

JOURNAL OF VIROLOGY

INSTRUCTIONS TO AUTHORS*

HOW TO SUBMIT MANUSCRIPTS

The *Journal of Virology* (JVI) will begin accepting *electronic submissions* in 2003. All electronic submissions must be made via the Rapid Review online submission and peer review system at the following URL: www.rapidreview.com/ASM2/author.html. E-mailed submissions will *not* be accepted. **Since we cannot predict the precise date when online submission will begin, please visit the above site before getting ready to submit your manuscript.** A message listing the ASM journals for which online submission has started will be posted. If the JVI site is open, follow the instructions on the screen to create a user account and submit your manuscript electronically. If online submission is not yet available for JVI, mail in your hard-copy manuscript. Once the online submission site is open, all manuscripts will follow an electronic review process (*exception*: if the original submission followed a hard-copy process, the modified manuscript will also be handled in hard copy). For a short time after JVI's submission portal is opened, manuscripts received in hard copy will be scanned by the editorial staff of the ASM Journals Department and uploaded to the Rapid Review system so that review can proceed electronically. After this transitional period, we will not handle hard copy and will contact the author to request online submission. Specific instructions for making an online submission will be provided at the above URL. **Note that some of the requirements and processes outlined in these Instructions to Authors will not apply to electronic submissions.**

For *hard-copy submissions*, send manuscripts directly to: Journals Department, American Society for Microbiology, 1752 N St., N.W., Washington, DC 20036-2904. *Since all submissions must be processed through this office, alternate routings, such as to an editor, will delay initiation of the review process.* The manuscript must be accompanied by a **cover letter** stating the following: the journal to which the manuscript is being submitted; the most appropriate section of the journal; the complete mailing address (including the street), e-mail address, and telephone and fax numbers of the corresponding author; and the former ASM manuscript number and year if it is a resubmission. The current e-mail addresses of the co-authors should also be indicated. Authors may suggest an appropriate editor for new submissions. If we are unable to comply with such a request, the corresponding author will be notified before the manuscript is assigned to another editor. **To expedite the review process, authors are encouraged to recommend at least four reviewers who are not members of their institution(s) and have never been associated with them or their laboratory(ies).** Please provide the name, mailing and e-mail

addresses, phone and fax numbers, and area of expertise for each. Note that reviewers so recommended will be used at the discretion of the editor.

Submit **three** complete hard copies of each manuscript, including figures and tables. (You **must** submit your manuscript on disk at the *modification stage* [see p. vi].) Type every portion of the manuscript **double spaced** (a minimum of 6 mm between lines), including figure legends, table footnotes, and References, and number all pages in sequence, including the abstract, figure legends, and tables. Place the last two items after the References section. The use of paper with numbered lines is recommended. It is also recommended that the following sets of characters be easily distinguishable in the manuscript: the numeral zero (0) and the letter "oh" (O); the numeral one (1), the letter "el" (l), and the letter "eye" (I); and a multiplication sign (×) and the letter "ex" (x). If such distinctions cannot be made, please mark these items at the first occurrence for cell lines, strain and genetic designations, viruses, etc., on the modified manuscript so that they may be identified properly for the printer by the copy editor. Manuscript pages must have margins of at least 1 inch on all four sides. See p. x for detailed instructions about illustrations.

Copies of in-press and submitted manuscripts that are important for judgment of the present manuscript should be included to facilitate the review. For hard-copy submissions, three copies of each such manuscript should be provided.

Authors who are unsure of proper English usage should have their manuscripts checked by someone proficient in the English language. Manuscripts may be rejected on the basis of poor English or lack of conformity to accepted standards of style.

EDITORIAL POLICY

Use of Microbiological Information

The Council Policy Committee (CPC) of the American Society for Microbiology affirms the long-standing position of the Society that microbiologists will work for the proper and beneficent application of science and will call to the attention of the public or the appropriate authorities misuses of microbiology or of information derived from microbiology. ASM members are obligated to discourage any use of microbiology contrary to the welfare of humankind, including the use of microbes as biological weapons. Bioterrorism violates the fundamental principles expressed in the Code of Ethics of the Society and is abhorrent to the ASM and its members.

ASM recognizes that there are valid concerns regarding the publication of information in scientific journals that could be put to inappropriate use as described in the

* Shading indicates material that has been added or updated.

CPC resolution above. Members of the ASM Publications Board will evaluate the rare manuscript that might raise such issues during the review process. However, as indicated elsewhere in these Instructions, research articles must contain sufficient detail, and material/information must be made available, to permit the work to be repeated by others. Supply of materials should be in accordance with laws and regulations governing the shipment, transfer, possession, and use of biological materials and must be for legitimate, bona fide research needs. Links to, and information regarding, these laws and regulations can be found at <http://www.asmta.org/pasrc/policylinks.htm>.

General Requirements

Manuscripts submitted to the journal must represent reports of original research, and the original data must be available for review by the editor if necessary.

All authors of a manuscript must have agreed to its submission and are responsible for its content, including appropriate citations and acknowledgments, and must also have agreed that the corresponding author has the authority to act on their behalf on all matters pertaining to publication of the manuscript. The corresponding author is responsible for obtaining such agreements. For Authors' Corrections and Retractions, signed letters of agreement from all of the authors must be submitted (see p. x).

By submission of a manuscript to the journal, the authors guarantee that they have the authority to publish the work and that the manuscript, or one with substantially the same content, was not published previously, is not being considered or published elsewhere, and was not rejected on scientific grounds by another ASM journal.

It is expected that the authors will provide written assurance that permission to cite unpublished data or personal communications has been granted.

By publishing in the journal, the authors agree that any plasmids, viruses, and living materials such as microbial strains and cell lines newly described in the article are available from a national collection or will be made available in a timely fashion and at reasonable cost to members of the scientific community for non-commercial purposes.

Primary Publication

A scientific paper *or its substance* published in a serial, periodical, book, conference report, symposium proceeding, or technical bulletin, posted on a nonpersonal website, or made available through any other retrievable source, including CD-ROM and other electronic forms, is unacceptable for submission to an ASM journal on grounds of prior publication.

Posting of a method/protocol on a nonpersonal website should not interfere with the author's ability to have

a manuscript utilizing that technique considered for publication in an ASM journal; however, ultimately, it is an editorial decision whether the method constitutes the substance of a paper.

Posting of a limited amount of original data on a personal/university/company website or websites of small collaborative groups working on a problem does not preclude subsequent submission to, and publication by, an ASM journal. The posted data, however, may not constitute the substance of the submission. Specific questions about this policy may be referred to the Publications Board chairman on a case-by-case basis. Posting of theses and dissertations on a personal/university-hosted website does not preclude subsequent submission to, and publication by, an ASM journal.

Posting of unpublished sequence data on the Internet is usually not considered prior publication; however, the address (URL) of the source of the sequence should be included in the text.

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It is incumbent upon the author to acknowledge any prior publication of the data contained in a manuscript submitted to an ASM journal. A copy of the relevant work should accompany the paper.

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Authorship

An author is one who made a substantial contribution to the overall design and execution of the experiments; therefore, ASM considers all authors responsible for the entire paper. Individuals who provided assistance, e.g., supplied strains or reagents or critiqued the paper, need

not be listed as authors but may be recognized in the Acknowledgments section.

All authors must agree to the order in which their names are listed in the byline. Footnotes regarding attribution of work (e.g., X. Jones and Y. Smith contributed equally to . . .) are not permitted. If necessary, such statements may be included in the Acknowledgments section.

A change in authorship (order of listing or addition or deletion of a name) after submission of the manuscript will be implemented only after receipt of signed statements of agreement from all parties involved. Disputes about authorship may delay review and/or publication of the manuscript.

Conflict of Interest

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The copyright transfer agreement asks that authors who were U.S. Government employees and who wrote the article as part of their employment duties be identified. This is because works authored solely by such U.S. Government employees are not subject to copyright protection, so there is no copyright to be transferred. The other provisions of the copyright transfer agreement, such as author representations of originality and authority to enter into the agreement, apply to U.S. Government employee-authors as well as to other authors.

ASM also requires that copyright transfer agreements be signed for cover artwork/photographs.

Use of Human Subjects or Animals in Research

The use of human subjects or other animals for research purposes is regulated by the federal government and individual institutions. Manuscripts containing information related to human or animal use should clearly state that the research has complied with all relevant federal guidelines and institutional policies. Copies of these guidelines and policy statements must be available for review by the editor if necessary.

Patient Identification

When isolates are derived from patients in clinical studies, do not identify them by using the patients' initials, even as part of a strain designation. Change the initials to numerals or use randomly chosen letters. Do not give hospital unit numbers; if a designation is needed, use only the last two digits of the unit. (Note: established designations of some viruses and cell lines, although they consist of initials, are acceptable [e.g., JC virus, BK virus, and HeLa cells].)

Nucleotide and Amino Acid Sequences

It is expected that newly determined nucleotide and/or amino acid sequence data will be deposited and GenBank/EMBL/DDBJ accession numbers will be included in the manuscript no later than the modification stage of the review process. It is also expected that the sequence data will be released to the public no later than the publication date of the article. The accession number

should be included in a separate paragraph at the end of the Materials and Methods section for full-length papers or at the end of the text for Notes. If conclusions in a manuscript are based on the analysis of sequences and a GenBank/EMBL/DDBJ accession number is not provided at the time of the review, authors may be required to provide the sequence data as a file on a floppy disk.

It is expected that when previously published sequence accession numbers are cited in a manuscript, the original citations (e.g., journal articles) will be included in the References section when possible or reasonable.

Authors are also expected to do elementary searches and comparisons of nucleotide and amino acid sequences against the sequences in standard databases (e.g., GenBank) immediately before manuscripts are submitted and again at the proof stage.

Database address information is as follows:

DDBJ: Center for Information Biology and DNA Data Bank of Japan, National Institute of Genetics, 1111 Yata, Mishima, Shizuoka 411-8540, Japan; telephone, 81-559-81-6853; fax, 81-559-81-6849; e-mail, ddbj@ddbj.nig.ac.jp (for data submissions); URL, <http://www.ddbj.nig.ac.jp>.

EMBL: EMBL Nucleotide Sequence Submissions, European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 1SD, United Kingdom; telephone, 44-1223-494499; fax, 44-1223-494472; e-mail, datasubs@ebi.ac.uk; URL, <http://www.ebi.ac.uk>.

GenBank: National Center for Biotechnology Information, National Library of Medicine, Bldg. 38A, Rm. 8N-803, Bethesda, MD 20894; telephone, 301-496-2475; fax, 301-480-9241; e-mail, info@ncbi.nlm.nih.gov; URL, <http://www.ncbi.nlm.nih.gov>.

See p. xiii for nucleic acid sequence formatting instructions.

Structural Determinations

It is expected that coordinates for new structures of macromolecules will be deposited in the Protein Data Bank and assigned identification codes will be included in the manuscript no later than the modification stage of the review process. It is also expected that the coordinates will be released to the public no later than the publication date of the article. Authors are encouraged to send coordinates with their original submission, however, so that reviewers can examine them along with the manuscript.

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Failure to comply with the policies described above may result in a letter of reprimand, a suspension of publishing privileges in ASM journals, and/or notification of the authors' institutions.

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For a **corresponding author who is an ASM member**, page charges are currently \$73 per page for the first seven pages and \$131 per page for each page in excess of seven (subject to change without notice). To obtain the member rate, the *corresponding author* must be an ASM member and must include his member number on the reprint/page charge form.

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If the research was not supported by any of the means described above, a request to waive the charges may be sent to the Journals Department, ASM, 1752 N St., N.W., Washington, DC 20036-2904, with the submitted manuscript. This request, which should be separate from the cover letter, must indicate how the work was supported and should be accompanied by copies of the title page and Acknowledgments section.

Minireviews, Guest Commentaries, and regular Letters to the Editor are not subject to page charges. New-data Letters to the Editor *are* subject to page charges.

Scope

JVI is devoted to the timely dissemination of significant knowledge concerning the viruses of plants, fungi, protozoa, and animals. Investigators in areas of basic virology are invited to submit reports of original research that uses the approaches of biochemistry, biophysics, cell biology, epidemiology, genetics, genomics, immunology, molecular biology, morphology, proteomics, physiology, and pathogenesis and immunity. The original articles should contain experimental observations that address a hypothesis, lead to new concepts, and indicate new directions in research. Computational analyses of viruses, virus-like sequences, or viral proteins that advance the field are also appropriate. *The journal will not publish papers that simply provide a new restriction map or nucleotide sequence; identify new immunodominant peptides represent-*

ing T- or B-cell epitopes; or report the isolation or characterization of monoclonal antibodies, a viral variant, or a new strain or type. Such information or reagents must instead be used in further experimentation to test an idea or relate a clear set of novel conclusions that derive from the data.

JVI specifically encourages publications relating the viruses under study to their host cells or organisms. In recognition of this emphasis, the sections of the journal relating to viral pathogenesis and immunity and to virus-cell interactions have been specifically set aside and identified in the table of contents. The editors wish to promote the publication of research done at the cell biology-virology-organismic biology interface.

JVI also encourages the submission of manuscripts detailing studies in which viruses or viral genetic elements are used as components of vectors for the delivery of therapeutic genes into animals and plants. These original articles should contain experimental observations that lead to new concepts and understanding relevant to gene delivery, regulated expression of therapeutic genes, or viral pathogenesis. To promote publications in this area, the editors have established a section of the journal for articles relating to gene therapy.

ASM publishes a number of journals covering various aspects of microbiology. Each journal has a prescribed scope that must be considered in determining where to publish each manuscript. The following guidelines may be of assistance.

(i) JVI will consider papers that describe the use of antiviral agents in elucidating the basic biological processes of viruses and host cells. Papers dealing with other aspects of antiviral agents and chemotherapy will be considered for *Antimicrobial Agents and Chemotherapy*.

(ii) JVI normally will not consider papers dealing with bacteriophage biology. Such manuscripts are more appropriate for the *Journal of Bacteriology*. Phage papers with particular relevance to eukaryotic systems may be considered for publication in JVI if a letter justifying such consideration accompanies the manuscript upon submission. Studies involving the use of bacteriophages as a diagnostic typing system will be considered by the *Journal of Clinical Microbiology*. Those dealing with phages in relation to industrial microbiology will be considered by *Applied and Environmental Microbiology*.

(iii) Manuscripts describing new methods or improvements in media and culture conditions will not be considered by JVI unless the procedures are applied to the study of basic problems in virology or cell biology. Such manuscripts are more appropriate for *Applied and Environmental Microbiology* or the *Journal of Clinical Microbiology*. By the same token, manuscripts dealing with methods for the production of monoclonal antibodies will not be considered unless the methods have been used to address fundamental questions.

(iv) Manuscripts dealing with clinical investigations, excluding those concerned with the activities of antiviral agents, should be submitted to the *Journal of Clinical Microbiology*. Manuscripts dealing with ecology or envi-

ronmental studies are more appropriate for *Applied and Environmental Microbiology*.

Questions about these guidelines may be directed to the editor in chief of the journal being considered.

If transfer to another ASM journal is recommended by an editor, the corresponding author will be contacted.

Note that a manuscript rejected by one ASM journal on scientific grounds or on the basis of its general suitability for publication is considered rejected by all other ASM journals.

Links to Supplementary Material

Authors are encouraged to include the URLs of their websites if they contain data that might supplement those in the article itself and/or be of interest or assistance to readers. Such addresses should be included in the relevant text, not as footnotes.

Editorial Style

The editorial style of ASM journals conforms to the *ASM Style Manual for Journals* (American Society for Microbiology, 2003, in-house document) and *How To Write and Publish a Scientific Paper*, 5th ed. (Oryx Press, 1998), as interpreted and modified by the editors and the ASM Journals Department.

The editors and the Journals Department reserve the privilege of editing manuscripts to conform with the stylistic conventions set forth in the aforesaid publications and in these instructions.

Review Process

All manuscripts are considered to be confidential and are reviewed by the editors, members of the editorial board, or qualified ad hoc reviewers. When a manuscript is submitted to the journal, it is given a number (e.g., JVI 47-03) and assigned to one of the editors. For hard-copy submissions, all coauthors are notified of this number and the editor to whom the manuscript has been assigned. **(Always refer to this number in communications with the editor and Journals Department.)** It is the responsibility of the corresponding author to inform the coauthors of the manuscript's status throughout the review and publication processes. The reviewers operate under strict guidelines set forth in "Guidelines for Reviewers" (www.journals.asm.org/misc/reviewguide.shtml) and are expected to complete their reviews within 3 weeks after receiving the manuscript. The corresponding author is notified, generally within 4 to 6 weeks after submission, of the editor's decision to accept, reject, or require modification. Authors who are not notified within this time period should contact the editor to whom the manuscript was assigned. When a manuscript is returned to the corresponding author for modification, it should be returned to the editor within 2 months; otherwise, it may be considered withdrawn. A point-for-point response to the reviews must be included with the revised manuscript; an extra

hard copy of the revised manuscript (without figures) should have the changes highlighted with a colored marker.

Manuscripts that have been rejected, or withdrawn after being returned for modification, may be resubmitted if the major criticisms have been addressed. As with initial submissions, resubmitted manuscripts should be sent to the Journals Department of ASM, *not to the editor*, and should be accompanied by a cover letter stating that the manuscript is a resubmission. A point-for-point response to the original reviews, as well as a copy of the resubmitted manuscript with the changes highlighted, should be included. Resubmitted manuscripts are normally handled by the original editor. Manuscripts cannot be resubmitted more than once unless permission has been obtained from the original editor or from the editor in chief.

NOTE: Manuscripts and illustrations will not be returned to the author.

Manuscripts Submitted on Disk

JVI will publish only manuscripts that are supplied electronically. Once the online submission/review system is implemented (in 2003 [see p. i]), the native files uploaded to the system will be used by the copy editor and the printer to generate proofs. Until that time, disks supplied by the author at the modification stage will be used.

For hard-copy submissions, although hard copy *only* must be supplied at the time of submission, a disk containing the revised version of the article **must** be sent to the editor at the **modification stage**. Because the disk undergoes an automated preediting, cleanup, and tagging process specific to the particular article type before being copyedited (see Notification of Acceptance, below), it is important that the article on disk be formatted correctly with all the proper sections and headings. **See Organization and Format, p. vii.** Double-spaced hard copy which **exactly** matches the file on disk **must** be supplied also. (For submission of illustrations on disk, see the section on computer-generated images on p. xi.) We do not at present accept e-mailed files. Disks and CDs will **not** be returned. Failure to supply a disk at the modification stage will result in delayed publication. Please keep the following in mind:

- Do not use the compare feature in your word processing program to highlight changes in the revised version.
- Do not convert text to ASCII since this will result in loss of fonts and formatting that we want to preserve.
- Do not create symbols as graphics. Use the “insert symbol” function in your word processing program.
- Set page size to 8½ by 11 inches.
- Italicize or underline any words that should appear in italics.
- Include all section heads (see Organization and For-

mat, p. vii), and indicate paragraph lead-ins in bold type.

- Label the disk clearly with the manuscript control number and the name of the file. Indicate whether it contains text only or both text and figures.
- Provide the name and version of the word processing software used (a wide range of applications is supported, but we *cannot* translate PDF or PostScript files or files created with BIBT_E; Chi-Writer; ClarisWorks 1.0; EG Word; Enable 4.0; Full Write version 2.0; Mathematica 3.0; Ready, Set, Go; or Scientific Writer 3.0), the operating system, the type of PC used (IBM compatible, Macintosh, or other), and the medium used to transmit files (see “Acceptable media” in the section on computer-generated images [p. xi]).

Notification of Acceptance

When an editor has decided that a manuscript is acceptable for publication on the basis of scientific merit, the hard copy and disk are sent to the Journals Department. The disk undergoes an automated preediting, cleanup, and tagging process specific to the particular article type. If the disk has been prepared according to the criteria set forth in these instructions, this process will be completed successfully. If the disk fails, the author will be required to supply one that has been prepared correctly. Once a disk has been determined to be adequate, the manuscript is scheduled for the next available issue and an acceptance letter indicating the month of publication, approximate page proof dates, and table of contents section is mailed to the corresponding author. The editorial staff of the ASM Journals Department completes the editing of the manuscript to bring it into conformity with prescribed standards.

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Questions about *late proofs and problems in the proofs* should be directed to the ASM Journals Department (telephone, 202-942-9234 or 202-942-9314). Questions about *accessing or viewing your PDF proofs* should be directed to Katie Gay of Cadmus Professional Communications at 804-261-3155 or gayk@cadmus.com.

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ORGANIZATION AND FORMAT

On receipt at ASM, an accepted manuscript undergoes an automated preediting, cleanup, and tagging process specific to the particular article type. To optimize this process, manuscripts must be supplied in the correct format and with the appropriate sections and headings.

Full-Length Papers

Full-length papers should include the elements described in this section.

Title, running title, and byline. Each manuscript should present the results of an independent, cohesive study; thus, numbered series titles are not allowed. Avoid the main title/subtitle arrangement, complete sentences, and unnecessary articles. On the title page, include the title, running title (not to exceed 54 characters and spaces), name of each author, address(es) of the institution(s) at which the work was performed, each author’s affiliation, and a footnote indicating the present address of any author no longer at the institution where the work was performed. Place an asterisk after the name of the author to whom inquiries regarding the paper should be directed, and **give that author’s primary telephone and fax numbers and e-mail address.**

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Abstract. Limit the abstract to **250 words or fewer** and concisely summarize the basic content of the paper without presenting extensive experimental details. Avoid abbreviations and references, and do not include diagrams. When it is essential to include a reference, use the same format as shown for the References section but omit the article title. Because the abstract will be published separately by abstracting services, it must be complete and understandable without reference to the text.

Introduction. The introduction should supply sufficient background information to allow the reader to understand and evaluate the results of the present study without referring to previous publications on the topic. The introduction should also provide the hypothesis that was addressed or the rationale for the present study. Choose references carefully to provide the most salient background rather than an exhaustive review of the topic.

Materials and Methods. The Materials and Methods section should include sufficient technical information to allow the experiments to be repeated. When centrifugation conditions are critical, give enough information to enable another investigator to repeat the procedure: make of centrifuge, model of rotor, temperature, time at maximum speed, and centrifugal force ($\times g$ rather than revolutions per minute). For commonly used materials and methods (e.g., media and protein concentration determinations), a simple reference is sufficient. If several alternative methods are commonly used, it is helpful to identify the method briefly as well as to cite the reference. For example, it is preferable to state “cells were broken by ultrasonic treatment as previously described (9)” rather than to state “cells were broken as previously described (9).” The reader should be allowed to assess the method without constant reference to previous publications. Describe new methods completely and give sources of unusual chemicals, equipment, or microbial strains. When large numbers of microbial strains or mutants are used in a study, include tables identifying the immediate sources (i.e., sources from whom the strains were obtained) and properties of the strains, mutants, bacteriophages, plasmids, etc.

A method, strain, etc., used in only one of several experiments reported in the paper may be described in the Results section or very briefly (one or two sentences) in a table footnote or figure legend. It is expected that the sources from whom the strains were obtained will be identified.

Results. In the Results section, include the rationale or design of the experiments as well as the results; reserve extensive interpretation of the results for the Discussion section. Present the results as concisely as possible in **one** of the following: text, table(s), or figure(s). Data in tables (e.g., cpm of radioactivity) should not contain more significant figures than the precision of the measurement allows. Illustrations (particularly photomicrographs and electron micrographs) should be limited to those that are absolutely necessary to show the experimental findings. Number figures and tables in the order in which they are cited in the text, and be sure to cite all figures and tables.

Discussion. The Discussion should provide an interpretation of the results in relation to previously published work and to the experimental system at hand and should not contain extensive repetition of the Results sec-

tion or reiteration of the introduction. In short papers, the Results and Discussion sections may be combined.

Acknowledgments. The source of any financial support received for the work being published must be indicated in the Acknowledgments section. (It will be assumed that the absence of such an acknowledgment is a statement by the authors that no support was received.) The usual format is as follows: “This work was supported by Public Health Service grant CA-01234 from the National Cancer Institute.”

Recognition of personal assistance should be given as a separate paragraph, as should any statements disclaiming endorsement or approval of the views reflected in the paper or of a product mentioned therein.

Appendixes. Appendixes, which contain supplementary material to aid the reader, are permitted. Titles, authors, and References sections that are distinct from those of the primary article are not allowed. If it is not feasible to list the author(s) of the appendix in the byline or the Acknowledgments section of the primary article, rewrite the appendix so that it can be considered for publication as an independent article, either full-length or Note style. Equations, tables, and figures should be labeled with the letter “A” preceding the numeral to distinguish them from those cited in the main body of the text.

References. (i) Works listed in References. The References section must include all journal articles (both print and online), books and book chapters (both print and online), patents, theses and dissertations, and published conference proceedings (not abstracts; see below), as well as in-press journal articles, book chapters, and books (publication title must be given). All listed references **must** be cited in the text. Arrange the citations in **alphabetical order** (letter by letter, ignoring spaces and punctuation) by first author and **number consecutively**. Provide the names of **all** the authors for each reference. Abbreviate journal names according to *BIOSIS Serial Sources* (BIOSIS, Philadelphia, Pa., 2003). Cite each listed reference by number in the text.

Follow the styles shown in the examples below.

Print references:

1. **Arendsen, A. F., M. Q. Solimar, and S. W. Ragsdale.** 1999. Nitrate-dependent regulation of acetate biosynthesis and nitrate respiration by *Clostridium thermoaceticum*. *J. Bacteriol.* **181**:1489–1495.
2. **Cox, C. S., B. R. Brown, and J. C. Smith.** *J. Gen. Genet.*, in press.* {Article title is optional; journal title is mandatory.}
3. **De Ley, J., M. Gillis, and J. Swings.** 1984. Family VI. *Acetobacteraceae* Gillis and De Ley 1980, 23^{VP}, p. 267–278. In N. R. Krieg and J. G. Holt (ed.), *Bergey's manual of systematic bacteriology*, vol. 1. Williams & Wilkins, Baltimore, Md.

4. **Dunne, W. M., Jr., F. S. Nolte, and M. L. Wilson.** 1997. Cumitech 1B, Blood cultures III. Coordinating ed., J. A. Hindler. American Society for Microbiology, Washington, D.C.
5. **Fitzgerald, G., and D. Shaw.** In A. E. Waters (ed.), Clinical microbiology, in press. EFH Publishing Co., Boston, Mass.* {Chapter title is optional.}
6. **Gershon, A. A., P. LaRussa, and S. P. Steinberg.** 1999. Varicella-zoster virus, p. 900–911. In P. R. Murray, E. J. Baron, M. A. Pfaller, F. C. Tenover, and R. H. Tenover (ed.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.
7. **Green, P. N., D. Hood, and C. S. Dow.** 1984. Taxonomic status of some methylotrophic bacteria, p. 251–254. In R. L. Crawford and R. S. Hanson (ed.), Microbial growth on C1 compounds. Proceedings of the 4th International Symposium. American Society for Microbiology, Washington, D.C.
8. **Odell, J. C.** 1970. Process for batch culturing. U.S. patent 484,363,770. {Include the name of the patented item/process if possible.}
9. **O'Malley, D. R.** 1998. Ph.D. thesis. University of California, Los Angeles. {Title is optional.}

* A reference to an in-press ASM publication should state the control number (e.g., JVI 577-03) if it is a journal article or the name of the publication if it is a book.

Online references:

1. **Sullivan, C. J. (ed.).** 1999–2001. Fungi: an evolving electronic resource for the microbiological community. ASM Press. [Online.] <http://link.asmusa.de/link/service/books/91090>. Accessed 7 September 2001. {For online-only books.}
2. **van der Zeiss, L., and V. B. Danziger.** 1999. History of clinical microbiology. Clin. Microbiol. **100**:123–234. [Online.] {For online versions of print journals.}
3. **Zelnitz, F., and P. M. Foley.** 2 October 1998, posting {or revision} date. History of virology. Am. Virol. J. **1**:30–50. [Online.] <http://www.vj.html>. {For online-only journals; page numbers may not be available.}
4. **Zheng, Z., and J. Zou.** 5 September 2001. The initial step of the glycerolipid pathway: identification of glycerol-3-phosphate/dihydroxyacetone phosphate dual substrate acyltransferases in *Saccharomyces cerevisiae*. J. Biol. Chem. 10.1074/jbc.M104749200. {For papers published online in manuscript form.}

(ii) **Items cited in the text.** References to unpublished data, articles submitted for publication, meeting abstracts (including those published in journal supplements), personal communications, letters (irrespective of type) and authors' replies to letters, company publications, patent applications and patents pending, computer software, databases, and websites should be made parenthetically in the text as follows.

...similar results (R. B. Layton and C. C. Weathers, unpublished data).

...system was used (J. L. McNerney, A. F. Holden, and P. N. Brighton, submitted for publication).

...in mitochondria (S. De Wit, C. Thioux, and N. Clumeck, Abstr. 34th Intersci. Conf. Antimicrob. Agents Chemother., abstr. 114, 1994).

...for other bacteria (A. X. Jones, personal communication).

...discussed previously (L. B. Jensen, A. M. Hammerum, R. L. Poulsen, and H. Westh, Letter, Antimicrob. Agents Chemother. **43**:724–725, 1999).

...discussed previously (S. L. W. On and P. A. R. Vandamme, Authors' Reply to Letter, J. Clin. Microbiol. **39**:2751–2752, 2001).

...the manufacturer (Sigma manual, Sigma Chemical Co., St. Louis, Mo.).

...this process (V. R. Smoll, 20 June 1999, Australian Patent Office). {For non-U.S. patent applications, give the date of publication of the application.}

...information found at the XYZ website (http://cbx_iou.pgr).

... the ABC program (version 2.2; Department of Microbiology, State University [<http://www.stu.micro>]).

URLs for companies that produce any of the products mentioned in your study or for products being sold may NOT be included in the article. However, company URLs that permit access to scientific data related to the study or to shareware used in the study are permitted.

Notes

Submit Notes in the same way as full-length papers. They receive the same review, they are not published more rapidly than full-length papers, and they are not considered preliminary communications. The Note format is intended for the presentation of brief observations that do not warrant full-length papers.

Each Note must have an **abstract of no more than 50 words**. Do not use section headings in the body of the Note; report methods, results, and discussion in a single section. Paragraph lead-ins are permissible. The text should be kept to a minimum and if possible **should not exceed 1,000 words**; the number of figures and tables should also be kept to a minimum. **Materials and methods should be described in the text, not in figure legends or table footnotes.** Present acknowledgments as in full-length papers, but do not use a heading. The References section is identical to that of full-length papers.

Minireviews

Minireviews are brief (**limit of 6 printed pages exclusive of references**) summaries of important developments in virology research. They must be based on pub-

lished articles and may address any subject within the scope of the journal.

Minireviews are solicited by the Minireview editor and are subject to review. Unsolicited reviews will not be considered. Ideas for Minireviews may be sent to the Minireview editor.

Three double-spaced copies of the manuscript should be sent directly to the ASM Journals Department. Minireviews do not have abstracts; the body of the review may either have section headings or be set up like a Note (see above).

Guest Commentaries

Guest Commentaries are invited communications written in response to invitations issued by the editors and concern topics of interest to the broad readership of the journal that are not necessarily covered by Minireviews. They should raise issues of interest to the community of virologists, initiate or focus discussion, or propose position or consensus statements for leadership groups in research. Review of the literature, methods and other how-to papers, and responses targeted at a specific published paper are not appropriate. Guest Commentaries are subject to review.

The length may not exceed 2 printed pages. The format is like that of a Minireview (see above). Three double-spaced copies of the manuscript should be sent directly to the ASM Journals Department.

Letters to the Editor

Two types of Letters to the Editor may be submitted. The first type is intended for comments on articles published previously in the journal and must cite published references to support the writer's argument. The second type (new-data letters) may report new, concise findings that are not appropriate for publication as full-length papers or Notes.

Letters may be **no more than 500 words long and must be typed double spaced**. Refer to a recently published letter for correct formatting. Note that authors and affiliations are listed at the foot of the letter. Provide the primary affiliation for each author. Authors with the same affiliation must be listed together. The order of author names will be changed as necessary by the Journals staff to avoid repetition of an address.

For each type of letter send three copies, along with a disk, to the Journals Department for processing. (Since letters are sometimes accepted without modification, a disk should be supplied at the submission stage to avoid a delay in publication.)

If the letter is related to a published article, it will be sent to the editor who handled the article in question. If the editor believes that publication is warranted, he will solicit a reply from the corresponding author of the article and make a recommendation to the editor in chief. Final approval for publication rests with the editor in chief.

New-data letters will be assigned to an editor accord-

ing to subject matter and will be reviewed by that editor and the editor in chief. Final approval for publication rests with the editor in chief.

Please note that some indexing/abstracting services do not include Letters to the Editor in their databases.

Errata

The Erratum section provides a means of correcting errors that occurred during the writing, typing, editing, or printing (e.g., a misspelling, a dropped word or line, or mislabeling in a figure) of a published article. Send Errata directly to the Journals Department, both on disk and in hard copy (**only one hard copy is necessary**). **Please see a recent issue for correct formatting.**

Authors' Corrections

The Author's Correction section provides a means of correcting errors of omission (e.g., author names or citations) and errors of a scientific nature that do not alter the overall basic results or conclusions of a published article.

For omission of an author's name, the authors of the article and the author whose name was inadvertently omitted must agree, in writing, to publication of the correction. Copies of the agreement letters must accompany the correction and be sent directly to the Journals Department. Send the correction both on disk and in hard copy (**only one hard copy is necessary**). **Please see a recent issue for correct formatting.**

Corrections of a scientific nature (e.g., an incorrect unit of measurement or order of magnitude used throughout; contamination of one of numerous cultures; or misidentification of a mutant strain, causing erroneous data for only a portion [noncritical] of the study) must be sent, both on disk and in hard copy, directly to the editor who handled the article and must be accompanied by signed letters of agreement from all of the authors of the article. If the editor believes that publication is warranted, he will send the correction to the Journals Department for publication. Note that the addition of new data is not permitted.

Retractions

Retractions are reserved for major errors or breaches of ethics that, for example, may call into question the source of the data or the validity of the results and conclusions of an article. Send a Retraction and an accompanying explanatory letter *signed by all of the authors* directly to the editor in chief of the journal. The editor who handled the paper and the chairman of the ASM Publications Board will be consulted. If all parties agree to the publication and content of the Retraction, it will be sent to the Journals Department for publication.

ILLUSTRATIONS AND TABLES

The figure number and authors' names should be written on all figures, either in the margin or on the back

(marked lightly with a soft pencil). For micrographs especially, the top should be indicated as well. Do **not** include the figure number in any lettering or labeling applied to the figure. This information belongs in the legend and in any case may need to be changed before the article is published.

Do not cite references by number in camera-ready copy; the numbering may change when the manuscript is copyedited.

Do not clasp figures to each other or to the manuscript with paper clips. Insert small figures in an envelope. To avoid damage in transit, do not submit illustrations larger than 8½ by 11 inches.

Illustrations in published articles will not be returned to authors.

Continuous-Tone and Composite Illustrations

When submitting continuous-tone photographs (e.g., polyacrylamide gels), keep in mind the journal page width: 3⁵/₁₆ inches for a single column and 6⁷/₈ inches for a double column (maximum). Include only the significant portion of an illustration. Photos must be of sufficient contrast to withstand the inevitable loss of contrast and detail inherent in the printing process. **Submit one photograph of each continuous-tone figure for each copy of the manuscript; photocopies are not acceptable.** If possible, the figures submitted should be the size they will appear when published so that no reduction is needed. If they must be reduced, make sure that *all* elements, including labeling, can withstand reduction and remain legible.

If a figure is a composite of a continuous-tone photograph and a drawing or labeling, the **original composite** (i.e., not a photograph of the composite) **must be provided** for the printer. This original, labeled “printer’s copy,” may be sent with the modified manuscript to the editor. Composites should be mounted on lightweight flexible backing, not on heavy cardboard.

Electron and light micrographs must be direct copies of the original negative. Indicate the magnification with a scale marker on each micrograph.

Color Photographs and Illustrations

Because the process of placing ink on paper by using printing presses is different from that used to produce a photo print or a laser print, some differences in color and contrast between the photo you submit and the photo printed in the journal will be evident. (Figures showing red or green fluorescence and those with a significant range of colors may be difficult or impossible to reproduce exactly.) To help our printer minimize the differences and produce an image of the highest possible quality, please identify on a photocopy of your color figure any areas where fine detail or a good color match is particularly important. Explain what must be evident on the figure; e.g., circle a group of cells and say “Individual cells (red spots) must be clearly differentiated in here.” **Include this marked photocopy when sending the**

revised version of the manuscript to the editor at the modification stage.

The cost of printing in color must be borne by the author. Adherence to the following guidelines will help to minimize costs and to ensure color reproduction that is as accurate as possible.

Keep in mind the journal page width (3⁵/₁₆ inches for a single column and 6⁷/₈ inches for a double column) and height (9¹/₁₆ inches) and submit figures at the size they should appear when published so that no reduction is necessary. Include only the significant portions of illustrations so that the number of printed pages containing color figures is minimized. Make sure that all edges are straight and corners are square. To reduce the cost, mount separate panels together as a composite “plate” when possible and add any necessary labels and tooling (i.e., thin white lines between the parts) that is of even width. Composites should be mounted on lightweight flexible backing so that they can be wrapped around a scanner drum. (If a composite is mounted on a heavy board and cannot be wrapped on the drum, a transparency will have to be produced, at additional cost.)

For optimal color reproduction, plates should comprise parts containing similar colors of similar lightness or darkness. If necessary, separate unlike photos on a single plate into two separate plates; this will increase the cost, but the color rendition will be more accurate since the two plates will be scanned separately.

See also “Computer-Generated Images” below.

Cover Photographs and Drawings

JVI publishes photographs and drawings on the front cover. Invitations are issued to authors whose manuscripts are returned for modification or whose manuscripts have been accepted for publication in JVI; material should be related to the work presented in the manuscript. Unsolicited material will also be considered, however. No material submitted for consideration will be returned to the author. Copyright for the chosen material must be transferred to ASM. A short description of the cover material will be included at the end of the table of contents or the author index of the issue. Technical specifications for submission will be provided with the invitation and are also available from ASM.

Computer-Generated Images

We encourage authors to submit figures digitally if possible. The use of digital files results in a better final product than does the use of hard-copy printouts. Images produced by authors’ desktop systems are digitized and printed as patterns of dots. This presents problems for the reproduction of such prints in the journal because the printing process also requires that the images be broken up into a dot pattern. Performing this process twice results in degradation of image quality and resolution. It is possible to use prints produced by desktop systems, but they will have to be scanned

slightly out of focus to avoid interference of the dot patterns, and thus ASM cannot guarantee the quality of their reproduction. It is preferable either to replace these images with continuous-tone photographs of the figures in question, which can be scanned normally and will produce high-quality printed photographs, or to submit illustrations electronically. *Should you be interested in electronic submission of art, please read the instructions provided below and those posted on the Internet at <http://cjs.cadmus.com/da>.*

At the time of submission, submit **only** hard-copy printouts of each figure. With the revised manuscript, submit **both** a hard copy of each figure and a disk. Never send the only copy of a file. The disk must be locked and labeled clearly with the manuscript control number and the name(s) of the file(s). Indicate whether the disk contains only figures or both text and figures. **Failure to clearly label the disk will result in a delay of publication.** The hard copy **MUST** match the figure on the disk *exactly* (both content and size). Failure to submit hard copy or submission of a copy that does not match the disk version exactly will result in a delay of publication. The type of software used and the number of images stored must be indicated on each disk.

Acceptable applications and file types. Acceptable applications and file types are given in the tables below. Images produced with other types of software will NOT be accepted; ASM will instead use the hard copy submitted with the disk.

Macintosh

Application	File type	
	Black and white	Color (CMYK) ^a
Adobe Illustrator		
6.0	EPS	EPS
7.0	EPS	EPS
8.0	EPS	EPS
9.0	EPS/TIFF	EPS/TIFF
10.0	EPS/TIFF	EPS/TIFF
Adobe InDesign 1.0	EPS	EPS
Adobe PageMaker 6.5	EPS	EPS
Adobe Photoshop		
4.0	TIFF	TIFF
5.0	TIFF	TIFF
5.0 LE	TIFF	N/A ^b
5.5	TIFF	TIFF
6.0	TIFF	TIFF
CA CricketGraph III 1.5.3	EPS	N/A ^b
ChemDraw Pro 5.0	EPS/TIFF	EPS/TIFF
ClarisDraw 1.0	EPS	N/A ^b
Corel Photo-Paint 8.0	TIFF	EPS
CorelDRAW		
6.0	EPS/TIFF	EPS
8.0	EPS/TIFF	EPS
Deneba Canvas		
5.0	EPS/TIFF	EPS
6.0	EPS/TIFF	EPS
7.0	EPS	EPS
8.0	EPS	EPS
Macromedia FreeHand		
7.0	EPS	EPS
8.0	EPS	EPS
9.0	EPS	EPS

Continued in next column

Macintosh—Continued

Application	File type	
	Black and white	Color (CMYK) ^b
PowerPoint '98 and 2001	PPT ^c	N/A ^b
Prism 3 by GraphPad	TIFF	N/A ^b
QuarkXpress	EPS	EPS
Synergy Kaleidagraph		
3.08	EPS	N/A ^b
3.51	EPS	N/A ^b

^a Color graphics must be saved and printed in the CMYK mode, *not* RGB.

^b ASM accepts only black-and-white, not color, graphics created with Kaleidagraph, ClarisDraw, Adobe Photoshop 5.0 LE, Prism 3 by GraphPad, CricketGraph, and PowerPoint.

^c For instructions on saving PowerPoint files, refer to Cadmus's digital art website at <http://cjs.cadmus.com/da>.

Windows

Application	File type	
	Black and white	Color (CMYK) ^a
Adobe Illustrator		
7.0	EPS	EPS
8.0	EPS	EPS
9.0	EPS/TIFF	EPS/TIFF
Adobe InDesign 1.0	EPS	EPS
Adobe PageMaker 6.5	EPS	EPS
Adobe Photoshop		
4.0	TIFF	TIFF
5.0	TIFF	TIFF
5.0 LE	TIFF	N/A ^b
5.5	TIFF	TIFF
6.0	TIFF	TIFF
ChemDraw Pro 5.0	EPS/TIFF	EPS/TIFF
Corel Photo-Paint		
8.0	TIFF	EPS
9.0	TIFF	TIFF
CorelDRAW		
7.0	EPS/TIFF	EPS
8.0	EPS/TIFF	EPS
9.0	EPS	EPS
Deneba Canvas		
6.0	EPS/TIFF	EPS
7.0	EPS	EPS
Macromedia FreeHand		
7.0	EPS	EPS
8.0	EPS	EPS
9.0	EPS	EPS
PowerPoint '97, 2000, and XP	PPT ^c	N/A ^b
Prism 3 by GraphPad	TIFF	N/A ^b
QuarkXpress	EPS	EPS
SigmaPlot 8.01	EPS	EPS

^a Color graphics must be saved and printed in the CMYK mode, *not* RGB.

^b ASM accepts only black-and-white, not color, graphics created with Adobe Photoshop 5.0 LE, Prism 3 by GraphPad, and PowerPoint.

^c For instructions on saving PowerPoint files, refer to Cadmus's digital art website at <http://cjs.cadmus.com/da>.

Media. The following media are accepted.

3.5-inch floppy disks

Iomega Zip disks

CD-ROMs

Iomega Jaz disks

Disks and CD-ROMs will not be returned to the author.

Compression. Images created with Macintosh applications may be compressed with Stuffit or any self-extracting compression software. Images created with Windows applications may be compressed with PKZIP, WINZIP, or any self-extracting compression software. Please indicate on the disk whether the file is compressed.

Minimum resolution. It is extremely important that a high enough resolution is used. Minimum resolutions are as follows:

300 dpi for gray scale and color
600 dpi for lettering
1,200 dpi for line art

Size. All graphics MUST be submitted at their **actual size**; that is, they should be 100% of their print dimensions so that no scaling is necessary.

Maximum width for a 1-column figure: $3\frac{5}{16}$ inches
Maximum width for a 2-column figure: $6\frac{7}{8}$ inches
Minimum width for a 2-column figure: $4\frac{1}{8}$ inches
Maximum depth: $9\frac{1}{16}$ inches

Assembly. Make sure that any multipanel figures are assembled into one file; i.e., rather than sending a separate file for each panel in a figure, assemble all panels in one piece and supply them as one file.

All final lettering, labeling, tooling, etc., MUST be incorporated into the final supplied figures. It cannot be added at a later date. Do *not* include the figure number in the image.

Fonts. To avoid font problems, set all type in Helvetica, Times New Roman, European PI, Mathematical PI, or Symbol. All fonts must be Type 1 PostScript. All type set in illustration programs should be converted to paths or outlines to ensure the quality of the type without requiring that any fonts be sent. Do NOT use complex paths, areas that require trapping, or RGB files.

We strongly recommend that authors check the acceptability of their digital images for production by running their files through Rapid Inspector, a tool provided by our printer, Cadmus, at the following URL: <http://rapidinspector.cadmus.com/mw>. Rapid Inspector is an easy-to-use Web-based application that takes only minutes to identify problems that may cause the file to fail at any point during the production process.

If you require further information, please send an e-mail inquiry to digitalart@cadmus.com. Inquiries will be answered within 48 h, during normal business hours.

Since the contents of computer-generated images can be manipulated for better clarity, the Publications Board at its May 1992 meeting indicated that a description of the software/hardware used should be indicated in the figure legend(s).

Drawings

Submit graphs, charts, sequences, complicated chemical or mathematical formulas, diagrams, and other drawings as glossy photographs made from finished drawings not requiring additional artwork or typesetting. Computer-generated graphics produced on high-quality laser printers are also usually acceptable. No part of the graph or drawing should be handwritten. Both axes of graphs must be labeled.

When creating line art, please use the following guidelines:

1. Submit the art as close to its final size as possible. Most graphs can be reduced to one-column width ($3\frac{5}{16}$ inches). If the art is larger than it will appear in the journal, *all* elements in the figure should be large enough to withstand reduction.
2. Avoid using screens in line art. It can be difficult and time-consuming to reproduce these images without moiré patterns. Various pattern backgrounds are preferable to screens.
3. If you must provide an image that has screens in it:
 - Submit the image at its final size. Generate the image at line screens of 85 lines per inch or lower.
 - When applying multiple shades of gray, differentiate the gray levels by at least 20%.
 - Never use levels of gray below 20% or above 70% as they will fade out or become totally black upon scanning and reduction.
4. Use thick, solid lines that are no finer than 1 point in thickness.
5. No type should be smaller than 9 point at the final reduced size.
6. Avoid layering type directly over shaded or textured areas.
7. Avoid the use of reversed type (white lettering on a black background).
8. Avoid heavy letters, which tend to close up, and unusual symbols, which the printer may not be able to reproduce in the legend.

In figure ordinate and abscissa scales (as well as table column headings), avoid ambiguous use of numbers with exponents. Usually, it is preferable to use the *Système International d'Unités* (SI) symbols (μ for 10^{-6} , m for 10^{-3} , k for 10^3 , M for 10^6 , etc.). A complete listing of SI symbols can be found in the International Union of Pure and Applied Chemistry (IUPAC) "Manual of Symbols and Terminology for Physicochemical Quantities and Units" (Pure Appl. Chem. **21**:3–44, 1970). Thus, a representation of 20,000 cpm on a figure ordinate is to be made by the number 20 accompanied by the label kcpm.

When powers of 10 must be used, the journal requires that the exponent power be associated with the number shown. In representing 20,000 cells per ml, the numeral on the ordinate would be "2" and the label would be " 10^4 cells per ml" (not "cells per ml $\times 10^{-4}$ "). Likewise, an enzyme activity of 0.06 U/ml would be shown as 6 accompanied by the label 10^{-2} U/ml. This is equivalent to the label "hundredths of units per ml" or the preferable "cU/ml" for the SI convention. The preferred designation would be 60 mU/ml (milliunits per milliliter).

Presentation of Nucleic Acid Sequences

Nucleic acid sequences of limited length which are the primary subject of a study may be presented freestyle in the most effective format. Longer nucleic acid sequences

must be presented in the following format to conserve space. Submit the sequence as camera-ready copy with dimensions of 8½ by 11 inches (or slightly less) in standard (portrait) orientation. Print the sequence in lines of 100 bases, each in a nonproportional (monospace) font which is easily legible when published at 100 bases/6 inches. Uppercase and lowercase letters may be used to designate the exon-intron structure, transcribed regions, etc., if the lowercase letters remain legible at 100 bases/6 inches. Number the sequence line by line; place numerals, representing the first base of each line, to the left of the lines. **Minimize spacing between lines of sequence, leaving room only for annotation of the sequence.** Annotation may include boldface, underlining, brackets, boxes, etc. Encoded amino acid sequences may be presented, if necessary, immediately above or below the first nucleotide of each codon, by using the single-letter amino acid symbols. Comparisons of multiple nucleic acid sequences should conform as nearly as possible to the same format.

Figure Legends

Legends should provide enough information so that the figure is understandable without frequent reference to the text. However, detailed experimental methods must be described in the Materials and Methods section, not in a figure legend. A method that is unique to one of several experiments may be reported in a legend only if the discussion is very brief (one or two sentences). Define all symbols used in the figure and define all abbreviations that are not used in the text.

Tables

Type each table on a separate page. Arrange the data so that **columns of like material read down, not across**. The headings should be sufficiently clear so that the meaning of the data is understandable without reference to the text. See the Abbreviations section of these instructions for those that should be used in tables. Explanatory footnotes are acceptable, but more extensive table “legends” are not. Footnotes should not include detailed descriptions of the experiment. Tables must include enough information to warrant table format; those with fewer than six pieces of data will be incorporated into the text by the copy editor. A well-constructed table is shown below.

TABLE 1. Distribution of protein and ATPase in fractions of dialyzed membranes^a

Membrane	Fraction	ATPase	
		U/mg of protein	Total U
Control	Depleted membrane	0.036	2.3
	Concentrated supernatant	0.134	4.82
E1 treated	Depleted membrane	0.034	1.98
	Concentrated supernatant	0.11	4.6

^a Specific activities of ATPase of nondepleted membranes from control and treated bacteria were 0.21 and 0.20, respectively.

Tables that are to be typeset should not contain artwork, chemical structures, or shading. Tables that contain such material should be submitted as “camera-ready” copy; i.e., they can be photographically reproduced for publication. Camera-ready tables should not be hand lettered and must be carefully prepared to conform with the style of the journal. The advantage of submitting camera-ready copy is that the material will appear exactly as envisioned by the author and no second proofreading is necessary. This is particularly advantageous when there are long, complicated tables and when the division of material and spacing are important.

NOMENCLATURE

Chemical and Biochemical Nomenclature

The recognized authority for the names of chemical compounds is *Chemical Abstracts* (Chemical Abstracts Service, Ohio State University, Columbus) and its indexes. *The Merck Index*, 13th ed. (Merck & Co., Inc., Whitehouse Station, N.J., 2001), is also an excellent source. For biochemical terminology, including abbreviations and symbols, consult *Biochemical Nomenclature and Related Documents* (1978; reprinted for The Biochemical Society, London, England) and the instructions to authors of the *Journal of Biological Chemistry* and the *Archives of Biochemistry and Biophysics* (first issues of each year).

Do not express molecular weight in daltons; molecular weight is a unitless ratio. Molecular mass is expressed in daltons.

For enzymes, use the recommended (trivial) name assigned by the Nomenclature Committee of the International Union of Biochemistry (IUB) as described in *Enzyme Nomenclature* (Academic Press, Inc., New York, N.Y., 1992). If a nonrecommended name is used, place the proper (trivial) name in parentheses at first use in the abstract and text. Use the EC number when one has been assigned, and express enzyme activity either in katal (preferred) or in the older system of micromoles per minute.

Nomenclature of Mice

For mouse strain and genetic nomenclature, ASM encourages authors to refer to the guidelines set forth by the International Committee on Standardized Genetic Nomenclature for Mice, available on the Mouse Genome Database home page at <http://www.informatics.jax.org> and in *Genetic Variants and Strains of the Laboratory Mouse*, 3rd ed. (M. F. Lyon et al., ed., Oxford University Press, Oxford, England, 1996).

Nomenclature of Viruses

Names used for viruses should be those approved by the International Committee on Taxonomy of Viruses

(ICTV) and published in *Virus Taxonomy: Classification and Nomenclature of Viruses: Seventh Report of the International Committee on Taxonomy of Viruses* (M. H. V. van Regenmortel et al., ed., Academic Press, San Diego, Calif., 2000). In addition, the recommendations of the ICTV regarding the use of species names should generally be followed: when the entire species is discussed as a taxonomic entity, the species name, like other taxa, is italic and has the first letter and any proper nouns capitalized (e.g., *Tobacco mosaic virus*, *Murray Valley encephalitis virus*). When the behavior or manipulation of individual viruses is discussed, the vernacular (e.g., tobacco mosaic virus, Murray Valley encephalitis virus) should be used. If desired, synonyms may be added parenthetically when the name is first mentioned. Approved generic (or group) and family names may also be used.

Nomenclature of Bacteria

Binary names, consisting of a generic name and a specific epithet (e.g., *Escherichia coli*), should be used for all bacteria. Names of categories at or above the genus level may be used alone, but specific and subspecific epithets may not. A specific epithet must be preceded by a generic name, written out in full the first time it is used in a paper. Thereafter, the generic name should be abbreviated to the initial capital letter (e.g., *E. coli*), provided there can be no confusion with other genera used in the paper. Names of all taxa (phyla, classes, orders, families, genera, species, and subspecies) are printed in italics; strain designations and numbers are not.

Genetic Nomenclature

To facilitate accurate communication, **it is important that standard genetic nomenclature be used whenever possible and that deviations or proposals for new naming systems be endorsed by an appropriate authoritative body.** Review and/or publication of submitted manuscripts that contain new or nonstandard nomenclature may be delayed by the editor or the Journals Department so that they may be reviewed by the Nomenclature Committee of the ASM Publications Board.

When appropriate for viral genetic systems, use the recommendations of Demerec et al. (*Genetics* **54**:61–76, 1966) as a guide.

(i) Phenotype designations must be employed when mutant loci have not been identified or mapped. They can also be used to identify the protein product of a gene, e.g., the OmpA protein. Phenotype designations generally consist of three-letter symbols; these are *not* italicized and the first letter of the symbol is capitalized. It is preferable to use roman or arabic numerals (instead of letters) to identify a series of related phenotypes. Thus, a series of bacteriocin-tolerant mutants might be designated TolI, TolII, TolIII, etc., or a series of nucleic acid polymerase mutants might be designated Pol1, Pol2, Pol3, etc. Wild-type characteristics can be designated as Tol⁺ or Pol⁺, and, when necessary for clarity, negative superscripts (Tol⁻ Pol⁻) can be used to design-

nate mutant characteristics. Lowercase superscript letters may be used to further delineate phenotypes (e.g., Str^s for streptomycin sensitivity). Phenotype designations should be defined.

(ii) Genotype designations are also indicated by three-letter locus symbols. These are lowercase italic (e.g., *pol src*). If several loci govern related functions, these are distinguished by italicized capital letters following the locus symbol.

(iii) Wild-type alleles are indicated with a superscript plus (*ara*⁺ *his*⁺). A superscript minus is not used to indicate a mutant locus; thus, one refers to an *ara* mutant rather than an *ara*⁻ strain.

(iv) The rules for genetic nomenclature of viruses (phages) differ from those of bacteria. As a general rule, the entire description of a virus is italicized, including the designations *am* or *sus* (amber suppressible) and *ts* (temperature sensitive). Superscripts are employed to indicate hybrid genomes. Genetic symbols may be one, two, or three letters. For example, a mutant strain of λ might be designated λ cI857 *int2 red114 susA11*; this strain carries mutations in genes *cI*, *int*, and *red* and a suppressible (*sus*) mutation in gene *A*. A strain designated λ *imm*²¹ *att*⁴³⁴ would represent a hybrid of phage λ which carries the immunity (*imm*) region of phage 21 and the attachment (*att*) region of phage 434. Host DNA insertions into viruses should be delineated by square brackets, and the genetic symbols and designations for such inserted DNA should conform to those employed for the host genome. Genetic symbols for phage λ can be found in Echols and Murialdo (*Microbiol. Rev.* **42**:577–591, 1978) and Szybalski and Szybalski (*Gene* **7**:217–270, 1979).

(v) Nomenclature of restriction endonucleases should follow the recommendations of Roberts (p. 757–768, in A. I. Bukhari, J. A. Shapiro, and S. L. Adhya, ed., *DNA Insertion Elements, Plasmids, and Episomes*, Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1977).

“**Mutant**” versus “**mutation.**” Authors are reminded of the distinction between a *mutation* (an alteration of the primary sequence of the genetic material) and a *mutant* (a strain carrying one or more mutations). One may speak about the mapping of a mutation, but one cannot map a mutant. Likewise, a mutant has no genetic locus, only a phenotype.

ABBREVIATIONS AND CONVENTIONS

Verb Tense

ASM strongly recommends that for clarity you use the **past** tense to narrate particular events in the past, including the procedures, observations, and data of the study that you are reporting. Use the present tense for your own general conclusions, the conclusions of previous researchers, and generally accepted facts. Thus, most of the abstract, Materials and Methods, and Results will

be in the past tense, and most of the introduction and some of the Discussion will be in the present tense.

Be aware that it may be necessary to vary the tense in a single sentence. For example, it is correct to say "White (30) demonstrated that XYZ cells grow at pH 6.8," "Figure 2 shows that ABC cells failed to grow at room temperature," and "Air was removed from the chamber and the mice died, which proves that mice require air." In reporting statistics and calculations, it is correct to say "The values for the ABC cells are statistically significant, indicating that the drug inhibited . . ."

For an in-depth discussion of tense in scientific writing, see p. 207–209 in *How To Write and Publish a Scientific Paper*, 5th ed.

Abbreviations

General. Abbreviations should be used as an aid to the reader, rather than as a convenience to the author, and therefore their use should be limited. Abbreviations other than those recommended by the IUPAC-IUB (*Biochemical Nomenclature and Related Documents*, 1978) should be used only when a case can be made for necessity, such as in tables and figures.

It is often possible to use pronouns or to paraphrase a long word after its first use (e.g., "the drug" or "the substrate"). Standard chemical symbols and trivial names or their symbols (folate, Ala, Leu, etc.) may also be used.

It is strongly recommended that all abbreviations except those listed below be introduced in the first paragraph in Materials and Methods. Alternatively, define each abbreviation and introduce it in parentheses the first time it is used; e.g., "cultures were grown in Eagle minimal essential medium (MEM)." Generally, eliminate abbreviations that are not used at least three times in the text (including tables and figure legends).

Not requiring introduction. In addition to abbreviations for Système International d'Unités (SI) units of measurement, other common units (e.g., bp, kb, and Da), and chemical symbols for the elements, the following should be used without definition in the title, abstract, text, figure legends, and tables: DNA (deoxyribonucleic acid); cDNA (complementary DNA); RNA (ribonucleic acid); rRNA (ribosomal RNA); mRNA (messenger RNA); tRNA (transfer RNA); AMP, ADP, ATP, dAMP, ddATP, GTP, etc. (for the respective 5' phosphates of adenosine and other nucleosides) (add 2', 3', or 5' when needed for contrast); ATPase, dGTPase, etc. (adenosine triphosphatase, deoxyguanosine triphosphatase, etc.); NAD (nicotinamide adenine dinucleotide); NAD⁺ (nicotinamide adenine dinucleotide, oxidized); NADH (nicotinamide adenine dinucleotide, reduced); NADP (nicotinamide adenine dinucleotide phosphate); NADPH (nicotinamide adenine dinucleotide phosphate, reduced); NADP⁺ (nicotinamide adenine dinucleotide phosphate, oxidized); poly(A), poly(dT), etc. (polyadenylic acid, polydeoxythy-

midylic acid, etc.); oligo(dT), etc. (oligodeoxythymidylic acid, etc.); UV (ultraviolet); PFU (plaque-forming units); CFU (colony-forming units); MIC (minimal inhibitory concentration); Tris [tris(hydroxymethyl)amino-methane]; DEAE (diethylaminoethyl); EDTA (ethylenediaminetetraacetic acid); EGTA [ethylene glycol-bis(β-aminoethyl ether)-N,N,N',N'-tetraacetic acid]; HEPES (N-2-hydroxyethylpiperazine-N'-2-ethanesulfonic acid); PCR (polymerase chain reaction); and AIDS (acquired immunodeficiency syndrome). Abbreviations for cell lines (e.g., HeLa) also need not be defined.

The following abbreviations should be used without definition in tables:

amt (amount)	SE (standard error)
approx (approximately)	SEM (standard error of the mean)
avg (average)	
concn (concentration)	sp act (specific activity)
diam (diameter)	sp gr (specific gravity)
expt (experiment)	temp (temperature)
exptl (experimental)	tr (trace)
ht (height)	vol (volume)
mo (month)	vs (versus)
mol wt (molecular weight)	wk (week)
no. (number)	wt (weight)
prepn (preparation)	yr (year)
SD (standard deviation)	

Reporting Numerical Data

Standard metric units are used for reporting length, weight, and volume. For these units and for molarity, use the prefixes m, μ, n, and p for 10⁻³, 10⁻⁶, 10⁻⁹, and 10⁻¹², respectively. Likewise, use the prefixes c for 10⁻² and k for 10³. Avoid compound prefixes such as mμ or μμ. Use μg/ml or μg/g in place of the ambiguous ppm. Units of temperature are presented as follows: 37°C or 324 K.

When fractions are used to express units such as enzymatic activities, it is preferable to use whole units, such as g or min, in the denominator instead of fractional or multiple units, such as μg or 10 min. For example, "pmol/min" is preferable to "nmol/10 min," and "μmol/g" is preferable to "nmol/μg." It is also preferable that an unambiguous form such as exponential notation be used; for example, "μmol g⁻¹ min⁻¹" is preferable to "μmol/g/min." Always report numerical data in the appropriate SI units.

Isotopically Labeled Compounds

For simple molecules, labeling is indicated in the chemical formula (e.g., ¹⁴CO₂, ³H₂O, and H₂³⁵SO₄). Brackets are not used when the isotopic symbol is attached to the name of a compound that in its natural state does not contain the element (e.g., ³²S-ATP) or to a word that is not a specific chemical name (e.g., ¹³¹I-labeled protein, ¹⁴C-amino acids, and ³H-ligands).

For specific chemicals, the symbol for the isotope introduced is placed in square brackets directly preceding the part of the name that describes the labeled entity. Note that

configuration symbols and modifiers precede the isotopic symbol. The following examples illustrate correct usage:

[¹⁴C]urea
[2,3-³H]serine
[γ-³²P]ATP

L-[*methyl*-¹⁴C]methionine
[α-¹⁴C]lysine
UDP-[U-¹⁴C]glucose

SV40 [³²P]DNA

fructose 1,6-[1-³²P]bisphosphate

This journal follows the same conventions for isotopic labeling as the *Journal of Biological Chemistry*, and more detailed information can be found in the instructions to authors of that journal (first issue of each year).