form from the patient (or parent, guardian or next of kin where applicable). If such consent is made subject to any conditions, Elsevier must be made aware of all such conditions. Written consents must be provided to Elsevier on request. Even where consent has been given, identifying details should be omitted if they are not essential. If identifying characteristics are altered to protect anonymity, such as in genetic pedigrees, authors should provide assurance that alterations do not
distort scientific meaning and editors should so note. If such consent has not been obtained, personal
details of patients included in any part of the paper and in any supplementary materials (including
all illustrations and videos) must be removed before submission.

Registration of clinical trials
Registration in a public trials registry is a condition for publication of clinical trials in this journal
in accordance with International Committee of Medical Journal Editors recommendations. Trials
must register at or before the onset of patient enrolment. The clinical trial registration number
should be included at the end of the abstract of the article. A clinical trial is defined as any
research study that prospectively assigns human participants or groups of humans to one or more
health-related interventions to evaluate the effects of health outcomes. Health-related interventions
include any intervention used to modify a biomedical or health-related outcome (for example drugs,
surgical procedures, devices, behavioural treatments, dietary interventions, and process-of-care
changes). Health outcomes include any biomedical or health-related measures obtained in patients or
participants, including pharmacokinetic measures and adverse events. Purely observational studies
(those in which the assignment of the medical intervention is not at the discretion of the investigator)
will not require registration.

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 an 'Exclusive License Agreement' (see
more information on this). Permitted third party reuse of 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 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 is an open access journal: all articles will be immediately and permanently free for everyone
to read and download. To provide open access, this journal has an open access fee (also known as
an article publishing charge APC) which needs to be paid by the authors or on their behalf e.g. by
their research funder or institution. 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 open access publication fee for this journal is EUR 2200, excluding taxes. Learn more about
**Elsevier Publishing Campus**

The Elsevier Publishing Campus (www.publishingcampus.com) is an online platform offering free lectures, interactive training and professional advice to support you in publishing your research. The College of Skills training offers modules on how to prepare, write and structure your article and explains how editors will look at your paper when it is submitted for publication. Use these resources, and more, to ensure that your submission will be the best that you can make it.

**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.

**Informed consent and patient details**

Studies on patients or volunteers require ethics committee approval and informed consent, which should be documented in the paper. Appropriate consents, permissions and releases must be obtained where an author wishes to include case details or other personal information or images of patients and any other individuals in an Elsevier publication. Written consents must be retained by the author and copies of the consents or evidence that such consents have been obtained must be provided to Elsevier on request. For more information, please review the Elsevier Policy on the Use of Images or Personal Information of Patients or other Individuals. Unless you have written permission from the patient (or, where applicable, the next of kin), the personal details of any patient included in any part of the article and in any supplementary materials (including all illustrations and videos) must be removed before submission.

**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/IJCHA.

**Referees**

Please submit the names and institutional e-mail addresses of several potential referees. For more details, visit our Support site. 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**
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.

Theory/calculation
A Theory section should extend, not repeat, the background to the article already dealt with in the Introduction and lay the foundation for further work. In contrast, a Calculation section represents a practical development from a theoretical basis.

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.

Abstract
A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.
Graphical abstract
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site.
Authors can make use of Elsevier's Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

Submission of Genetic Information
Every gene, DNA sequence, cell line and polymorphism/variant referred to in an article must adhere to standardized nomenclature as outlined below:

Only gene names approved by the HUGO Gene Nomenclature Committee should be used: http://www.genenames.org All DNA sequences and GenBank accession.version numbers must be included in the text of the article. Example: (GenBank: AI631510.1, GenBank: AI631511.1, GenBank: AI632198.1, and GenBank: BF223228.1), a B-cell tumour from a chronic lymphatic leukaemia (GenBank: BE675048.1), and a T-cell lymphoma (GenBank: AA361117.1). The rs number must be provided for all SNPs/variants where available incl. a description of each variant using genomic coordinates. Example: rs28942083 NC_000019.10:g.11120382G>A http://www.ncbi.nlm.nih.gov/projects/SNP/snp_ref.cgi?rs=28942083 To describe sequence variants (DNA, RNA & protein), authors should use the recommendations of the HGVS: http://www.hgvs.org/mutnomen/. Tools such as the Mutalyzer software maybe used to assist with this www.mutalyzer.nl All data on genes, variants and phenotypes should be deposited in a public repository: large rearrangements (CNVs), incl. dbVar, Decipher or LOVD gene variant databases, incl. ClinVar and LOVD (databases.http://www.lovd.nl/shared/). Available gene variant database can be identified using the url "GeneSymbol".LOVD.nl (e.g. TP53.LOVD.nl). In order to allow for the work to be reproduced by others, where not previously published, authors are encouraged to provide as supplementary material for web-publication only, the primers and PCR conditions for all variants genotyped in the manuscript.

Highlights
Highlights are a short collection of bullet points that convey the core findings of the article. Highlights are optional and should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point). You can view example Highlights on our information site.

Keywords
Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

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

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

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

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].
It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

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

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

**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.

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

Figure captions
Ensure that each illustration has a caption. 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 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 encouraged.

A DOI can be used to cite and link to electronic articles where an article is in-press and full citation details are not yet known, but the article is available online. 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.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

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

References in a special issue
Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.
Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley and Zotero, as well as EndNote. Using the word processor plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide.

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/ijc-heart-and-vasculature
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

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

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

Video
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the files in one of our recommended file formats with a preferred maximum size of 150 MB in total. Any single file should not exceed 50 MB. 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.

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 statement**

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

**AFTER ACCEPTANCE**

Proofs will be sent to the authors to be carefully checked for printer's errors. Changes or additions to the edited manuscript cannot be allowed at this stage. Corrected proofs should be returned to the publisher within 2 days of receipt.

**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 be notified and receive a link to the published version of the open access article on ScienceDirect. This link is in the form of an article DOI link which can be shared via email and social networks. 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. Authors requiring printed copies of multiple articles may use Elsevier Webshop's 'Create Your Own Book' service to collate multiple articles within a single cover.

**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 2014 Elsevier | http://www.elsevier.com