Author Index

0022-1767/09/$2.00

The Journal of Immunology
Information for Authors

Go to www.jimmunol.org for the most up-to-date instructions and manuscript submission forms.

Editorial Office E-mail: infoji@aai.org
Phone: 301-634-7197 Fax: 301-634-7829

ABOUT *THE JOURNAL OF IMMUNOLOGY*

Journal Facts:

- Publisher: *The Journal of Immunology* (*The JI*) is owned and published by The American Association of Immunologists, Inc.
- Editor-in-Chief: Jeremy M. Boss, Ph.D. eic@aai.org
- Editorial Board: *The Journal of Immunology* Editorial Board is included in the first issue of each volume (January 1st and July 1st)
- Impact factor: 6.068, ranking 13th among all publications focused on immunology (JCR 2007)
- Citations: *The JI* is cited more than any other immunology journal (JCR 2007)
- Number of research articles published/year: 1,837 (2008)
- Number of pages published/year: 16,971 (2008)
- Circulation as of 10/15/08: 5,315
- Publication schedule: Printed and posted online twice each month
- Issue dates: 1st and the 15th of each month
- Average time from submission to initial decision (full-length manuscripts): 34 days (2008)
- Average time from acceptance to print: 6.8 weeks (2008)
- Acceptance rate: 46% for full-length papers, 23% for Cutting Edge papers (2008)
- Online ISSN: 1550-6606 Print ISSN: 0022-1767

JOURNAL SCOPE AND CONTENT

Full-Length Articles: *The JI* publishes novel peer-reviewed findings in all areas of experimental immunology, including both basic and clinical studies. Manuscripts are published in the following sections:

Cellular Immunology and Immune Regulation
Clinical Immunology
Host Defense
Immunogenetics
Inflammation
Molecular and Structural Immunology

Descriptions of new reagents, research techniques, or clinical case reports usually are appropriate only to the extent they provide innovative insight into unresolved problems or represent major breakthroughs.

The JI will not publish descriptive manuscripts that report the identification of epitopes recognized by B or T cells, unless such identification can be considered of unusual immunological significance. *The JI* usually will not publish the definition of peptide binding motifs for previously uncharacterized MHC products, regardless of species or method used. Similarly, *The JI* usually will not publish surveys of possible or actual epitopes from pathogens not previously examined for T cell epitopes. Authors should address the immunological significance explicitly and convincingly when submitting a paper that may fall into the above categories. Those wishing to report the identification of epitopes may do so at the Immune Epitope Database and Analysis Resource (immuneepitope.org/home/do).

The JI will consider for publication comparative analysis of proteins of immunological interest (intra- or inter-species comparisons) only if such manuscripts transcend a simple descriptive examination and reveal aspects of significance to evolution and/or function of such proteins that are not intuitively obvious.

The JI will publish manuscripts that describe the characterization of the three-dimensional structure of antibody-defined epitopes, antigen-antibody, or peptide-MHC complexes only if such structures reveal features that are unique in an immunologically relevant manner. *The JI* usually will not publish structures of new MHC allelic products not previously crystallized, homologs from previously uncharacterized species, or peptide-MHC complexes composed of known MHC allelic products but with different peptides. Reports of the three-dimensional structures of allergens or other antigens likewise also fall under this description. The editors consider the atomic structure of antigen-antibody, MHC-peptide, and TCR-MHC complexes sufficiently well established to insist on immunological relevance as a criterion for publication in *The JI*.

Cutting Edge Articles: Cutting Edge is the rapid publication section of *The JI*, presenting short reports describing significant advances in an area of immunology. Manuscripts submitted for consideration in this section should present scientifically sound and novel research in a clear and concise fashion and contain conclusions of unusual interest to immunologists that are justified from the data presented. Chief criteria for acceptance are scientific novelty and quality, originality, clarity, and conciseness. In addition to research articles, the Cutting Edge section publishes invited brief commentaries on controversial subjects of broad interest to immunologists.

Brief Reviews: *The JI* publishes a small number of invited reviews on a regular basis. These reviews are four to six journal pages in length, including illustrations and references. They cover a focused area on the advancing edge of immunology and provide a balanced view of current research that can be understood by researchers outside of that specialty. Authors interested in submitting an article to Brief Reviews should submit a proposal, including an outline of the proposed review, by e-mail to the Editor-in-Chief at eic@aai.org.

Pillars of Immunology: In the first issue of each month, *The JI* reprints papers regarded as classics in the field. An invited commentary accompanies each reprinted article. Suggestions for significant articles may be made by e-mail to the Editor-in-Chief at eic@aai.org.

In This Issue: A small number of papers regarded by reviewers and editors as the top 10% in their field are highlighted in this section.

Letters to the Editor: The Editor-in-Chief invites brief letters (250 words or less) of general interest, commenting on work published in *The JI* within the previous three months. A limited number of letters will be selected for publication. The authors of the original work will be invited to respond, and both the original letter and the authors' response will be published together. If you are interested in commenting on a published paper, e-mail the Editor-in-Chief at eic@aai.org.

Extended Methods: *Extended Methods* is intended to feature a "novel, detailed laboratory method" used in the accompanying article that will allow others to recapitulate the experimental design. If accepted, *Extended Methods* will be published online only. *Extended Methods* may not be used to replace methods provided in the Materials and Methods section, nor may it repeat what is already in the Materials and Methods section of the manuscript. The *Extended Methods* section may not contain previously published material. *Extended Methods* should be submitted as a PDF that contains ONLY the *Extended Methods*; it will be reviewed with the manuscript. Upload the file during the online submission by selecting "Supplemental Data File" as the File Type and entering "Extended Methods" as the Title and labeling it as *Extended Methods*.

Links to the *Extended Methods* will appear in two places in the online journal: in the Table of Contents and in the information box associated with the first page of the full-text article. There will not be any links in the body of the article. In the printed paper, *Extended Methods* will be footnoted the first time mentioned: "The online version of this article contains Extended Methods."

MANUSCRIPT PREPARATION

Copyright Transfer: All manuscripts are considered to be the property of AAI from the time of submission. Should AAI not publish the paper, AAI releases its rights therein at the time the manuscript is returned to the corresponding author.

Manuscripts published in *The Journal of Immunology* become the sole property of, with all rights in copyright reserved to, The American Association of Immunologists, Inc. (AAI).

The corresponding author, on behalf of all authors, signs a copyright transfer form. Authors of articles written as part of their official duties as employees of the U.S. government are exempt from this requirement for transfer of copyright.

NIH Public Access Policy: AAI will grant a limited one-time waiver permitting authors to deposit an accepted manuscript into PubMed Central, under certain conditions (see *Editorial Policies, NIH Public Access Policy*).

General Guidelines: A 12-point serif font, preferably Times New Roman, is required. Do not use compressed type format. Double-space entire manuscript. Each of the following components should begin on a separate page:

1. The **Title Page** must include the full title; a running title (not to exceed 60 characters); each author's full name (first name, middle initial, last name); and the affiliations of all authors and their institutions, departments, or organizations (use the following symbols in this order: ∗, †, ‡, §, ¶, |, #, ∗∗, ††, ‡‡, §§, ¶¶, ||, ##). List the phone number, fax number, and e-mail address of the corresponding author on the title page.

2. The **Abstract** must be 250 words or less for full-length manuscripts. Reference citations should not be included in the *Abstract*. The species of animals or species of origin of cells used in the manuscript must be clearly stated in the *Abstract.*

3. The **Introduction**, **Materials and Methods**, **Results,** and **Discussion** sections should begin on separate pages in that order. Do not combine the *Results* and *Discussion* sections for full-length papers.

4. **Acknowledgments** appear immediately after the *Discussion* and before *References*.

5. **Grant support** must not be included in the *Acknowledgments* but should be cited as a footnote to the title.

6. **References** must be numbered as they appear in the text. All authors must be listed for each reference. If citations are included in tables or in figure legends, they must be numbered according to the position of citation of the table or figure in the text. Only published papers and papers in press may be included in the *References*. In press articles, i.e., papers not yet published, must be submitted as online attachments in PDF format at the time of article submission. NOTE: Do NOT submit as attachment papers that are already published, e.g., manuscripts published ahead of print. Such papers must be incorporated into the *References* and cited with their DOI numbers and the publication dates. Citations of "manuscripts in preparation," "unpublished observations," and "personal communications" must appear parenthetically in the text. Manuscripts "submitted for publication" (i.e., not yet accepted) also are mentioned parenthetically in the text. Written approval by the persons cited in personal communications must accompany the manuscript unless they are also authors of the manuscript submitted to *The JI*.

Format for references:

Periodicals: Wells, A. D., M. C. Walsh, D. Sankaran, and L. A. Turka. 2000. T cell effector function and anergy avoidance are quantitatively linked to cell division. *J. Immunol.* 165: 2432–2443.

Books: McIntyre, T. M., and W. Strober. 1999. Gut-associated lymphoid tissue: regulation of IgA B-cell development. In *Mucosal Immunology*, 2nd ed. P. L. Ogra, J. Mestecky, E. Lamm, W. Strober, J. Bienenstock, and J. R. McGhee, eds. Academic Press, San Diego, CA. 319–356.

7. **Footnotes** should be used to designate the source of support, new or special abbreviations used, correspondence address, current address, etc. Footnotes should be numbered consecutively and will appear on the title page, but for submission are grouped together and placed on a separate page between the *References* and the *Figure Legends*.

8. **Abbreviations** that may be used without definition are provided in the Standard Abbreviations list. Spell out nonstandard abbreviations used less than three times. Nonstandard abbreviations used three or more times must be defined in a footnote. Abbreviations and their definitions must be consistent throughout the text.

9. **Tables** must be numbered with Roman numerals in order of appearance in the text. All tables must have a title. Table legends are prepared as footnotes to the table and are included with the table. Tables must be in DOC file format. Each table should be submitted as a separate file.

10. **Figure legends** must be numbered with Arabic numerals in order of appearance in the text and should include a short title after the figure number. Where possible, symbols and patterns used to distinguish data should be defined in a key placed within the graphic rather than in the figure legend.

11. **Figures** At initial submission, please submit low-resolution files of the smallest possible size that will convey the needed information. Smaller files can be downloaded more quickly by reviewers and will hasten the review process.

At submission of a revised manuscript, high-resolution figures that meet the following specifications must be submitted. For more

information see the TIPS page on the online manuscript submission home page (ji.msubmit.net).

- *Color:* Color figures must be in the RGB color space.
- *File Sizes:* Figures should not exceed 10 MB (average size is about 2 MB).
- *Image Sizes:* Figures should be submitted in final size (printed 1:1). Figures may be published in print in one of two formats: single column (width from 3.37 to 8.23 cm) or double column (width from 12.65 to 17.1 cm). The single-column format is preferred. Unless the file is too large, multi-piece figures should be submitted as a single file.
- *Text and Lines:* Text in figures must be 6–8 points in size, except for single letter markers, which may be 12 points. Helvetica should be used for all figure text (except for the use of symbols). If Helvetica is not available, Times Roman may be used. Line widths must be greater than one point thick or they will not appear on the PDF version of the article.
- *Numbering:* Figures must be numbered as they appear in the text.
- *File Format:* Figures should be in **TIFF** (better for halftone art, e.g., blots, photographs) or **EPS** (better for line art or monochrome art, i.e., anything that involves sharply delineated lines) format. PowerPoint files are not suitable quality, as their resolution is too low for print. For detailed instructions on converting PowerPoint files to TIFF files see the TIPS page on the online manuscript submission home page (ji.msubmit.net).
- *Guidelines:* For general guidelines for creating digital art, go to the Cadmus Digital Art website (art.cadmus.com/da/ guidelines.jsp) or the Cadmus FAQ page (art.cadmus.com/da/faq.jsp). Topics included are:
  Resolution (dots per inch)
  Color requirements
  Cropping and sizing
  Font usage
  Scanned images
  Supported applications
- *Graphic Art Preflight:* To avoid production delays due to unacceptable digital art formats, authors of revised papers must check in advance whether figures meet the standards required for final print and online production. It is mandatory to use Rapid Inspector (rapidinspector.cadmus.com/RapidInspector/zim/index.jsp), a tool that walks authors through the process to make needed corrections.

Cover Art: Cover art is selected from images in accepted articles and changes with each issue of *The JI*. Authors are encouraged to submit color figures with their manuscripts for possible use as cover illustrations. If an image is selected as cover art, the file must have a resolution of at least 300 dpi at a size of 8.5″ × 11″.

Estimating Manuscript Length: One printed page in *The JI* contains approximately 8,000 characters, including spaces. Thus, an 8-page, full-length article would contain approximately 64,000 characters. Each line in a table occupies about 60 characters for a single-column table (120 characters for a double-column table). Figures occupy about 180 characters per centimeter height for single-column figures (360 characters for double-column figures). Determine the total character count for the text of your manuscript and add the character-equivalents for the tables and figures. This will provide a reasonable estimate for the printed length of a manuscript.

Web Links in Submitted Manuscripts: Links to Websites are permitted only if the information contained on the Website is not essential to the understanding and assessment of the manuscript or to the ability to repeat the experiments described in the paper.

Human and Animal Use: If the manuscript contains human or animal studies, the *Materials and Methods* section must state that the studies have been reviewed and approved by an appropriate institutional review committee.

DEPOSITING IN PUBLIC DATABASES

High-resolution structural data: Any paper submitted to *The JI* that contains new high-resolution structural data requires an accession number from the Protein Data Bank (www.rcsb.org/pdb/Welcome.do) and assurance that unrestricted release will occur at or before the time of publication. The accession number should be accompanied by the Website address of the databank.

Nucleotide sequences: Sequences of nucleotides or amino acids longer than 50 bases/residues should not be presented in the text or in table form, but rather should be submitted as a publication-quality figure. Original nucleotide sequences, and determined nucleotide sequences encoding reported amino acid sequences, described in the manuscript must be submitted to GenBank or EMBL DataLibrary at the time of manuscript submission. An accession number and sequence availability are required at the time of publication. The accession number should be accompanied by the Website address of the databank. Instructions on submission of data may be obtained directly from GenBank (Mail Stop K710, Los Alamos National Laboratory, Los Alamos, NM 87545) or from the European Molecular Biology Library, Nucleotide Sequence Library (Postfach 10.2209, Meyerhofstrasse 1, 6900 Heidelberg, Germany) or see NCBI's GenBank site (ncbi.nlm.nih.gov/Genbank/index.html).

Microarray data: *The JI* will not publish descriptive manuscripts that report microarray data, unless such information can be considered of unusual immunological significance and/or include functional experiments that provide novel insight into mechanism. As with other scientific approaches, current experimental, quantitation, verification, and statistical analyses are expected. Microarray experiments should be Minimum Information About a Microarray Experiment (MIAME) compliant (for guidelines see www.mged.org). Whereas limited online space may be available for supplemental tables associated with the manuscript, complete microarray data must be deposited in the appropriate public database (e.g., GEO (ncbi.nlm.nih.gov/geo/), ArrayExpress (www.ebi.ac.uk/arrayexpress/), or CIBEX (cibex.nig.ac.jp/index.jsp), and must be accessible without restriction from the date of publication. An entry name or accession number must be included in the paper before publication. The accession number should be accompanied by the Website address of the databank.

STYLE GUIDE

General style conventions: In general, *The JI* follows *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers,* 7th edition, published by the Council of Science Editors, Inc., in instances where style issues are not directly addressed.

Abbreviations for references: *BIOSIS* is the primary source for journal name abbreviations; *Index Medicus* is the secondary source.

Nomenclature: The most current links for nomenclature guidelines are posted online.

Allergen nomenclature: Nomenclature for allergens should be assigned in cooperation with the IUIS Allergen Sub-Committee. Authors of accepted manuscripts that describe novel allergens will be requested to complete a brief standard form available at IUIS Allergen Nomenclature (www.allergen.org/).

CD nomenclature: For the purpose of consistency, *The JI* will follow CD nomenclature. For murine molecules, *The JI* will follow the nomenclature previously published (*J. Immunol.* 160: 3861–3868, 1998). For human molecules, standard CD nomenclature will be followed as updated (*J. Immunol.* 168: 2083–2086, 2002). See also http://www.HCDM.org

Chemical names: The JI uses *The Merck Index* (library.dialog.com/bluesheets/html/bl0304.html) and the *IUPAC-IUB Commission on Biochemical Nomenclature-Chemical Abstracts* (www.chem.qmul.ac.uk/iupac/bibliog/white.html) as the primary references for proper spelling and style of chemical names.

Chemokine/chemokine receptor nomenclature: The systematic name for chemokines and chemokine receptors should be used. The original name may be given in parenthesis if desired. See *Cytokine 21:48–9, 2003.*

Enzyme nomenclature (www.chem.qmul.ac.uk/iubmb/enzyme/) is *The JI* source for style and spelling of enzyme names.

Gene nomenclature: The HUGO guidelines for gene nomenclature (www.genenames.org) may be used for naming human genes. Mouse Genome Informatics (www.informatics.jax.org/) is a reference source for naming mouse genes.

Genetic nomenclature for mice: *The JI* uses the revisions for standardized genetic nomenclature for mice published periodically in *Mouse Genome.* A current listing of inbred strains of mice and rats is available at Mouse Genome Informatics. Authors are encouraged to deposit their mapping data with the Mouse Genome Database (MGD) (www.informatics.jax.org/) before publication and to include the assigned MGD accession numbers in their manuscripts. Data may be submitted electronically by e-mail. Information about electronic submission of datasets can be obtained at the Data and Nomenclature Submissions page. Gene symbols should be reserved with MGD in advance of publication. An electronic nomenclature submission form is available from the MGD Website.

HLA nomenclature: HLA nomenclature is updated periodically by the WHO Nomenclature Committee for Factors of the HLA System. A recent reference is *Hum. Immunol. 64: 919–20, 2003*. Annual comprehensive revisions are published in *Human Immunology*, usually in the spring. See also: http://www.ebi.ac.uk/imgt/hla/

SUPPLEMENTAL MATERIALS

Supplemental Data: The print version of the paper must stand on its own without the Supplemental Data. All supplemental material accompanying an article must be submitted with the original paper for peer review. Upload the file as "Supplemental Data" during the online submission. Supplemental material is primarily intended for short videos (must be no longer than 30 seconds and under 10 MB, with no sound or voice-over) or large tables, large sequence alignments, or large data sets. Additional supplemental data that supports for the interpretation and conclusions drawn in the manuscript may, however, also be submitted for review with the manuscript.

Videos must be 320 × 480 pixels or smaller for best viewing within a browser. Submit videos in MPG or QuickTime format. Change QuickTime file extensions to ".mov" so that Web browsers will recognize the file type and play the movie. Compress videos as much as possible to help control file size. Name videos by order of citation appearance (e.g., video1.mov). Authors will be notified if problems exist with videos as submitted and will be asked to take responsibility for modifications. No editing will be done to videos at the Editorial Office.

Legends or short explanations of the material must accompany all supplemental material. Links to the material will appear in two places in the online journal: in the Table of Contents and in the information box associated with the first page of the full-text article. There will not be any links in the body of the article. In the printed paper, supplemental material will be footnoted the first time mentioned: "The online version of this article contains supplemental material."

CUTTING EDGE MANUSCRIPT PREPARATION

Manuscripts submitted to the Cutting Edge section should conform to the *General Guidelines* for full-length manuscripts as well as the additional guidelines below:

1. Cutting Edge articles, including figures and references, ***must fit within four journal pages.*** Authors should estimate the size of figures and tables and limit the text accordingly. One printed page in *The JI* contains approximately 8,000 characters, including spaces. Thus, a 4-page Cutting Edge article would contain approximately 32,000 characters. The formula for estimating the number of pages is provided in Manuscript Preparation.
2. The *Abstract* is limited to 150 words.
3. The *Materials and Methods* section may be sharply limited but should be sufficient to allow the evaluation of results and conclusions.
4. Authors may combine the *Results* and *Discussion* sections.

PREPARATION OF THE REVISED MANUSCRIPT

Follow *The JI* Editorial Office instructions contained in the previous decision letter carefully and thoroughly. A revised manuscript not returned within nine months of the date of the decision letter will be considered a new manuscript and subject to a new, complete review.

Individual manuscript files, files for each figure and table (even if they are unchanged from the previous submission), and a point-by-point reply to all referee comments must be uploaded to the system. The revised manuscript text must be marked to show changes, using either yellow highlighting or the font color red (Microsoft Word files preferred). Do not show deletions, because if the manuscript is accepted, this version will be immediately sent for publication. High-resolution figure files should be submitted. Figures must be in **TIFF** or **EPS** format and prepared as described under *Figures.*

SUBMIT ONLINE

Submit online at ji.msubmit.net. For the initial submission, either a PDF of the entire manuscript (text, figures and tables), or individual manuscript, figure, and table files may be uploaded to the system. If individual files are uploaded, the system then creates a single PDF for review purposes. For all revised manuscripts, individual manuscript, high-resolution figure, and table files must be uploaded to the system. Authors should save copies for themselves of all the files in their original formats. See *Author Instructions* at ji.msubmit.net for online submission requirements. See the *Figures* section for help with preparing digital art. *The JI's* online submission system requires browsers where cookies and Javascript are enabled.

After the manuscript has been checked by journal staff, the Corresponding Author will receive an email acknowledging receipt of the manuscript. The email contains links to the Submission Form and Color Charges Form (if applicable). The Corresponding Author must download, sign and fax these forms to 301-634-7831 to

complete the submission. The manuscript **will not be sent for review** until *The JI* Editorial Office receives these forms signed by the Corresponding Author. The Submission and Color Charges Forms must be submitted each time a manuscript is submitted, including resubmission of a revised manuscript. Please contact infoji@aai.org if you do not receive the acknowledgment e-mail. Please do NOT use the old hard copy forms found in old copies of the printed journal.

PUBLICATION FEES

All publication fees are payable in U.S. dollars. Accepted manuscripts are published only upon commitment by the author(s) or institutional financial officer to pay these charges.

Submission Fee: If the corresponding author is not an **AAI member***, a fee of $50 per manuscript must be paid by credit card (American Express, MasterCard, or Visa) during the submission process. If payment by credit card is impossible, please contact infoji@aai.org to arrange payment by check (drawn on a U.S. bank). We do not accept cash or purchase orders.

*There is no processing fee for regular, emeritus or honorary AAI members in good standing.

Page Charges:

- $60 per page for up to 8 printed pages in the article
- $150 for each additional page from 9 to 12 pages
- $210 for each additional page over 12 pages

Color Charges: Color figures may include multiple color panels. Authors will be notified of the cost of color reproduction on the Reprint Form received with their electronic page proofs and must confirm acceptance of the charges in writing. Authors should expect that color figures in the accepted paper will be reproduced in color and will incur color charges.

Note that AAI members receive a significant discount on color charges.

- Non-AAI Members: $850 for each color page, and $300 for each additional color figure on the same color page for corresponding authors who are not AAI members (i.e., first figure on first page: $850; second figure on the first page: $300; first figure on second page: $850, etc.).
- AAI Members: $650 for each color page and $300 for each additional color figure on the same page for corresponding authors who are regular, emeritus, or honorary AAI members in good standing on the date of manuscript acceptance (i.e., first figure on first page: $650; second figure on the first page: $300; first figure on the second page: $650, etc.).

Online Posting Fee: $150 per published article.

Reprints: Reprints must be ordered in advance of publication. A Reprint Form showing the cost of reprints, together with an order slip, is sent with the electronic page proofs. The invoice for reprints will also include page charges and color figure charges. Reprint orders from noncontributors must be directed to the Editorial Office.

PEER REVIEW INFORMATION

The Process: By submitting a manuscript to *The JI*, the authors agree to subject it to the confidential peer-review process. Editors and reviewers are informed that the manuscript must be considered confidential. After a manuscript is received, it is assigned by the Science Coordinator to a specific Deputy Editor and a Section Editor, whose expertise is considered to be appropriate. The Section Editor prepares a list of expert reviewers, which may include some suggested by the Science Coordinator. Authors can indicate specific individuals whom they would like to have excluded as reviewers as well as individuals thought to be particularly appropriate, although these suggestions may not always be accepted. Generally, requests to exclude certain potential reviewers will be honored except in fields with a limited number of experts.

All potential reviewers are contacted individually to determine availability. Manuscript files are sent to at least two expert reviewers. Reviewers are asked to complete the review of the manuscript within two weeks and to return a short review form. Based on the reviewers' comments, the Section Editor recommends a course of action and communicates the reviews and recommendations to the Deputy Editor for a final decision.

The Deputy Editor considers the comments made by the reviewers and the recommendation of the Section Editor, selects those comments to be shared with the authors, makes a final decision concerning the manuscript, and prepares the decision letter for signature by the Editor-in-Chief. If revisions of the manuscript are suggested, the Deputy Editor also recommends who should review the revised paper when resubmitted. Authors are informed of the decision by e-mail; appropriate comments from reviewers and editors are appended.

Decisions: There are four categories for initial decisions: accept, accept with minor revision, return for revision, and reject. Some manuscripts are accepted provisionally, pending relatively minor revisions. In this case, the Deputy Editor may conduct the rereview. For many manuscripts, authors are invited to resubmit if revision or additional experimentation can address major criticisms. Typically, one or more reviewers will then be asked to consider the adequacy of the revisions. Cutting Edge papers are allowed only minor revisions because of time constraints. All revised manuscripts are carefully reexamined, and ultimate acceptability is not guaranteed. *The JI* does not provide for an advance determination of the acceptability of a particular manuscript for publication, nor does it promise expedited review of selected manuscripts.

Communication with Authors: To minimize the possibility of misinterpretation or errors in verbal communication, the Editorial Office will provide information, in writing, only to the corresponding author and will not provide extensive details (e.g., exact status of a review or a predicted time to final decision). Deputy Editors do not take calls from authors concerning decisions or other related matters. All such inquiries should be addressed in writing to the Editor-in-Chief, who will discuss concerns with the Deputy Editor. This policy has been established to provide for uniformity and fairness in addressing concerns about the review process.

Manuscripts Submitted from the Institution of an Editor: Manuscripts submitted from the institution of any Section or Deputy Editor or the Editor-in-Chief are reviewed by other editors from outside that institution. The Editorial Office ensures confidentiality and equity in reviewing all manuscripts.

Rebuttals: If the authors believe that a serious scientific error occurred during the review, a letter of rebuttal may be sent to the Editor-in-Chief, explaining the reasons why the decision should be reconsidered. Letters of rebuttal must be received by the Editor-in-Chief within six weeks of the date the decision letter was sent. When appropriate, the matter will be taken up with the initial Deputy Editor, Section Editor, or additional reviewers. Rebuttals that challenge rejections that were based on priority alone are rarely successful, since the assignment of priority is necessarily a matter of opinion. If the authors of a rejected manuscript are able to make new advances that go far beyond the original submission, they will often expedite consideration of their paper through the submission of a completely new manuscript.

The JI Reviewers

Selection: Selection of reviewers is the responsibility of the Section Editor, although the Science Coordinator makes recommendations to the Section Editor from a list of individuals who have reviewed manuscripts previously. This database includes self-identified areas of expertise as well as information about the perceived usefulness and timeliness of past reviews. Individuals who consistently have provided tardy or unhelpful reviews are removed from the database. Every effort is made to avoid both real and apparent conflicts of interest with respect to research activities or collaborative or personal interactions. Reviewers are asked to withdraw from considering any manuscript in which they identify a conflict that has escaped the attention of the Section Editor.

Scientific Integrity: Information contained in manuscripts is considered confidential and should not be shared or distributed. If necessary, a reviewer can consult with others for an adequate evaluation of the research findings if all individuals involved maintain confidentiality, objectivity, and avoid conflict of interest. AAI is not responsible for acts and conduct by reviewers that are not in accordance with accepted professional standards. Reviewers are asked to be objective in their evaluations and to judge primarily the novelty and soundness of the information presented.

Anonymity: Although reviews are anonymous, all comments should be capable of withstanding public scrutiny. Except in very unusual circumstances, the identity of the reviewers and Section and Deputy Editors involved in the review of any given manuscript is kept confidential.

The JI Editorial Board: The AAI Council, upon recommendation of the Publications Committee, appoints the Editor-in-Chief for a term of five years. Deputy Editors, Section Editors, and Associate Editors are nominated by the Editor-in-Chief and appointed by the Publications Committee. Deputy Editors are appointed for variable terms. Section Editors and Associate Editors are appointed for one renewable term of two years in most circumstances. The Editor-in-Chief, the Deputy Editors, and the Section Editors constitute the Editorial Board and are required to be members of AAI. The Editor-in-Chief is responsible for the specific editorial conduct of *The JI*. The AAI Publications Committee is responsible for the management and evaluation of *The JI* and any other official publications of AAI, subject to the general supervision of the AAI Council.

EDITORIAL POLICIES

Duplicate Publication and Scientific Fraud: In case of possible scientific misconduct, i.e., suspected fabrication or falsification of data, double publication, or plagiarism, the Editor-in-Chief will attempt to clarify the matter with each of the authors. Should that fail to resolve the situation satisfactorily, the Editor-in-Chief will contact the institution of the corresponding author. The institution should then make an inquiry and report to the Editor-in-Chief. Until the matter is clarified, no papers by any authors on the disputed manuscript will be considered for publication. If scientific misconduct is confirmed by institutional review, the Editor-in-Chief will report it to the Publications Committee. The Publications Committee, in consultation with the Council of AAI, will decide appropriate action.

Embargo Policy: For manuscripts considered to be in press or approved for publication, the public release of information should not precede the actual publication of the work. The publication date is defined as the date the first copy is mailed from the printer or the first day the issue is posted full-text online. Please note that the issue date and mail dates do not necessarily coincide. This embargo policy protects the peer-review process and the newsworthiness of the scientific content of published articles, and minimizes the chance for the appearance of misinformation in the lay press. The policy also ensures that scientists have access to all relevant information at the same time as the public. These restrictions do not apply to the presentation of the work at scientific conferences or symposia that precede the actual publication date. Although news reporters may be present at such meetings or symposia, information, tables, or illustrations that in any way duplicate the content of a manuscript submitted for publication or in press should not be provided to reporters by the authors. In particular, press conferences should not be held before the embargo date. The official release of videotape presentations and electronic prepublication of articles on the Internet should adhere to the embargo policy. Violations of these policies are legitimate grounds for withdrawal of the manuscript from publication or other measures that *The JI* may choose to take.

Financial Conflict of Interest Disclosures: Authors of submitted papers that contain information affecting actual or potential commercial products must declare any conflict of interest or financial interest in the product or in potentially competing products held by them, their spouses, or their minor children. Financial interests include consultancies, employment, service on Board of Directors, honoraria, royalties, research support, grants, or contracts, if any exceed $5,000 per year in any of the preceding five years. They also include expert testimony, or patents received or pending, stock, and equity interests (diversified mutual funds or investment trusts do not constitute competing financial interests). The conflict should be stated briefly on the online manuscript submission screen, e.g., "J. B. Doe has received royalty payments from PQR Incorporated." It is the responsibility of the corresponding author to review this policy with all authors and to list collectively the relevant relationships. All disclosures will remain confidential during the review process, but papers accepted for publication will acknowledge conflict of interest and financial interests in a published disclaimer describing the nature of the interests. If authors declare no conflict of interest or financial interests, this also will be noted in a published disclaimer.

NIH Public Access Policy: As of April 7, 2008, the U. S. National Institutes of Health (NIH) requires that manuscripts accepted for publication and that describe research funded in whole or in part with NIH funds be deposited into the NIH PubMed Central repository.

AAI views this policy as a costly, duplicative effort that diverts federal dollars from biomedical research. For more information about how publishing in *The Journal of Immunology* relates to the policy, please see the NIH Public Access Policy: Frequently Asked Questions (http://publicaccess.nih.gov/FAQ.htm).

Despite AAI's serious concerns about this policy, AAI will grant a limited one-time waiver permitting authors to deposit an accepted manuscript into PubMed Central, provided that the corresponding author:

1. instruct the NIH to release the manuscript to the public no sooner than 12 months after final publication in *The JI.*
2. agrees that this one-time waiver applies solely to deposition into PubMed Central and does not extend to any other repository, agency, or entity; and
3. agrees to and includes in the text of the abstract of the manuscript submitted to PMC the following disclaimer:

"This is an author-produced version of a manuscript accepted for publication in *The Journal of Immunology (The JI)*. The American Association of Immunologists, Inc. (AAI), publisher of *The JI,* holds the copyright to this manuscript. This version of the

Other Funding Agencies: Authors funded by agencies that mandate submission to PubMed Central with public access within 6 months after publication must contact infoji@aai.org for the Submission Form.

Prior Publication: Submission of a manuscript to *The Journal of Immunology (The JI)* implies that the content has not been published previously and will not be submitted for publication elsewhere while the manuscript is under review. *The JI* considers research results (excluding abstracts and student dissertations) to have already been published if they are publicly available with a fixed content, i.e., content is in an unalterable form, and are citable in any language.

Previous publication of a particular figure may not prevent subsequent publication in The JI if that figure is essential to the submitted paper and does not constitute the major contribution. Previously published portions of a paper must be accompanied by a permission release from the copyright holder and must be cited.

Preprints, whether paper copies or noncitable postings on a publicly accessible Web site, are not considered publications, nor are poster presentations of work at a conference.

An invited paper published in a non-peer-reviewed journal, however, would be considered a prior publication.

Submissions of previously published research, as defined by the criteria, must contain a disclosure statement; it is at the Editor-in-Chief's discretion whether to allow peer review of the work in these instances.

Unique materials: It is required that unique materials described in manuscripts published in *The JI* will be made available, within reason, to qualified investigators for their own noncommercial use. A reasonable amount may be charged by authors to cover preparation and shipping of the requested material. An agreement to this effect is included in the Manuscript Submission Form.

STANDARD ABBREVIATIONS

The abbreviations listed here are used without definition in articles published in *The JI*. The form may be used for both singular and plural, or made plural with "s" at the author's option.

Å, angstrom
aa, amino acid (only with numbers)
Ab, antibody
ABTS, 2,2′-azinobis(3-ethylbenzthiazoline-6-sulfonic acid)
Ag, antigen
AIDS, acquired immunodeficiency syndrome
ANOVA, analysis of variance
AP-1, activator protein 1
APC, Ag-presenting cell
ATP, adenosine triphosphate (also ADP, AMP, CMP, CTP, GDP, GMP, GTP, ITP, NTP, TMP, UDP and UTP)
AZT, 3′-azido-3-deoxythymidine
BALT, bronchus-associated lymphoid tissue
BAPTA-AM, 1,2-bis(2-aminophenoxy)ethane-*N,N,N′,N′*-tetraacetic acid acetoxymethyl ester
BCR, B cell receptor
bp, base pair (only with numbers)
BrdU, 5-bromo-2′-deoxyuridine
BSA, bovine serum albumin
C, complement
C region, constant region of Ig
cAMP, cyclic AMP
CCL, CC chemokine ligand
CCR, CC chemokine receptor
CD40L, CD40 ligand
cDNA, complementary DNA
CDR, complementarity determining region
C/EBP, CCAAT/enhancer-binding protein
CFA, complete Freund's adjuvant
CFSE, 5-(and 6-)carboxyfluorescein diacetate succinimidyl ester
CFU, colony-forming unit
cGMP, guanosine 3′,5′-cyclic monophosphate
CHAPS, 3-[(3-cholamidopropyl)dimethylammonio]-1-propane sulfonate
Ci, curie
CIITA, class II transactivator
CLIP, class II-associated invariant-chain peptide
CMV, cytomegalovirus
CNS, central nervous system
CoA, coenzyme A
Con A, concanavalin A
CpG, cytosine guanine dinucleotide
cpm, counts per minute
CREB, cAMP response element binding protein
cRNA, complementary RNA
CSF, colony-stimulating factor
CTL, cytotoxic T lymphocyte
CTLA, cytolytic T lymphocyte-associated Ag
CXCL, CXC chemokine ligand
CXCR, CXC chemokine receptor
d, deoxy; distilled (as in dH2O)
D region, diversity region of Ig or T cell receptor for Ag
Da, dalton (only with numbers)
dATP, 2′-deoxyadenosine triphosphate
DEAE, diethylaminoethyl
df, degrees of freedom
DMEM, Dulbecco's modified Eagle's medium
DMSO, dimethylsulfoxide
DNA, deoxyribonucleic acid
DNase, deoxyribonuclease
DNP, dinitrophenyl
dNTP, 2′-deoxynucleoside 5′-triphosphate
dpm, disintegrations per minute
ds, double-stranded (as dsDNA)
DTT, dithiothreitol
E, erythrocyte
EBV, Epstein-Barr virus
EC_{50}, 50% effective concentration
ECL, enhanced chemiluminescence
ED_{50}, 50% effective dose
EDTA, ethylenediaminetetraacetic acid
EGTA, ethylene glycol-bis(β-aminoethyl ester)-*N,N,N′,N′*-tetraacetic acid
ELISA, enzyme-linked immunosorbent assay
ELISPOT, enzyme-linked immunospot
EMSA, electrophoretic mobility shift assay
ERK, extracellular signal-regulated kinase
E:T ratio, effector to target ratio
Fab, Ag-binding fragment
F-actin, filamentous actin
FACS, fluorescence-activated cell sorter
FAM, 6-carboxyfluorescein

FBS, fetal bovine serum
FcR, Fc receptors (e.g., FcγRI)
FCS, fetal calf serum
FITC, fluorescein isothiocyanate
FLICE, Fas-associated death domain-like IL-1β-converting enzyme
FLIP, FLICE inhibitory protein
fMLP or FMLP, formyl-methionyl-leucyl-phenylalanine
Fura 2-AM, fura 2-acetoxymethyl ester
g, gram (only with numbers)
GALT, gut-associated lymphoid tissue
GAPDH or G3PDH, glyceraldehyde-3-phosphate dehydrogenase
G-CSF, granulocyte CSF
GFP, green fluorescent protein
GM-CSF, granulocyte-macrophage CSF
gp, glycoprotein (e.g., gp100)
GPI, glycosylphosphatidylinositol
GST, glutathione *S*-transferase
h, hour (only with numbers)
H chain, heavy chain
H&E, hematoxylin and eosin
HBSS, Hanks' balanced salt solution
HEPES, *N*-2-hydroxyethylpiperazine-*N*′-2-ethanesulfonic acid
HIV, human immunodeficiency virus
HLA, human histocompatibility leukocyte Ag
HPLC, high performance liquid chromatography
HRP, horseradish peroxidase
HSV, herpes simplex virus
HUVEC, human umbilical vein endothelial cells
IC_{50}, 50% inhibition/inhibitory concentration
ICAM, intercellular adhesion molecule
ICOS, inducible costimulator
Id, idiotype; idiotypic determinant
ID_{50}, 50% infective dose or 50% inhibiting dose
IDO, indoleamine 2,3-dioxygenase
IFA, incomplete Freund's adjuvant
IFN, interferon (e.g., IFN-γ)
Ig, immunoglobulin
IgH, Ig heavy chain
IκB, inhibitory NF-κB
IL, interleukin (e.g., IL-2)
i.m., intramuscular
IMDM, Iscove's modified Dulbecco's medium
IMEM, Iscove's minimal essential medium
i.p., intraperitoneal
ITAM, immunoreceptor tyrosine-based activation motif
ITIM, immunoreceptor tyrosine-based inhibitory motif
IU, international unit
i.v., intravenous
J region, joining region of Ig or T cell receptor for Ag
JAK or Jak, Janus kinase
JNK, c-Jun N-terminal kinase
kb, kilobase (only with numbers)
kbp, kilobase pair (only with numbers)
K_a, association constant
K_d, distribution coefficient; dissociation constant
K_D, affinity constant
kDa, kilodalton (only with numbers)
L chain, light chain; light
LD_{50}, 50% lethal dose
LFA, leukocyte (lymphocyte) function-associated Ag
LIF, leukemia inhibitory factor
LPS, lipopolysaccharide
LU, lytic unit
mAb, monoclonal Ab
2-ME, 2-mercaptoethanol
MACS, magnetic-activated cell sorting
MALDI, matrix-assisted laser desorption ionization
MALDI-TOF, matrix-assisted laser desorption ionization-time of flight
MALT, mucosa-associated lymphoid tissue
MAPK, mitogen-activated protein kinase
MCP-1, monocyte chemoattractant protein-1
M-CSF, macrophage CSF
MEK, mitogen-activated protein kinase kinase
MEM, minimum essential medium
MES, 2-(*N*-morpholino)ethanesulfonic acid
mg, milligram (only with numbers)
MHC, major histocompatibility complex
min, minute (only with numbers)
MIP, macrophage-inflammatory protein
ml, milliliter (only with numbers)
MLC, mixed lymphocyte culture
MLR, mixed leukocyte reaction
mo, month(s) (only with numbers)
MOPS, 4-morpholinepropanesulfonic acid
M_r, relative molecular mass
mRNA, messenger RNA
MTT, 3-(4,5-dimethylthiazol-2-yl)-2,5-dimethyltetrazolium bromide
μg, microgram (only with numbers)
μl, microliter (only with numbers)
m.w., molecular weight
MyD88, myeloid differentiating factor 88
n, number in study or group
NAD, nicotinamide adenine dinucleotide
NADH, reduced NAD
$NaDodSO_4$, sodium dodecyl sulfate
NADP, NAD phosphate
NADPH, NAD phosphate (reduced)
NBT, nitroblue tetrazolium
ND, not determined
NDP, nucleoside 5′-diphosphate
NF, nuclear factor
NFAT or NF-AT, nuclear factor of activated T cells
NF-κB, nuclear factor κB
Ni-NTA, nickel-nitrilotriacetic acid
NK cell, natural killer cell
NMP, nucleoside 5′-monophosphate
NO, nitric oxide
NS, not significant
nt, nucleotide (only with numbers)
OCT, octamer-binding factor
OD, optical density
OVA, ovalbumin
p, probability
PAGE, polyacrylamide gel electrophoresis
PBL, peripheral blood lymphocyte
PBMC, peripheral blood mononuclear cell
PBS, phosphate-buffered saline
PCR, polymerase chain reaction
PE, phycoerythrin
PECAM-1, platelet endothelial cell adhesion molecule-1
PerCP, peridinin chlorophyll protein
PFU, plaque-forming unit
PG, prostaglandin
PHA, phytohemagglutinin

PI3K, phosphatidylinositol 3-kinase
PIPES, piperazine-*N,N′*-bis(2-ethane sulfonic acid)
PMA, phorbol myristate acetate
PMSF, phenylmethylsulfonyl fluoride
PWM, pokeweed mitogen
r, recombinant, (e.g., rIFN-γ)
R, receptor (e.g., IL-2R)
RACE, rapid amplification of cDNA end
RAG, recombination-activating gene
RANTES, regulated upon activation, normal T cell expressed and secreted
RBC, red blood cell
RFLP, restriction fragment length polymorphism
RIA, radioimmunoassay
RNA, ribonucleic acid
RNase, ribonuclease
rpm, revolutions per minute
rRNA, ribosomal
RT-PCR, reverse transcriptase polymerase chain reaction
s, second (use only with numbers)
s.c., subcutaneous
SCID, severe combined immunodeficiency
SD, standard deviation
SDS, sodium dodecyl sulfate
SE, standard error
SEM, standard error of the mean
SHIP, src homology 2-containing inositol 5′-phosphatase
SIV, simian immunodeficiency virus
sp. act., specific activity
SRBC, sheep red blood cells
ss, single-stranded (e.g., ssDNA)
SSC, standard saline citrate
STAT, signal transducer and activator of transcription
SV40, simian virus 40
$t_{1/2}$, half-life, half-time
TAMRA, 5-(and 6)-carboxytetramethylrhodamine
TAP, transporter associated with Ag processing
Tat, terminal deoxynucleotidyltransferase
TBS, Tris-buffered saline
TBST, TBS with Tween 20
TCA, trichloroacetic acid
TCR, T cell receptor for Ag
TdR, thymidine deoxyribose (also UdR, AdR)
TdT, terminal deoxynucleotidyltransferase
TGF, transforming growth factor
Th cell, T helper cell
TLC, thin layer chromatography
TLR, Toll-like receptor
TNF, tumor necrosis factor
TNP, trinitrophenyl
TRAIL, TNF-related apoptosis-inducing ligand
Tris, tris(hydroxymethyl)aminomethane
tRNA, transfer RNA
TUNEL, Tdt-mediated dUTP nick end labeling
U, unit (only with numbers)
UV, ultraviolet
v/v, volume to volume ratio (%)
V region, variable region of Ig
VCAM, vascular cell adhesion molecule
V(D)J, variable diversity joining
VLA, very late activation Ag
W, watt (only with numbers)
wk, week (only with numbers)
xid, X-linked immunodeficiency
Zap70, ζ-associated protein 70 (or ζ-chain-associated protein 70)

Keywords

Animals
Human
Rodent
Other Animals

Cells
B Cells
Dendritic Cells
Endothelial Cells
Eosinophils
Mast Cells/Basophils
Monocytes/Macrophages
Natural Killer Cells
Neutrophils
Stem Cells
Stromal Cells
T Cells
T Cells, Cytotoxic
Th1/Th2 Cells

Diseases
Autoimmunity
Diabetes
EAE/MS
Endotoxin Shock
Graft Versus Host Disease
Immunodeficiency Diseases
Rheumatoid Arthritis
Systemic Lupus Erythematosus

Infections
AIDS
Bacterial
Fungal
Parasitic-Helminth
Parasitic-Protozoan
Viral

Molecules
AcutePhase Reactants
Adhesion Molecules
Antibodies
Antigens/Peptides/Epitopes
Autoantibodies
Cell Surface Molecules
Chemokines
Complement
Cytokine Receptors
Cytokines
Fc Receptors
Lipid Mediators
Lipopolysaccharide
MHC
Nitric Oxide
Protein Kinases/Phosphatases
Superantigens
T Cell Receptors
Transcription Factors

Processes
Allergy
Antigen Presentation/Processing
Apoptosis
Cell Activation
Cell Differentiation
Cell Proliferation
Cell Trafficking
Chemotaxis
Comparative Immunology/Evolution
Costimulation
Cytotoxicity
Gene Rearrangement
Gene Regulation
Hematopoiesis
Inflammation
Memory
Neuroimmunology
Phagocytosis
Repertoire Development
Reproductive Immunology
Signal Transduction
Tolerance/Suppression/Anergy
Transplantation
Tumor Immunity
Vaccination

Techniques/Approaches
Gene Therapy
Molecular Biology
Transgenic/Knockout Mice

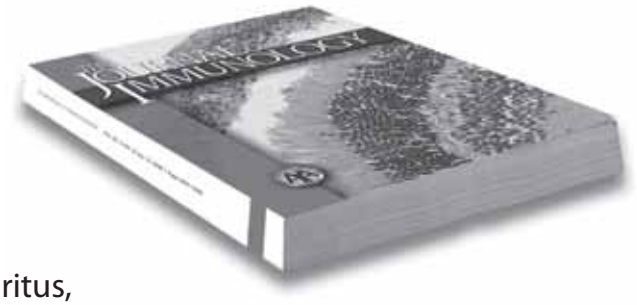
Tissues
Lung
Mucosa
Skin
Spleen & Lymph Nodes
Thymus

THE JOURNAL OF IMMUNOLOGY

Special Discounts for AAI Member Authors

Waiver of Manuscript Submission Fee

Corresponding authors who are regular, emeritus, or honorary AAI members in good standing on the date of manuscript submission to ***The Journal of Immunology*** receive a waiver of the regular $50 submission fee.



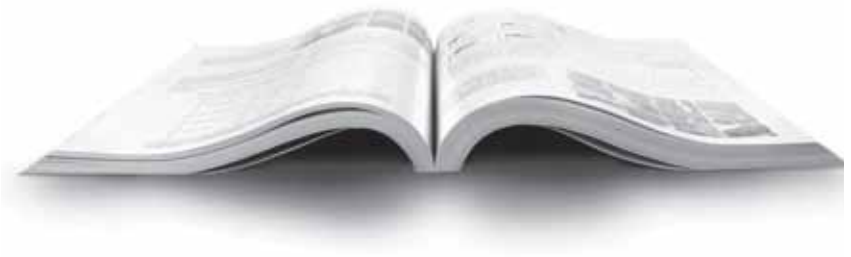
Reduced Charges for Color Figures

Corresponding authors who are regular, emeritus, or honorary AAI members in good standing on the date their manuscript is accepted for publication in ***The Journal of Immunology*** receive reduced charges for submitted color figures. AAI members receive a $200 reduction in the cost of the first color figure on each page.

■ ■ ■ ■

For complete details on AAI membership privileges and benefits, eligibility requirements, and application forms, please visit **www.aai.org/membership**, contact the AAI membership office at 301-634-7195, or email **members@aai.org.**

For complete details on manuscript submission to ***The JI***, please visit **www.jimmunol.org**, contact ***The JI*** office at 301-634-7197, or email **infoji@aai.org.**



97th Annual Meeting
The American Association of Immunologists

IMMUNOLOGY 2010™

The Premier Annual All-Immunology Meeting for Scientists Worldwide

Save the Date!

May 7-11, 2010
Baltimore Convention Center
Baltimore, Maryland