DNA Repair provides a forum for the comprehensive coverage of DNA repair and cellular responses to DNA damage. The journal publishes original observations on genetic, cellular, biochemical, structural and molecular aspects of DNA repair, mutagenesis, cell cycle regulation, apoptosis and other biological responses in cells exposed to genomic insult, as well as their relationship to human disease.

DNA Repair publishes full-length research articles, brief reports on research, and reviews. The journal welcomes articles describing databases, methods and new technologies supporting research on DNA repair and responses to DNA damage. Letters to the Editor, hot topics and classics in DNA repair, historical reflections, book reviews and meeting reports also will be considered for publication.

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

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

IMPACT FACTOR

2016: 3.610 © Thomson Reuters Journal Citation Reports 2017
ABSTRACTING AND INDEXING

BIOSIS
Chemical Abstracts
Current Contents/Life Sciences
MEDLINE®
EMBASE
PASCAL M
Reference Update
Excerpta Medica
Biological Abstracts
Elsevier BIOBASE/Current Awareness in Biological Sciences
Scopus
EMBiology

EDITORIAL BOARD

Editor
Samuel H. Wilson, Chapel Hill, NC

Editor Emeritus
E.C. Friedberg

Associate Editors
Simon Boulton, DNA Damage Response Lab., London Research Inst., Cancer Research UK, Clare Hall Laboratories, Blanche Lane, EN3 3LD, South Mimms, UK
Keith W. Caldecott, MRC Genome Damage and Stability Centre, University of Sussex, Science Park Road, BN1 9RQ, Falmer, Brighton, England, UK
Jessica A. Downs, MRC Genome Damage and Stability Centre, University of Sussex, Science Park Road, BN1 9RQ, Falmer, Brighton, England, UK
Martin Gellert, Molecular Genetics Section, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), 5 Memorial Dr., Bethesda, MD 20892-0540, USA
Philip C. Hanawalt, Dept. of Biological Sciences, Stanford University, Gilbert Hall, Stanford, CA 94305-5020, USA
Penny A. Jeggo, MRC Genome Damage and Stability Centre, University of Sussex, Science Park Road, BN1 9RQ, Falmer, Brighton, England, UK
Sue Jinks-Robertson, Dept. of Molecular Genetics and Microbiology, Medical Center,Duke University, 228 Jones Building, Box 3020, Research Drive, Durham, NC 27710, USA
Hans E. Krokan, Dept. of Molekylærbiologi, Institutt for kreftforskning og molekyler medisin (Dept. of Cancer Research and Molecular Medicine), Norwegian University of Science & Technology NTNU, Erling, Skjaalgssons gt. 1, N-7489, Trondheim, Norway
Alan R. Lehmann, MRC Genome Damage and Stability Centre, University of Sussex, Science Park Road, BN1 9RQ, Falmer, Brighton, England, UK
Guo-Min Li, Department of Biochemistry and Molecular Biology, Norris Comprehensive Cancer Center, Keck School of Medicine, University of Southern California, 1450 Biggy Street, 3506 NRT, Los Angeles, CA, 90033, USA
Jeffrey H. Miller, Dept. of Microbiology, Immunology and Molecular Genetics, UCLA Health System, 609 Charles E. Young Drive East, Los Angeles, CA 90095-1489, USA
Marco Muzi Falconi, Dipart. di Scienze Biomolecolari a Biotecnologie, Università degli Studi di Milano, Via Celoria 26, IT 20133, Milano, Italy
Rodney Rothstein, Dept. of Genetics & Development, Columbia University Medical Center, HHSC1608, 701 West 168th Street, New York, NY 10032, USA
Leona D. Samson, Center for Environmental Health Sciences (CEHS), Massachusetts Institute of Technology, Building 56-235, 77 Massachusetts Avenue, Cambridge, MA 02139, USA
Alan Tomkinson, Dept. of Radiation Oncology, Greenbaum Cancer Center, University of Maryland School of Medicine, 655 West Baltimore Street, Baltimore, MD 21201, USA
Bennett Van Houten, Program of Molecular and Cellular Cancer Biology, Hillman Cancer Center, University of Pittsburgh Cancer Institute, Research Pavilion, Suite 2.6, 5117 Centre Avenue, Pittsburgh, PA 15213, USA
Susan S. Wallace, Dept. of Microbiology & Molecular Genetics, Vermont Cancer Center,University of Vermont, Stafford Hall, 95 Carrigan Drive, Burlington, VT 05405, USA
Niels de Wind, Dept. of Toxicogenetics, Leids Universitair Medisch Centrum (LUMC), Postzone S-4-P, Postbus 9600, 2300 RC, Leiden, Netherlands
Roger Woodgate, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health (NIH), 9800 Medical Center Drive, Bethesda, MD 20892-3371, Maryland, USA
Editorial Board

Christopher J. Bakkenist, Pittsburgh, Pennsylvania, USA
Thomas J. Begley, Albany, New York, USA
Ashok S. Bhagwat, Detroit, Michigan, USA
Margherita Bignami, Roma, Italy
Luis Blanco, Madrid, Spain
Linda B. Bloom, Gainesville, Florida, USA
Daniel F. Bogenhagen, Stony Brook, New York, USA
Vilhelm Bohr, Baltimore, Maryland, USA
Serge Boiteux, Fontenay-aux-Roses cedex, France
William M. Bonner, Bethesda, MD, USA
Anne Bagg Britt, Davis, California, USA
Jaap Brouwer, Leiden, Netherlands
Antony M. Carr, Falmer, Brighton, England, UK
David J. Chen, Dallas, Texas, USA
Dipanjan Chowdhury, Boston, MA, USA
Andrew R. Collins, Oslo, Norway
Priscilla K. Cooper, Berkeley, California, USA
Richard P. Cunningham, New York, New York, USA
Alan D'Andrea, Boston, Massachusetts, USA
Sheila S. David, Davis, California, USA
Bruce Demple, Stony Brook, New York, USA
Grigory Dianov, Oxford, England, UK
Paul Doetsch, Atlanta, Georgia, USA
Eugenia Dogliotti, Rome, Italy
Bevin P. Engelward, Cambridge, Massachusetts, USA
Paula L. Fischhaber, Northridge, California, USA
Richard Fishel, Columbus, Ohio, USA
Robert P. Fuchs, Marseille cedex 20, Provence-Alpes-Côte d'Azur, France
Ann Ganesan, Stanford, California, USA
Jean Gautier, New York, New York, USA
Dik C. van Gent, Rotterdam, Netherlands
Aaron Goodarzi, Calgary, Alberta, Canada
Myron F. Goodman, Los Angeles, California, USA
Norah Goosen, Leiden, Netherlands
Arthur P. Grollman, Stony Brook, New York, USA
James E. Haber, Waltham, Massachusetts, USA
Thanos D. Halazonetis, Genève 4, Switzerland
Fumio Hanaoka, Tokyo, Japan
John B. Hays, Corvallis, Oregon, USA
Ian D. Hickson, Oxford, England, UK
Jan H. Hoeijmakers, Rotterdam, Netherlands
Peggy Hsieh, Bethesda, MD, USA
Trey Ideker, La Jolla, CA, USA
Steve P. Jackson, Cambridge, England, UK
Bernd Kaina, Mainz, Germany
Roland Kanaar, Rotterdam, Netherlands
Patricia Kannouche, Villejuif, France
Peter B. Karran, Herts, England, UK
Caroline Kisker, Würzburg, Germany
Hannah Klein, New York, New York, USA
Arne Klungland, Oslo, Norway
Richard Kolodner, La Jolla, California, USA
Steve Kowalczykowski, Davis, California, USA
Thomas A. Kunkei, Research Triangle Park, North Carolina, USA
Robert S. Lahue, Galway, Ireland
Susan LeDoux, Mobile, Alabama, USA
Susan Lees-Miller, Calgary, Alberta, Canada
Michael Leffak, Dayton, Ohio, USA
Randy Legerski, Houston, Texas, USA
Michael R. Lieber, Los Angeles, California, USA
Stuart Linn, Berkeley, California, USA
Michael Lisby, Copenhagen, Denmark
R. Michael Liskay, Portland, Oregon, USA
Mats Ljungman, Ann Arbor, Michigan, USA
R. Stephen Lloyd, Portland, Oregon, USA
Lawrence A. Loeb, Seattle, Washington, USA
GUIDE FOR AUTHORS

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

INTRODUCTION
DNA Repair provides a forum for the comprehensive coverage of DNA repair and cellular responses to DNA damage. The journal publishes original observations on genetic, cellular, biochemical, structural and molecular aspects of DNA repair, mutagenesis, cell cycle regulation, apoptosis and other biological responses in cells exposed to genomic insult, as well as their relationship to human disease.

Please note the new 'Graphical abstract' and 'Research highlights' features under the 'PREPARATION' section of the DNA Repair Guide for Authors.

Types of Paper
DNA Repair publishes full-length research articles, brief reports on research, and reviews. The journal welcomes articles describing databases, methods and new technologies supporting research on DNA repair and responses to DNA damage. Letters to the Editor, hot topics and classics in DNA repair, historical reflections, book reviews and meeting reports also will be considered for publication.

Paper Requirements:
All articles should be prepared as outlined in this Guide - with the exception of the following:

Brief Communication: No more than 3000 words (excluding references) - no more than 3 supplementary figures and/or tables can be included in a manuscript.

Book Review

Correspondence to the Editor

Historical Reflections

Meeting Report

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.

Conflict of Interest
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.

DNA Repair requires full disclosure of all potential conflicts of interest. At the end of the manuscript text (and in the cover letter of the manuscript), under a subheading "Conflict of Interest statement", all authors must disclose any financial and personal relationships with other people or organisations that could inappropriately influence (bias) their work. If there are no conflicts of interest, the authors should state, "The authors declare that there are no conflicts of interest." Signed copies of the DNA Repair Conflict of Interest policy form are required upon submission. The Conflict of Interest policy form can be downloaded here. In order to minimize delays, we strongly advise that the signed copies of these statements are prepared before you submit your manuscript. The corresponding author is responsible for sharing this document with all co-authors. Each and every co-author must sign an individual disclosure form. The corresponding author is responsible for uploading their form and those of their co-authors.

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.

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

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

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If
excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprint forms for use by authors in these cases.

For 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 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.

**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.

**Open access**
- Articles are freely available to both subscribers and the wider public with permitted reuse.
- An 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 open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

**Creative Commons Attribution (CC BY)**
Let 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, let 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 **USD 3600**, 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 green open access page for further information. Authors can also self-archive their manuscripts immediately and enable public
access from their institution’s repository after an embargo period. This is the version that has been
accepted for publication and which typically includes author-incorporated changes suggested during
submission, peer review and in editor-author communications. Embargo period: For subscription
articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers
before an article becomes freely available to the public. This is the embargo period and it begins from
the date the article is formally published online in its final and fully citable form. Find out more.
This journal has an embargo period of 12 months.

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.

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.

Referees
Please submit, with the manuscript, the names, addresses and e-mail addresses of 3-6 potential
referees. Note that the editor retains the sole right to decide whether or not the suggested reviewers
are used.

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 lay-
out that can be used by referees to evaluate your manuscript. It should contain high enough quality
figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at
the initial submission. Please note that individual figure files larger than 10 MB must be uploaded
separately.

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

Formatting requirements
There are no strict formatting requirements but all manuscripts must contain the essential elements
needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and
Methods, Results, Conclusions, Artwork and Tables with Captions.
If your article includes any Videos and/or other Supplementary material, this should be included in
your initial submission for peer review purposes.
Divide the article into clearly defined sections.
**Figures and tables embedded in text**
Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

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

**REVISED SUBMISSIONS**

**Use of word processing software**
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.
To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

**Article structure**

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

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

**Material and methods**
Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

**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. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lowercase superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.
• **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. **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. Abstract should not exceed **300** words.

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

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

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

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

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

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

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

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

If no funding has been provided for the research, please include the following sentence:
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Nomenclature**
Authors are requested to adopt the nomenclature system for human gene mutations recommended by the HUGO MDI Nomenclature Working Group. Guidelines for this system can be found at [http://journals.wiley.com/1059-7794/nomenclature.html](http://journals.wiley.com/1059-7794/nomenclature.html).

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

**Artwork**

**Electronic artwork**

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

A detailed [guide on electronic artwork](http://www.elsevier.com/artworkinstructions) 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 JPEG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
- TIFF (or JPEG): Bitmapped line drawings: use a minimum of 1000 dpi.
- TIFF (or JPEG): 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 on the Web (e.g., ScienceDirect and other sites) and in the printed version (unless you specify otherwise). Please indicate your preference for color: in print and on the Web, or on the Web only. For further information on the preparation of electronic artwork, please see [http://www.elsevier.com/artworkinstructions](http://www.elsevier.com/artworkinstructions).

Please note: Because of technical complications which can arise by converting color figures to 'gray scale' (for the printed version should you not opt for color in print) please submit in addition usable black and white versions of all the color illustrations.

**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.

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

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 data
Elsevier accepts electronic supplementary material to support and enhance your scientific research. Supplementary files offer the author additional possibilities to publish supporting applications, high-resolution images, background datasets, sound clips and more. Supplementary files supplied will be published online alongside the electronic version of your article in Elsevier Web products, including ScienceDirect: http://www.sciencedirect.com. In order to ensure that your submitted material is directly usable, please provide the data in one of our recommended file formats. Authors should submit the material in electronic format together with the article and supply a concise and descriptive caption for each file. For more detailed instructions please visit our artwork instruction pages at http://www.elsevier.com/artworkinstructions.

This policy notwithstanding, the journal prefers that information provided in manuscripts be largely if not exclusively confined to the main body of the article. If deemed necessary, Supplementary Material must therefore be limited and will be at the discretion of the Editor-in-Chief and Associate Editors.

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 250 USD is payable for publication in Data in Brief. This fee applies to articles submitted before 31 December 2017. 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.

ARTICLE ENRICHMENTS

AudioSlides
The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.
**Interactive Phylogenetic Trees**
You can enrich your online articles by providing phylogenetic tree data files (optional) in Newick or NeXML format, which will be visualized using the interactive tree viewer embedded within the online article. Using the viewer it will be possible to zoom into certain tree areas, change the tree layout, search within the tree, and collapse/expand tree nodes and branches. Submitted tree files will also be available for downloading from your online article on ScienceDirect. Each tree must be contained in an individual data file before being uploaded separately to the online submission system, via the 'phylogenetic tree data' submission category. Newick files must have the extension .new or .nwk (note that a semicolon is needed to end the tree). Please do not enclose comments in Newick files and also delete any artificial line breaks within the tree data because these will stop the tree from showing. For NeXML, the file extension should be .xml. Please do not enclose comments in the file. Tree data submitted with other file extensions will not be processed. Please make sure that you validate your Newick/NeXML files prior to submission. More information.

**Interactive MATLAB Figure Viewer**
This journal features the Interactive MATLAB Figure Viewer, allowing you to display figures created in MATLAB in the .FIG format in an interactive viewer next to the article. More information and submission instructions.

**3D molecular models**
You can enrich your online articles by providing 3D molecular models (optional) in PDB, PSE or MOL/MOL2 format, which will be visualized using the interactive viewer embedded within the article. Using the viewer, it will be possible to zoom into the model, rotate and pan the model, and change display settings. Submitted models will also be available for downloading from your online article on ScienceDirect. Each molecular model will have to be uploaded to the online submission system separately, via the '3D molecular models' submission category. More information.

**Interactive plots**
This journal enables you to show an Interactive Plot with your article by simply submitting a data file. Full instructions.

**Interactive Network Viewer**
This journal enables you to enrich your online article by including interactive network diagrams created with the latest version of Cytoscape. Each network should be exported from Cytoscape as a ZIP file containing a pair of network (.cyjs) and visual style (.json) files, which is most easily done using the green "SD" button. The recommended maximum file size of a dataset is 150 MB or less. Once the article is accepted, your ZIP datasets will appear as supplementary material on ScienceDirect and will be visualized inside the Cytoscape application which is displayed alongside your article. Readers will then be able to interactively explore your networks while reading the article. Please note that you must use the latest available version of Cytoscape. More information.

**Additional Information**
In papers mentioning chemicals, authors are requested to include CAS registry numbers.

**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 open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

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

© Copyright 2014 Elsevier | http://www.elsevier.com