

ABOUT NATURE METHODS

Aims and scope of the journal

Nature Methods is a forum for the publication of novel methods and significant improvements to tried-and tested techniques in the life sciences and related areas of chemistry. This monthly publication is aimed at a broad, interdisciplinary audience of academic and industry researchers actively involved in laboratory practice. It provides them with new tools to conduct their research and places a strong emphasis on the immediate practical relevance of the work presented.

The journal publishes primary research papers as well as overviews of recent technical and methodological developments. We are actively seeking primary methods papers of relevance to the biological and biomedical sciences, including methods grounded in chemistry that have a practical application to the study of biological problems.

To enhance the practical relevance of each paper, description of the method must be accompanied by its validation, its application to an important biological question and results illustrating its performance in comparison to available approaches. Articles are selected for publication that present broad interest, thorough assessments of methodological performance and comprehensive technical descriptions that facilitate immediate application.

Specific areas of interest include, but are not limited to:

- Methods for DNA cloning, amplification and sequencing
- Methods for protein engineering, expression and purification
- Methods for proteomics, including separations, chromatography, mass spectrometry, analysis of binding interactions, microarray-based technologies, display techniques, analysis of post-translational modifications, glycobiology and metabolomics
- Methods for systems biology, including proteomics approaches, protein interaction analysis methods and genome wide expression and regulation profiling
- Biomolecular structural analysis technologies, including NMR and crystallography
- Chemical biology techniques, including chemical labeling, methods for expanding the genetic code and directed evolution
- Biophysical methods, including single molecule and lab-on-a-chip technologies
- Imaging technologies, including labeling methods and reporters, microscopy, optical spectroscopy and *in vivo* imaging techniques
- Techniques for the analysis and manipulation of gene expression, including epigenetics, gene targeting, transduction, RNA interference and microarray-based technologies
- Methods for cell culture and manipulation, including stem cells, single cell methods and lab-on-a-chip technologies
- Immunological techniques, including production of antibodies, antibody-based assays and immunolabeling
- Methods for the study of physiology and disease processes including cancer
- Methods involving model organisms and their manipulation

Editorial process

The overview of the journal's [manuscript decision process](#) includes submission, editorial decision on whether the paper should be reviewed, peer review, decisions after review, revision, acceptance in principle, final submission and acceptance, proofs, advance online publication and print publication. Before submitting a paper, authors should consult our [editorial policies](#) as well as [technical tips](#) for using our online submission system.

Please also consult our general guide for [manuscript preparation and submission](#), which includes information on article formats, journal style and figure preparation tips. Note that procedures for initial submission, revision and final submission are slightly different, so please consult the directions before proceeding to the [online submission system](#). Presubmission inquiries are not a prerequisite for the regular submission process, but are intended as a mechanism for authors to receive rapid feedback on whether a manuscript in preparation is likely to be of interest to the journal. We encourage authors who have already prepared their manuscripts to bypass the presubmission inquiry process and upload their papers as a regular submission to the journal.

Journals in the Nature family no longer take copyright on the primary research articles we publish. Instead we ask authors to sign a [license](#) for us to publish their work. US government employees sign a different [license](#).

Editors and contact information

Like the other Nature titles, *Nature Methods* has no external editorial board. Instead, all editorial decisions are made by a team of full-time professional editors. For information on their research backgrounds and scientific interests, see [About the Editors](#). A full list of journal staff appears on the [masthead](#).

Relationship to other Nature journals

Nature Methods is editorially independent, and its editors make their own decisions, independent of the other Nature journals. If a paper is rejected from one Nature journal, the authors can use an automated manuscript transfer service to submit the paper to another Nature journal via a link sent to them by the editor handling the manuscript. Authors should note that referees' comments (including any confidential comments to the editor) and identities are transferred to the editor of the second journal along with the manuscript. In that case, the journal editors will take the previous reviews into account when making their decision, although in some cases the editors may choose to take advice from additional or alternative referees. Alternatively, authors may choose to request a fresh review, in which case they should not use the automated transfer link, and the editors will evaluate the paper without reference to the previous review process. More details are available on the [manuscript transfer service](#) and on the [relationships between Nature titles](#).

Editorial and publishing policies

Please see [authors & referees @npg](#) for detailed information about author and referee services and publication policies at the Nature family of journals. These journals, including *Nature Methods*, share a number of common policies including the following:

- [Author responsibilities](#)
- [License agreement and author copyright](#)
- [Embargo policy and press releases](#)
- [Use of experimental animals and human subjects](#)
- [Competing financial interests](#)
- [Availability of materials and data](#)
- [Digital image integrity and standards](#)
- [Security concerns](#)
- [Refutations, complaints and corrections](#)
- [Duplicate publication](#)
- [Confidentiality and pre-publicity](#)
- [Plagiarism and fabrication](#)

Impact Factor

The 2008 impact factor for *Nature Methods* is 13.651, according to the Thomson Reuters Journal Citation Reports.

The 2008 impact factor represents the number of citations in 2008 to papers published in 2006 and 2007, divided by the total number of papers published in 2006 and 2007. A more detailed explanation of impact factors appears on the [Thomson Reuters](#) web site.

Editorial blogs

We encourage community participation in all Nature journal blogs. [Methagora](#) is *Nature Methods*' blog. [Nautilus](#) is a blog for authors and aspiring authors of Nature Publishing Group journals. [Peer-to-Peer](#) is a blog for reviewers and is about peer review. Other Nature Publishing Group blogs can be found on the [blog index page](#).

Abbreviation

The correct abbreviation for abstracting and indexing purposes is *Nat. Methods*.

ISSN and EISSN

The international standard serial number (ISSN) for *Nature Methods* is 1548-7091, and the electronic international standard serial number (EISSN) is 1548-7105.

Further editorial information

Please see the following editorials for more information on various aspects of journal policy.

[Why did we launch *Nature Methods*?](#)

[Nature Methods and the interface between biology and chemistry.](#)

[Purpose of the Correspondence section.](#)

[Results of first readers' survey.](#)

[What constitutes pre-publication and how to avoid it.](#)

[Guidelines for images used in publications.](#)

[How *Nature Methods* peer reviews papers.](#)

[Relationship between *Nature Methods* and *Nature Protocols*.](#)

[The importance of declaring conflicts of financial interest.](#)

[Availability of custom-designed software used in publications.](#)

[Introducing the online Methods section at *Nature Methods*.](#)

ARTICLE TYPES IN NATURE METHODS

Primary research formats

An **Article** is a technical report of primary research data on a new technique that is likely to be influential. This format is not a review of technology, but its primary report in the literature. Articles include a detailed description of the method, including all the technical details necessary to its reproducibility, and the results of a validation study. In order to guarantee immediate practical relevance, Articles must show an application of the new method to an important biological question and demonstrate its advantage over existing approaches. Validation of the new method and demonstration of its superiority over existing techniques most often involve novel biologically relevant data. However since the focus is on the technology, providing significant new insight into a biological problem is not a requirement.

Articles begin with an unreferenced abstract (typically 150 words) and are divided into separate sections for Introduction, Results, Discussion and Methods. Introduction and Discussion are brief and focused, the Results section usually contains a general description of the method followed by its validation, and the Methods section provides all technical details necessary for the independent reproduction of the methodology, without referring to a chain of bibliographical references. The main text (excluding abstract, Methods, references and figure legends) is 2,500 – 3500 words. Articles have no more than 6 display items (figures and tables). The Results and Methods should be divided by topical subheadings; the Discussion may contain subheadings at the editors' discretion. If statistical testing was used to analyze the data, the Methods section must contain a subsection on statistical analysis. References are typically no more than 30.

Articles include received/accepted dates. They may be accompanied by supplementary information. Articles are peer reviewed, and authors must provide a [competing financial interests](#) statement before publication.

A **Brief Communication** is a more concise format used typically to report a significant improvement to a tried-and-tested method, its modification and adaptation to an important original application, or an important new tool or resource of broad interest for the scientific community. This format typically does not exceed 3 printed pages. Brief Communications begin with a brief unreferenced abstract (3 sentences, no more than 70 words), which will appear on Medline. The title is limited to 10 words (or 90 characters). The main text is typically 1,000–1,500 words, including the abstract and contains no headings with the exception of a single heading for Methods to point readers to the online Methods section. Brief Communications normally have no more than 2 display items, although this may be flexible at the discretion of the editor, provided the page limit is observed. References are limited to 15. Article titles are omitted from the reference list.

Brief Communications include received/accepted dates. They may be accompanied by supplementary information. Brief Communications are peer reviewed, and authors must provide a [competing financial interests](#) statement before publication.

An **Analysis** article reports comprehensive comparative analyses of technologies, methods or reagents of key importance for a field of research, leading to important practical conclusions about their performances. Analysis articles may also report new analysis of existing large datasets that lead to a novel, exciting or arresting conclusion. The main text (excluding abstract, Methods, references and figure legends) is approximately 3,000 words. The abstract is typically 100–150 words, unreferenced. Analyses have no more than 6 display items (figures and/or tables). An introduction (without heading) is followed by sections headed Results, Discussion and Methods. The Results and Methods should be divided by topical subheadings; the Discussion does not contain subheadings. If statistical testing was used to analyze the data, the Methods section must contain a subsection on statistical analysis. References are limited to 50.

Analyses include received/accepted dates. They may be accompanied by supplementary information. Analyses are peer reviewed, and authors must provide a [competing financial interests](#) statement before publication.

A **Resource** presents a large data set (such as a comprehensive list of proteins in an organelle or tissue, a genome-wide antibody library, coordinated analysis of cells or reagents by several different laboratories) of broad utility, interest and significance to the community. The main text (excluding abstract, Methods, references and figure legends) is approximately 3,000 words. The abstract is typically 100–150 words, unreferenced. Resources have no more than 6 display items (figures and/or tables). An introduction (without heading) is followed by sections headed Results, Discussion and Methods. The Results and Methods should be divided by topical subheadings; the Discussion does not contain subheadings. If statistical testing was used to analyze the data, the Methods section must contain a subsection on statistical analysis. References are limited to 50.

Resources include received/accepted dates. They may be accompanied by supplementary information. Resources are peer reviewed, and authors must provide a [competing financial interests](#) statement before publication.

Other Formats

Correspondence is a flexible format providing readers with the opportunity to comment on papers published in a previous issue of the journal, to present resources of broad interest to *Nature Methods* readership (such as databases) or to describe a further methodological development to a method previously published in *Nature Methods*. A Correspondence may describe primary research data, but is not intended for full presentation of data. Correspondence should never be more than one printed page and one figure. The total length is typically 250–450 words. The number of references should not exceed 6 for either the Correspondence or its Reply, and article titles are omitted from the reference list. Titles for correspondence are supplied by the editors.

In cases where a correspondence is critical of a previous research paper, the authors are normally given the option of publishing a brief reply. Criticism of opinions or other secondary matter does not involve an automatic right of reply.

Authors must submit a [competing financial interests](#) statement, which is printed only if they declare that they have competing interests. Refutations are always peer reviewed. Other types of Correspondence may be peer reviewed at the editors' discretion.

News and Views are by prior arrangement only. They may be linked to articles in *Nature Methods*, or they may focus on papers of exceptional significance that are published elsewhere. Unsolicited contributions will not normally be considered, although prospective authors are welcome to make proposals. News and Views are not peer reviewed. Authors must provide a [competing financial interests](#) statement before publication.

A **Review** is an authoritative, balanced and scholarly survey of methodological approaches to a technology or a specific aspect of a technology. These Reviews should have a strong functional component, highlight practical questions that are likely to arise for researchers undertaking the application of the technology, and provide information to guide their choices. The requirement for balance need not prevent authors from proposing a specific viewpoint, but authors must also present alternative approaches. Reviews are normally 3,000–4,000 words, and illustrations are strongly encouraged. References are limited to 100. Citations should be selective and, in the case of particularly important studies ($\leq 10\%$ of all the references), we encourage authors to provide short annotations explaining why these are key contributions. The scope of a Review should be broad enough that it is not dominated by the work of a single laboratory, and particularly not by the authors' own work.

Review authors must provide a [competing financial interests](#) statement before publication. Received/accepted dates are not included. Reviews are always peer reviewed to ensure factual accuracy, appropriate citations and scholarly balance.

Perspective is a format for scholarly reviews and discussions of the primary research literature that do not meet the criteria for a Review—either because the scope is too narrow, or because the author is advocating a controversial position or a speculative hypothesis or discussing work primarily from one group. Perspectives can also accommodate two side-by-side reviews advocating opposite sides of a research controversy. The text should not normally exceed 3,000 words and may be much shorter. References are limited to 50.

The related format **Historical Perspective** is a more technical account of a particular scientific development. Like other Perspectives, and in contrast to Historical Commentary, Historical Perspectives are scholarly reviews, including citation of key references, aiming to present a balanced account of the historical events, not merely personal opinions or reminiscences.

Perspective authors must provide a [competing financial interests](#) statement before publication. Received/accepted dates are not included. Perspectives are always peer reviewed.

Commentary is a very flexible format; Commentaries may be on policy, science and society or purely scientific issues. The main criteria are that they should be of immediate interest to a broad readership and should be written in an accessible, non-technical style. Their length is typically 1–4 pages, although some may be longer. Because the content is variable, the format is also flexible. Commentaries do not normally contain primary research data, although they may present 'sociological' data (funding trends, demographics, bibliographic data, etc.). References are limited to 25, and article titles are omitted from the reference list.

The related format **Historical Commentary** is a journalistic treatment of the history of a particular discovery or technical development. These pieces may be a personal account by one of the participants or may present strong personal opinions. This format does not necessarily seek scholarly balance, and it should be journalistic and accessible rather than scholarly in style.

Commentary authors must provide a [competing financial interests](#) statement before publication. Commentaries may be peer reviewed at the editors' discretion.

Application Notes are advertorials which allow product manufacturers to present interesting new products or innovative applications of a laboratory technology. Application Notes are not peer-reviewed and are marked as an advertisement. Authors of Application Notes must be members of the manufacturer's organization. If independent researchers contribute data, a signed letter of permission must accompany the submission.

Application Notes are published at the editor's discretion. Product manufacturers interested in contributing an Application Note should visit the Application Note section of [Nature Methods](#) website or contact their advertising representative.

HOW TO SUBMIT

Online submission

We strongly prefer to receive manuscripts via our [online submission system](#). Using this system, authors can upload manuscript files (text, figures and supplementary information, including video) directly to our office and check on the status of their manuscripts during the review process. In addition, reviewers can access the manuscript (in a highly secure fashion that maintains referee anonymity) over a direct internet link, which speeds the review process. Please consult our [technical information](#) on file formats and tips for using the system effectively. Revisions, including manuscripts submitted after a [presubmission inquiry](#), should be uploaded via the link provided in the editor's decision letter. Please do not submit revisions as new manuscripts. Application Notes should be submitted by e-mail to methods@natureny.com.

Submission policies

Submission to *Nature Methods* is taken to imply that there is no significant overlap between the submitted manuscript and any other papers from the same authors under consideration or in press elsewhere. (Abstracts or unrefereed web preprints do not compromise novelty.) The authors must include copies of all related manuscripts with any overlap in authorship that are under consideration or in press elsewhere. If a related manuscript is submitted elsewhere while the manuscript is under consideration at *Nature Methods*, a copy of the related manuscript should be sent to the editor.

The primary affiliation for each author should be the institution where the majority of their work was done. If an author has subsequently moved, the current address may also be stated.

If the manuscript includes personal communications, please provide a written statement of permission from any person who is quoted. E-mail permission messages are acceptable.

For bioinformatics manuscripts, please send four copies of a CD containing any new algorithms for data analysis along with other resources necessary to use the algorithm, such as the user manual or spreadsheets. The CDs should be mailed to *Nature Methods*, 75 Varick Street, 9th Floor, New York, NY 10013-1917, USA.

For further information on the review process and how editors make decisions, please see the [manuscript decisions](#) page.

A high priority of *Nature Methods* is that all papers be accessible to nonspecialists. Manuscripts are subject to substantial editing to achieve this goal. After acceptance, a copy editor may make further changes so that the text and figures are readable and clear to those outside the field, and so that papers conform to our style. Contributors are sent proofs and are welcome to discuss proposed changes with the editors, but *Nature Methods* reserves the right to make the final decision about matters of style and the size of figures.

The editors also reserve the right to reject a paper even after it has been accepted if it becomes apparent that there are serious problems with the scientific content or with violations of our publishing policies.

Additional editorial policies can be found on the Nature journals [joint policies page](#). This page includes information on manuscripts reviewed at other Nature journals, competing financial interests declarations, pre-publication publicity, deposition of data as a condition of publication, availability of data and reagents after publication, human and animal subjects, digital image integrity, biosecurity, refutations, complaints and correction of mistakes in the journal, duplicate publication, confidentiality and plagiarism.

Costs

There is a charge of \$525 for the first color figure and \$262.50 for each additional color figure. Otherwise, there are no submission fees or page charges.

Advance online publication

Nature Methods provides Advance Online Publication (AOP) of research articles, which benefits authors with an earlier publication date and allows our readers access to accepted papers several weeks before they appear in print. Note that papers published online are definitive and may be altered only through the publication of a print corrigendum or erratum, so authors should make every effort to ensure that the page proofs are correct. All AOP articles are given a unique digital object identifier (DOI) number, which can be used to cite the paper before print publication. For details, please see [About advance online publication](#).

Covers and other artwork

Authors of accepted papers are encouraged to submit images for consideration as a cover. Cover images are not necessarily linked to a specific paper in that issue, and we may also be able to use other images elsewhere in the journal, such as on the

table of contents. Illustrations are selected for their scientific interest and aesthetic appeal. Please send prints or electronic files (rather than slides) in the first instance. Please also include a clear and concise legend explaining the image.

Preparing the manuscript

Nature Methods is read by scientists from diverse backgrounds. In addition, many are not native English speakers. Authors should therefore give careful thought to how their findings may be communicated clearly. Although a shared basic knowledge of biology and chemistry may be assumed, please bear in mind that the language and concepts that are standard in one subfield may be unfamiliar to nonspecialists. Thus, technical jargon should be avoided as far as possible and clearly explained where its use is unavoidable. Abbreviations, particularly those that are not standard, should also be kept to a minimum. The background, rationale and main conclusions of the study should be clearly explained. Titles and abstracts in particular should be written in language that will be readily intelligible to any scientist. We strongly recommend that authors ask a colleague with different expertise to review the manuscript before submission, in order to identify concepts and terminology that may present difficulties to nonspecialist readers.

The [content types](#) page describes the types of contributions that may be submitted to the journal, along with their length and figure limits. The journal's format requirements are described below.

Manuscripts reporting new structures should contain a table summarizing structural and refinement statistics. Templates for such tables describing [NMR](#) and [X-ray crystallography](#) data are available on our website. To facilitate assessment of the quality of the structural data, a stereo image of a portion of the electron density map (for crystallography papers) or of the superimposed lowest energy structures (>10; for NMR papers) should be provided with the submitted manuscript. If the reported structure represents a novel overall fold, a stereo image of the entire structure (as a backbone trace) should also be provided.

Please use American English spelling throughout.

At this time, we are not able to accept manuscripts in Word 2007 format.

Acknowledgments should be brief, and should not include thanks to anonymous referees and editors, or effusive comments. Grant or contribution numbers may be acknowledged. *Nature Methods* requires an Author Contribution statement as described in the [Authorship](#) section of our joint [Editorial policies](#).

The Methods section of original research articles will appear online only. Print readers will be directed to the online version of the paper for detailed methods and associated references. Please provide a Methods section with subsections detailing all the methods used in the paper. Exceptions to this are chemical synthesis descriptions, equation-heavy sections or methods used to acquire data that only appears as supplementary information. These exceptions should be presented in supplementary information. The Methods section should be no longer than 20,000 characters including spaces for Articles, Analyses or Resources or 16,000 characters including spaces for Brief Communications and should be placed at the very end of the manuscript, after the Acknowledgments, Author Contributions, figure legends and tables, but before the references.

A single list of references should be provided, with any new citations that appear in the Methods section numbered consecutively beginning after the last reference cited in the main text, figure legends and tables. The combined reference number in the main text, figure legends, tables and online Methods should not exceed 30 for Brief Communications, 50 for Articles or 70 for Analyses or Resources.

References are numbered sequentially as they appear in the text, figure legends, tables and online Methods. Only one publication is given for each number, and footnotes are not used. Only papers that have been published or accepted by a named publication should be in the numbered list; meeting abstracts that are not published and papers in preparation should be mentioned in the text with a list of authors (or initials if any of the authors are co-authors of the present contribution). URLs for web sites should be cited parenthetically in the text, not in the reference list. Grant details and acknowledgments are not permitted as numbered references.

All authors should be included in reference lists unless there are more than five, in which case only the first author should be given, followed by *et al.*. Authors should be listed last name first, followed by a comma and initials of given names. Titles of cited articles are required for Articles, Perspectives and Reviews, but not for Commentaries, Brief Communications, Correspondence or News and Views. Titles of articles should be in Roman text and titles of books in italics; the first word of the title is capitalized, the title written exactly as it appears in the work cited, ending with a period. Journal names are italicized and abbreviated (with periods) according to common usage; refer to [Index Medicus](#) for details. Volume numbers appear in bold. For book citations, the publisher and city of publication are required (e.g., John Wiley & Sons, Hoboken, New Jersey, USA, 2003).

Figure legends for Articles begin with a brief title for the whole figure and continue with a short description of each panel and the symbols used; focusing on describing what is shown in the figure and de-emphasizing methodological details. Each legend should total no more than 250 words. Brief Communications have short figure legends (generally less than 100 words), which may include details of methods.

Gene nomenclature

Authors should use approved nomenclature for gene symbols, and use symbols rather than italicized full names (*Ttn*, not *titin*). Please consult the appropriate nomenclature databases for correct gene names and symbols. A useful resource is [LocusLink](#). Approved human gene symbols are provided by HUGO Gene Nomenclature Committee (HGNC), e-mail: hgnc@genenames.org; see also www.genenames.org. Approved mouse symbols are provided by The Jackson Laboratory, e-mail: nomen@informatics.jax.org; see also <http://www.informatics.jax.org/mgihome/nomen>.

For proposed gene names that are not already approved, please submit the gene symbols to the appropriate nomenclature committees as soon as possible, as these must be deposited and approved before publication of an article.

Avoid listing multiple names of genes (or proteins) separated by a slash, as in 'Oct4/Pou5f1', as this is ambiguous (it could mean a ratio, a complex, alternative names or different subunits). Use one name throughout and include the other at first mention: 'Oct4 (also known as Pou5f1)'.

Statistical guidelines

Every article that contains statistical testing should state the name of the statistical test, the n for each statistical analysis, the comparisons of interest, a justification for the use of that test (including, for example, a discussion of the normality of the data when the test is appropriate only for normal data), the alpha level for all tests, whether the tests were one-tailed or two-tailed, and the actual P value for each test (not merely "significant" or " $P < 0.05$ "). It should be clear what statistical test was used to generate every P value. In the case of Brief Communications, these details should be reported in the text or the figure captions.

Data sets should be summarized with descriptive statistics, which should include the n for each data set, a clearly labeled measure of center (such as the mean or the median), and a clearly labeled measure of variability (such as standard deviation or range). Ranges are more appropriate than standard deviations or standard errors for small data sets. Graphs should include clearly labeled error bars. Authors must state whether a number that follows the \pm sign is a standard error (s.e.m.) or a standard deviation (s.d.).

Authors must justify the use of a particular test and explain whether their data conform to the assumptions of the tests. Three errors are particularly common.

- **Multiple comparisons:** When making multiple statistical comparisons on a single data set, authors should explain how they adjusted the alpha level to avoid an inflated Type I error rate, or they should select statistical tests appropriate for multiple groups (such as ANOVA rather than a series of t -tests).
- **Normal distribution:** Many statistical tests require that the data be approximately normally distributed; when using these tests, authors should explain how they tested their data for normality. If the data do not meet the assumptions of the test, then a non-parametric alternative should be used instead.
- **Small sample size:** When the sample size is small (less than about 10), authors should use tests appropriate to small samples or justify their use of large-sample tests.

There is a [checklist](#) available to help authors minimize the chance of statistical errors.

Preparing the figures

Authors are responsible for obtaining permission to publish any figures or illustrations that are protected by copyright, including figures published elsewhere and pictures taken by professional photographers. The journal cannot publish images downloaded from the internet without appropriate permission.

Figures should be uploaded upon submission via our [online submission system](#), in one of our [preferred formats](#), if possible. Please use the smallest file size that provides sufficient resolution, preferably less than 1 MB, so that referees do not have to download extremely large files. When a paper is accepted, the editors will request high-resolution files suitable for publication.

Unnecessary figures and parts (panels) of figures and tables should be avoided: data presented in small tables or histograms, for instance, can generally be stated briefly in the text instead. Figures should not contain more than one panel unless the parts are logically connected; each panel of a multipart figure should be sized so that the whole figure can be reduced by the same amount and reproduced on the printed page at the smallest size at which essential details are visible. When a manuscript is accepted for publication, we will ask for high-resolution figure files, possibly in a different electronic format. This information will be included in the acceptance letter.

Lettering on figures should be in Helvetica or Arial; if possible, the same typeface in approximately the same font size should be used for all figures in a paper. Use symbol font for Greek letters. Figures should be on a white background, and should avoid excessive boxing, unnecessary color, spurious decorative effects (such as three-dimensional 'skyscraper' histograms) and highly pixelated computer drawings. The vertical axis of histograms should not be truncated to exaggerate small differences. Labeling must be of sufficient size and contrast to be readable after appropriate reduction. The thinnest lines in the final figure should be no smaller than one point wide. Authors will see a proof of figures. Reasonable requests to enlarge figures will be considered, but editors will make the final decision on figure size.

Figures divided into parts should be labeled with a lower-case, bold a, b and so on, in the same typesize as used elsewhere in the figure. Lettering in figures should be in lower-case type, with only the first letter of each label capitalized. Units should have a single space between the number and the unit, and follow SI nomenclature (for example, ms rather than msec) or the nomenclature common to a particular field. Thousands should be separated by commas (1,000). Unusual units or abbreviations should be spelled out in full or defined in the legend. Scale bars should be used rather than magnification factors, with the length of the bar defined in the legend rather than on the bar itself. In general, please use visual cues rather than verbal explanations, such as "open red triangles," in the legend.

Authors are encouraged to consider the needs of colorblind readers (a substantial minority of the male population) when choosing colors for figures. Many colorblind readers cannot interpret micrographs presented in green and red, for example.

Thus, we encourage authors to submit micrographs in color combinations other than green and red.

Digital figure guidelines (for accepted manuscripts only)

Please read the [digital images](#) integrity and standards policy before preparing your figures. When possible, we prefer to use original digital figures to ensure the highest quality reproduction in the journal. When creating and submitting digital files once the manuscript has been accepted, please follow the guidelines below.

Formats: For publication, we can only use TIFF, EPS or postscript (ps) files in PC or Macintosh format, preferably from PhotoShop or Illustrator software. We cannot accept Freehand, Canvas, PowerPoint, CorelDRAW or MacDrawPro files. These files must be converted to postscript (ps) format.

Resolution and figure quality: Figure files must be supplied at an appropriate resolution for print publication:

- Color, 300 d.p.i. minimum; please convert all color files into CMYK mode
- Grayscale, 600 d.p.i. minimum for blots and black & white photographs
- Line art, 1,200 d.p.i. minimum for graphs and illustrations

Figures that do not meet these standards will not reproduce well and may delay publication until we receive high-resolution images or high-quality printouts. We cannot be held responsible for assuming the cost of corrected reprints should poor quality images need to be used.

Please do not scan laser printouts of figures and send them to us as digital files. The dot pattern on a laser print often creates a moire pattern when scanned.

Please remove panel letters (a, b, c, etc.) that are directly over other features of figures, especially in photographic or modeling images, from the electronic files; we will replace them later with our own font. In such cases, please indicate in a separate electronic file where panel letters should go.

Tables: Please submit tables in Word format at the end of your text document.

Stereo images: Stereo diagrams should be presented for divergent ‘wall-eyed’ viewing, with the two panels separated by ~5.5 cm. In the final accepted version of the manuscript, the stereo images should be submitted at their final print size.

Line graphics: Recommended software packages for line graphics are Adobe Illustrator and ChemDraw (saved as .eps). Other files (such as Freehand and Corel Draw) must be converted to a postscript (.ps) format.

How to send files: Because we may have difficulties with your digital files, it is important to send them to us with the final version of your manuscript. Figures may be sent on Zip disk, CD or by FTP (see below).

FTP site: If necessary, you can use any type of FTP software to place files on our FTP site, although we prefer to receive figures through our electronic submission system if possible. Name your files with the corresponding author’s name, figure number (and letter if applicable), and file format (for example, Dr. Smith’s Figure 3 in TIFF format: Smith Fig3.tiff; Dr. Smith’s Figure 3a in EPS format, Smith Fig3a.eps). Please compress your files before uploading.

site address: ftp.nature.com

user name: Methods

password: natmeth04

Supplementary information

Authors should note that supplementary information is not copy-edited by *Nature Methods*, so they should ensure that it is clearly and succinctly presented, and that the style of terms conforms with the rest of the paper. The following guidelines detail the creation, citation and submission of supplementary information. Please note that modification of supplementary information after the paper is published requires a formal correction, so authors are encouraged to check their supplementary information carefully before submitting the final version.

Where there is supplementary information to be included exclusively in the online version of a paper published in *Nature Methods*, please follow these guidelines, or publication may be delayed.

Refer to each piece of supplementary information at least once within the text of the main article (the article that is published in the print issue of the journal), as follows:

Designate each item as Supplementary Table, Figure, Data, Discussion, Equations, Video, Video Legend, Audio, Audio Legend, Tutorial, Note or Methods. Number Supplementary Tables and Figures as, for example, “Supplementary Table 1,” and provide a title for each one (for figures, please include the number and title in the caption). This numbering should be separate from that used in tables and figures appearing in the main printed article. Supplementary Note or Methods should not be numbered; titles for these are optional.

Refer to each piece of supplementary material at the appropriate point(s) in the main article. Be sure to include the word “Supplementary” each time one is mentioned.

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MANUSCRIPT DECISIONS

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