

## Author Instructions

The *Journal of Microbiology and Biotechnology* (JMB) strives to ensure a simple and straightforward process for submitting your manuscript for publication. These instructions provide all the information for submission, including the JMB editorial policy, style, and manuscript checklist. All articles submitted to JMB should be prepared according to the instructions below.

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## Aims and Scope

The *Journal of Microbiology and Biotechnology* (JMB) is a monthly international journal devoted to the advancement and dissemination of scientific knowledge concerning microbiology, biotechnology, biomedicine, and related academic disciplines. It covers the scientific and technological aspects of microbiology, including molecular and cellular microbiology (MCM), environmental microbiology and biotechnology (EMB), food microbiology and biotechnology (FMB), and biotechnology and bioengineering (BB). Detailed descriptions of the subcategories are available at <http://www.jmb.or.kr/about/about.html>. JMB is published and distributed as a regular issue on the 28<sup>th</sup> of each month, and occasionally as a special issue, by the Korean Society for Microbiology and Biotechnology (KMB).

- Manuscripts addressing strain identification and culture deposition based on preliminary experiments, such as 16S rRNA gene sequencing and simple growth characterization, are unlikely to be considered for publication, unless the authors provide in-depth molecular, genetic, and/or physiological analysis. Similarly, the simple optimization of fermentation conditions through statistical methods is unlikely to be considered for publication. Authors must provide the strain described in the paper upon request. JMB recommends that authors deposit any newly identified, or otherwise noteworthy, strains in publicly accessible microbial stock centers or culture collections, and provide strain deposit numbers in the manuscript.
- Manuscripts reporting new nucleotide and amino acid sequences should be accompanied by additional experiments to characterize the gene(s) and gene product(s) concerned and/or substantial comparable analysis. Providing sequence(s) alone is unlikely to be accepted. New sequence data should be deposited in public databases, such as GenBank, EMBL, DDBJ, or KOBIC. The accession numbers should be included in a separate paragraph at the end of the Materials and Methods section (e.g., "The GenBank/EMBL/DDBJ accession number for the sequence reported in this paper is AA00000"). Authors should follow the "Sequence data format" detailed below for the preparation of nucleotide and amino acid sequence diagrams.
- For manuscripts reporting genomic or transcriptomic data (e.g., microarray, next-generation sequencing, or other high-throughput), authors should deposit the data in the appropriate public database (e.g., Gene Expression Omnibus (GEO) and BioProject in NCBI, CIBEX) and provide an approved accession number in a separate paragraph at the end of the Materials and Methods section.

## Editorial Policy and Ethical Guidelines

### Originality, Authorship, and Copyright

Manuscripts submitted for publication must be unpublished research written in English and not under consideration for publication elsewhere.

Credit for authorship should be based on the four criteria below: (1) substantial contributions to conceptualization, design, and the acquisition, analysis, and interpretation of data; (2) drafting of the article or revising it critically for significant intellectual content; (3) final approval of the version to be published; and (4) agreement to be accountable for all aspects of the work, ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The corresponding author must provide author contribution statements in the manuscript. The corresponding author is also responsible for ensuring that all the listed authors have agreed to all of the content, including the author list and author contribution statements and approved the manuscript submission to the journal. The corresponding author is also responsible for managing all communication between the journal and all co-authors before and after publication.

The author retains a copyright of the published article and agrees to transfer the license to KMB. To maintain and protect the author's rights, authors are required to sign an 'Affirmation of Originality & Assignment of License to Publish' form, which will be sent to the corresponding author to confirm receipt of the manuscript when the manuscript is accepted for publication.

Requests for changes in authorship (listing order or the addition or deletion of a name) after submission should be accompanied by signed statements of agreement from all authors. However, please note that changes in authorship may not be allowed after a paper has been accepted.

## INSTRUCTIONS TO AUTHORS

### ***Conflict of Interest***

JMB requires that all authors disclose any potential sources of conflict of interest. Any interest or relationship, financial or otherwise, that might be perceived as influencing an author's objectivity is considered a potential source of conflict of interest. If no conflict exists, authors should state: "The authors declare that there is no conflict of interest." If the authors have any conflict of interest to declare, they must state so at submission. It is the responsibility of the corresponding author to review this policy with all authors and collectively list the declaration of conflict of interest in the manuscript (under the Acknowledgments section).

### ***Permissions***

Authors are responsible for acquiring permission to reproduce any copyrighted figures, tables, data, or text in the submitted paper. Authors should note that that text quotation regarding the published or copyrighted work(s) and permission letter(s) must be submitted together with the manuscript.

### ***Ethics***

All research involving human subjects must be performed in accordance with the ethical standards given in the Declaration of Helsinki, and the research protocol must be approved by the author's institutional review board (IRB) prior to experiments. Experiments involving animals must also be approved by the author's institutional animal care and use committee (IACUC). Details of the ethical approval status of the research must be described in the Materials and Methods section of the manuscript, including the IRB and/or IACUC approval number(s). Authors must submit a document indicating the approval of the research when submitting the revised version of the manuscript.

## **Review and Publication Processes**

### ***Review and Revision***

All papers will be read critically by the editors, members of the editorial board, and a minimum of two anonymous reviewers selected for their subject competence.

The suggestions made by the reviewers and editors will be conveyed to the authors, who will then have an opportunity to revise the paper. Generally, within 4 to 6 weeks of the submission, the corresponding author will be notified of the editor's decision to accept, reject, or request that the manuscript be revised. When a revision is requested, the corresponding author must either submit the revised manuscript within 8 weeks or withdraw it. A point-by-point response to the reviews should be uploaded as a separate file, and a compare copy of the manuscript (a marked-up manuscript without figures) should be included if the editor requested one. Revisions must be submitted via the online submission system, under the heading "Submit Manuscript Online." Click on the link "Submit a revised manuscript," and then upload your revised files. Please do not submit the revised manuscript via email.

When papers are rejected, the authors may be encouraged to resubmit them after additional experimental data are obtained. Resubmissions must be made via the online submission system under the heading "Begin a new submission." The paper must be marked as a resubmission. Include the handling editor and manuscript number of the original submission in the cover letter. Please also provide a letter giving point-by-point responses to the referees' comments on the previous version.

Prior to the final decision, all manuscripts will be screened through CrossCheck to verify the integrity of the study and to identify incidences of plagiarism or dual publication. If any issues are discovered in the manuscript during this screening process, the manuscript may be rejected by the editor regardless of the reviewers' comments. The manuscript will likely be forwarded to the Editorial Committee for a more in-depth review of its integrity, which may result in the application of further penalties.

Manuscripts may be editorially rejected, without review, on the basis of poor English. Authors who are unsure of proper English usage should have their manuscripts checked by someone proficient in the English language or engage a professional language editing service for help. If necessary, the accepted paper will be edited by native English speakers. The cost of the language editing service is currently US\$70-100 (₩70,000 per manuscript, subject to change without notice). The corresponding author will be notified when there is a bill for page charges. If you require additional information, please send an email inquiry to the Manuscript Editor (jmb@jmb.or.kr).

### ***Proofs***

Galley proofs (PDF format) for an accepted article will be sent by email to the corresponding author for copyediting corrections. The core content of an article cannot be changed during the galley proof reading. It is the author's responsibility to check the entire manuscript, including its tables, figure legends, and cited reference numbers, not just the items queried. The proofs should be corrected and mailed to the Editorial Office within 48 hours of receipt in order to expedite publication. Only one set of corrections will be accepted. Thus, it is important to ensure all corrections are sent to JMB in one communication.

### ***Reprints***

Authors, including overseas authors, who wish to purchase reprints, are required to complete the Reprint Order Form, which will be sent with the galley proofs to corresponding authors. This form must be returned together with the corrected galley proofs. Reprints are supplied only in multiples of 30 for a fee of US\$50 (₩50,000) per 30 copies, inclusive of the shipping fee.

## **How to Submit Manuscripts**

Membership in the KMB is not a prerequisite for submission or consideration of manuscripts. Authors are requested to submit their manuscripts electronically by using JMB online manuscript submission system, which is available at <http://www.jmb.or.kr>. This site will guide authors through the steps of the submission process. The Editorial Office will acknowledge receipt of your manuscript within 24 hours of submission. Please contact the Editorial Office (jmb@jmb.or.kr) if you do not receive confirmation within this period of time. The "date of receipt" that appears in the published paper will be the date when the managing editor received the manuscript.

### ***File Formats***

Prepare the text in Microsoft (MS) Word (6.0 or later version) or WordPerfect. Set the page size to have 2.5 cm margins on all sides. The font size should be no smaller than 12 points. The entire manuscript should be double spaced, including the References and figure legends. Number all pages in sequence, including the abstract, figure legends and tables. Figure legends and tables should be placed after the Reference section. The manuscript pages should have line numbers. The text of your manuscript (including the title page, abstract, main text, references, and figure legends) should be followed by the tables and figures in a single word file for the initial submission. Each figure should be labeled with a figure number. Standard fonts (Times New Roman, Times, or Courier), preferably Times New Roman, should be used for the generation of text, and Arial or Helvetica should be used for the figures. Use the Symbol font and the "Insert Symbol" option from the menu bar to introduce symbols in MS Word. Authors can upload their articles as MS Word (6.0 or a later version) or WordPerfect. It is also possible to submit an article in a ready-made Adobe Acrobat PDF format. However, if the article is accepted, the original source files will be needed. Authors must then check that everything was converted properly in the PDF conversion. This format is acceptable for reviewing purposes only. If your paper is accepted, you will be required to send the final version as source files, including a separate Word file for the text and graphic TIFF or

EPS files for the figures, tables, and graphical abstracts. Manuscripts that do not follow the “File Formats” and “Manuscript Organization and Styles” instructions will not be suitable for editorial review or publication and will be returned to the author.

## **Manuscript Organization and Styles**

### **I. Research Articles**

Research Articles are full-length research reports that contain detailed descriptions of experimental work, with a clear interpretation and discussion of the theoretical and experimental results and data. Research Articles should be structured according to the section headings Introduction, Materials and Methods, Results, Discussion, Acknowledgments, Nomenclature/Appendix (if applicable), and References. Authors should present their material with the utmost clarity and conciseness and in a logical manner. The constant repetition of experimental procedures, information, and facts among sections should be avoided. The main text is limited to 5,000 words excluding the abstract, Materials and Methods, References, and figure legends.

The manuscript should include the following sections in the listed order.

- Graphical Abstract

The graphical abstract is a single-panel image that allows readers to understand the main information at first glance. The graphical abstract should be designed to clearly represent the study described in the paper. Thus, the image should use simple labels and sparse text. The submitted image should have a minimum resolution of 300 dpi and a ratio of 4:3 (width to height). TIFF, JPEG file types are preferred. The graphical abstract is not mandatory at the initial submission stage, but must be included when submitting the revised manuscript after the first peer-review.

- Title Page

- title of the paper
- author name(s)
- author affiliation(s)
- address(es) of the institution(s) where the work was performed
- name, postal and email addresses, and phone and fax numbers of the corresponding author to whom the revision request or galley proofs of the paper are to be sent
- a brief running title (not to exceed 54 characters and spaces)

Regarding titles, avoid the “main title: subtitle” arrangement, declarative titles, complete sentence constructions, and the unnecessary use of articles. Because each manuscript should present the results of an independent and cohesive study, JMB does not allow the use of numbered serial titles. The running title will be considered during the compilation of the subject index and will be at the top of each printed page.

Place an asterisk after the name of the author to whom inquiries regarding the paper should be directed.

The affiliation address for each author should be indicated by superscript Arabic numbers (<sup>1,2,3</sup>).

- Abstract

Research Articles must include an abstract of 250 words or less. The abstract should not repeat information already present in the title. The abstract should include the following elements: a general introduction to the field and a brief background of the research; an explanation of the objectives, approaches used, and key results; a description of the significance of the work.

- Keywords

Immediately after the abstract, provide a maximum of 6 keywords. Please avoid general terms, abbreviations, and multiple concepts (e.g., the use of “and” or “of”). Only abbreviations that are firmly established in the field may be eligible.

- Introduction

The Introduction presents the purpose of the study reported and its relationship to earlier work in the field. It should not be an extensive review of the literature. Use only the references that are required to provide the most salient background to allow the readers to understand and evaluate the purpose and results of the present study without referring to previous publications on the topic.

- Materials and Methods

The Materials and Methods section should include sufficient technical information to allow the experiments to be repeated by a qualified reader. Cite previously published procedures in the References section.

- Results

The Results section should include the rationale or design and the results of the experiments. Results can be presented in figures, tables, and text. Reserve the extensive discussion of the results for the Discussion section.

- Discussion

The Discussion section should focus on the interpretation of the results rather than a repetition of the Results section. The Results and Discussion sections may be combined into one section when substantial redundancy cannot be avoided in two separate sections or if a long discussion is not warranted.

- Acknowledgments

Place Acknowledgments, including information on the source of any financial support received for the work being published, before the References.

- Author Contributions

Each author should have made substantial contributions in the work to take public responsibility for the content. For transparency, we ask authors to submit a short paragraph outlining their individual contributions to the paper using the relevant CRediT roles.

The following statements should be used: Conceptualization; Methodology; Software; Validation; Formal Analysis; Investigation; Resources; Data Curation; Writing – Original Draft Preparation; Writing – Review & Editing; Visualization; Supervision; Project Administration; Funding Acquisition. For more information on CRediT, please click here. <https://credit.niso.org>

- References

The References section must include all relevant published works, and all listed references must be cited in the text. Arrange the reference list in the order of their appearance in the main text, and then number the list consecutively. In-text citations should include the list number in square brackets (e.g., [1], [2-4]). They should not follow the author-date format. The author(s) must check the accuracy of all reference numbers, as JMB will not be responsible for incorrect in-text reference citations.

Abbreviate journal names according to the *PubMed Entrez Journals* database (available at <http://www.ncbi.nlm.nih.gov/entrez/>). The referencing styles shown in the examples below should be used for journal articles (1), books (2), specific chapters in books (3), and websites (4), respectively:

1. Lee YH, Park JS. 2004. Evaluation of operational conditions and power consumption of bioreactor for enzymatic saccharification of uncooked starch. *J. Microbiol. Biotechnol.* 14: 351-357.

## INSTRUCTIONS TO AUTHORS

2. Brock TD, Madigan MT. 1988. *Biology of Microorganisms*, pp. 42-59. 5th Ed. Prentice Hall, Englewood Cliffs, New Jersey.
3. Gershon AA, Russa P La, Steinberg SP. 1999. Varicella-zoster virus, pp. 900-911. In Murray PR, Baron EJ, Pfaller MA, Tenover FC, Tenover FC (eds.), *Manual of Clinical Microbiology*, 7th Ed. American Society of Microbiology, Washington, D.C.
4. Kirkman TW. 1996. Statistics to Use. Available from [http:// www.physics.csbsju.edu/stats/](http://www.physics.csbsju.edu/stats/). Accessed Nov. 20, 2011.

References to papers accepted for publication but not yet published should show the journal name and, if known, the probable year of publication, and state "in press."

The following types of references should not be included in the References section:

- unpublished data
- personal communication
- manuscripts in preparation or submitted for publication
- pamphlets
- abstracts
- patents
- newsletters
- material that has not been subjected to peer review

### • Figure Legends

Figure legends should contain a brief description of the experiments so that the figure can be understood without reference to the body of the text. However, the legend should not repeat the Materials and Methods section or contain interpretive statements.

### • Tables

Tables should be written separately from the main text and in an appropriate font size so that each table fits on a separate page. Each table must be numbered with Arabic numerals (e.g., Table 1, Table 2) and include a title. Place table footnotes below the table body and indicate them with superscript lowercase letters (<sup>a, b, c</sup>), not symbols. Do not use vertical rulings in the tables. Each column in a table must have a heading, and abbreviations, when necessary, should be defined in the footnotes.

### • Figures

Figures should be provided separately from the main text. Use Arabic numerals to number all figures (e.g., Figure 1, Figure 2) according to their sequence in the text. The figure number must appear well outside the boundaries of the image itself. Multipart figures should be numbered in uppercase and bold font letters (**A, B, C**) without parenthesis, both within the figure itself and in the figure legends.

Note that figures may have to be reduced in size to fit the one-column (84 mm) or two-column (176 mm) space of the printed page, as determined by the journal designer. Original figures, especially line drawings, must, therefore, contain fonts and other detail that are large and clear enough to be legible even after a 50% reduction in size. Line drawings must be a minimum of 0.5 mm thickness for clear reproduction. The preferred symbols for graphs are: ○, ●, □, ■, △, ▲, ▽, ▼. Where possible, the same symbol should be used for the same quantity in different figures. Simple bar diagrams reporting only a few values are usually unnecessary; the data can normally be given in a few lines of text. It is editorial policy not to publish bar diagrams with "three-dimensional" bars unless there is a specific justification for their use. Tints should not be used as shading for bars.

All figures should be created with applications that can generate high-resolution TIFF or EPS files acceptable for publication. All figures should be embedded at the end of the text in a single Word or PDF file when you initially submit your manuscript. If your paper is accepted, we will require the submission of figures as separate TIFF or EPS files at publication quality resolution. Blurred images will not be accepted. Diagrams and photographs submitted in electronic format must be of the following minimum resolutions:

- 300 dpi for photographs or halftones only, in both black and white and color
- 600 dpi for photographs or halftones with line artwork as insets
- 600 dpi for line artwork or lettering
- 1200 dpi for fine-line artwork and artwork with gray shades

The author(s) will be required to pay for the reproduction of color photographs. The cost is US\$200 (₩200,000) for each illustration containing color. Any figures submitted in color will be reviewed and processed with the understanding that the figure will be published in color. The mode of the TIFF or EPS file must be CMYK, not RGB.

### ○ Supplementary information

Supplementary information is limited to materials that are directly relevant to the content of the paper but cannot be included in the main article due to space or restrictions on file format. Supplementary information is subject to peer-review and the quality and presentation of the supplementary information should be equal with that in the main article. Each supplementary item should be referred in the main text at least once at a relevant point. Please submit all the materials in the supplementary information as a single docx or PDF file.

## II. Reviews and Minireviews

Authoritative and critical Reviews and Minireviews of the current state of knowledge regarding any aspect of microbiology or biotechnology are preferred. They must be based on original articles and may address subjects within the scope of JMB.

Reviews should be divided into sections with the appropriate headings. Reviews are limited to 6,000 words (excluding References), up to 6 figures and/or tables, and no more than 200 references. The format of the References section is identical to that of Research Articles.

JMB is also happy to publish more compact Minireviews that highlight topics of emerging interest and summarize developments in rapidly advancing areas. Minireviews are limited to 3,000 words (excluding References), up to 2 figures and/or tables, and no more than 100 references.

If, for a particular reason, authors wish to exceed or diverge from these guidelines, they should contact the Editorial office ([jmb@jmb.or.kr](mailto:jmb@jmb.or.kr)) before submitting their manuscripts. Unsolicited reviews will be considered but are subject to the approval of the Editor-in-Chief and will be accepted only under special circumstances. Reviews will be subjected to an independent peer review, and the Editor-in-Chief may request changes or decide not to proceed with publication.

## III. Fast-Track Publications

Fast-Track Publications are offered for concise studies of great novelty and broad interest to the readers of JMB. Fast-Track Publications take 3-5 weeks from

submission to online publication. Authors are only charged if their papers are accepted. The charge is US\$400 / ₩350,000) for all authors. Invited reviewers are not subject to page charges. We reserve the right to a partial charge if an author withdraws a paper.

### Nomenclatures, Units, Abbreviations, and Symbols

Nomenclatures and abbreviations for chemical and biochemical agents, microorganisms, enzymes, proteins, and genes should follow the Instruction to Authors for journals published by the American Society for Microbiology (available online at <http://journals.asm.org/>).

For nomenclature of restriction enzymes, DNA methyltransferases, homing endonucleases, and their genes, refer to the article by Roberts et al. (Nucleic Acid Res. 31:1805-1812, 2003).

JMB follows the same nomenclature for viruses as does the *Journal of Virology*, and more detailed information can be found in the Instructions to Authors of that journal (available online at <http://jvi.asm.org/>).

All abbreviations should be defined at their first use in the text only; do not repeat the definition of abbreviations thereafter.

Note that JMB uses the following specific design styles for nomenclature, abbreviations, units and symbols:

- A. JMB prefers American spelling (e.g., labeling, sulfur, nonspecific, antiviral), abbreviations (Table 1), and nomenclature to follow internationally agreed recommendations. Authors may use common abbreviations/acronyms, which must be defined in the text at first citation and included in the Abbreviations list.
- B. It is often convenient, especially in figures and table headings, to give a multiple of the quantity set or measure by multiplying it by a stated factor. The units in which it is expressed should not be multiplied by a number but may be indicated by prefixes such as M, k, m,  $\mu$ , n or p (see Table 2).
- C. JMB prefers the IUBMB recommendations on symbolism and terminology in rate/equilibrium constants and enzyme kinetics; e.g.,  $K_m$ ,  $K_s$ ,  $k_1$ ,  $k_{cat}$ ,  $V_{max}$ ,  $V_0$ ,  $E_0$ ,  $E_h$ ,  $M_r$ ,  $I_0$ ,  $\Delta G_a$ . That is, they are subscripted and non-italicized.
- D. SI (from the French *Système International d'Unités*) units and quantities should be used (see the tables below; visit [http://www.bipm.fr/enus/3\\_SI/si.html](http://www.bipm.fr/enus/3_SI/si.html) for more information). However, Å, cal, and p.p.m. can be used where appropriate.
- E. Leave a space between a number and its unit of measure. However, do not leave a space between a number and the temperature degree, percent, angular degree, angular minute, or angular second symbol (e.g., 15°C, 50%, 90°, 75', 18").
- F. Use a slash (/) in units of measure (e.g., g/ml rather than g ml<sup>-1</sup>).
- G. Use a slash (/) in spelled-out units of measure, not the word "per," before the abbreviation for a unit in a complex expression (e.g., 50  $\mu$ g of peptide/ml, 25 mg of drug/kg of body weight, 10 counts/s, 12 domains/cm<sup>3</sup>,  $2 \times 10^3$  ions/min, 0.8 keV/channel, and 125 conversions/mm<sup>2</sup>).
- H. Do not add an "s" to pluralize any abbreviated units of measure (e.g., 50 mg, not 50 mgs; 3 mol, not 3 mols).
- I. Do not mix abbreviations and spelled-out units within units of measure.
- J. Do not capitalize surnames that are used as units of measure.
- K. Centrifugal force should be expressed as  $\times g$ , rather than rpm.
- L. L-amino acid, D-amino acid (i.e., LD in small caps).
- M. Names for regional bioproducts should be written in non-italicized lowercase letters. The names should be explained within parentheses when used for the first time in the abstract or text; for instance, kimchi (Korean traditional fermented cabbage).
- N. Diagrams of nucleotide and amino acid sequences should be prepared in the most effective layout. The layout should be designed to fit the journal page (the full width of the page is 176 mm). The height of the characters should be about 1.5-2 type. A layout with 80-100 nucleotides per line is appropriate (or 60-70 if there are spaces between the codons).
- O. Data from microarray gene expression studies must comply with the MIAME guidelines (see <http://www.mged.org/Workgroups/MIAME/miame.html>).
- P. Usage should be consistent within a paper.
- Q. The specific design styles of nomenclature, abbreviations, units and symbols are available in detail online at <http://www.jmb.or.kr/>.

**Table 1.** Abbreviations

Name	memo	Name	memo
DNA	Deoxyribonucleic acid	NADP <sup>+</sup>	Nicotinamide adenine dinucleotide phosphate, oxidized
cDNA	Complementary DNA	Poly(A) and poly(dT), etc.	Polyadenylic acid and polydeoxythymidylic acid, etc.
RNA	Ribonucleic acid	Oligo(dT), etc.	Oligodeoxythymidylic acid, etc.
cRNA	Complementary RNA	UV	Ultraviolet
RNase	Ribonuclease	PFU	Plaque-forming units
DNase	Deoxyribonuclease	CFU	Colony-forming units
rRNA	Ribosomal RNA	MIC	Minimal inhibitory concentration
mRNA	Messenger RNA	Tris	Tris[hydroxymethyl] aminomethane
tRNA	Transfer RNA	DEAE	Diethylaminoethyl
AMP, ADP, ATP, dAMP, ddATP, and GTP, etc.	For the respective 5' phosphates of adenosine and other nucleosides	EDTA	Ethylenediamine tetraacetic acid
ATPase and dGTPase, etc.	Adenosine triphosphatase and deoxyguanosine triphosphatase, etc.	EGTA	Ethylene glycol-bis[ $\beta$ -aminoethyl ether]-N,N,N',N'-tetraacetic acid
NAD	Nicotinamide adenine dinucleotide	HEPES	N-2-hydroxyethyl piperazine-N'-2-ethanesulfonic acid
NAD <sup>+</sup>	Nicotinamide adenine dinucleotide, oxidized	PCR	Polymerase chain reaction
NADH	Nicotinamide adenine dinucleotide	AIDS	Acquired immune deficiency syndrome
NADPH	Nicotinamide adenine dinucleotide phosphate		

**Table 2.** Multiplying SI Prefixes

Factor	Prefix	Symbol
$10^1$	deca	da
$10^2$	hecto	h
$10^3$	kilo	k
$10^6$	mega	M
$10^9$	giga	G
$10^{12}$	Tera	T
$10^{15}$	peta	P
$10^{18}$	exa	E
$10^{21}$	zetta	Z
$10^{24}$	yotta	Y
$10^{-1}$	deci	d
$10^{-2}$	centi	c
$10^{-3}$	milli	m
$10^{-6}$	micro	$\mu$
$10^{-9}$	nano	n
$10^{-12}$	pico	p
$10^{-15}$	femto	f
$10^{-18}$	atto	a
$10^{-21}$	zepto	z
$10^{-24}$	yocto	y

**Table 3.** SI-Derived Units

Name	Symbol	Quantity	In terms of other units	In terms of SI based units
becquerel	Bq	activity (of a radionuclide)	-	$s^{-1}$
coulomb	C	quantity of electricity, electric charge	-	$s \cdot A$
farad	F	capacitance	$C/V$	$m^{-2} \cdot kg^{-1} \cdot s^4 \cdot A^2$
gray	Gy	absorbed dose, kerma, specific energy imparted	$J/kg$	$m^2 \cdot s^{-2}$
henry	H	inductance	$Wb/A$	$m^2 \cdot kg \cdot s^{-2} \cdot A^{-2}$
hertz	Hz	frequency	-	$S^{-1}$
joule	J	energy, work, quantity of heat	$N \cdot m$	$m^2 \cdot kg \cdot s^{-2}$
lumen	lm	luminous flux	$cd \cdot sr$	$m^2 \cdot m^{-2} \cdot cd = cd$
lux	lx	illuminance	$lm/m^2$	$m^2 \cdot m^{-4} \cdot cd = m^{-2} \cdot cd$
newton	N	force	-	$m \cdot kg \cdot S^{-2}$
ohm	$\Omega$	electric resistance	$V/A$	$m^2 \cdot kg \cdot S^{-3} \cdot A^{-2}$
pascal	Pa	pressure, stress	$N/m^2$	$m^{-1} \cdot kg \cdot S^{-2}$
siemens	S	conductance	$A/V$	$m^{-2} \cdot kg^{-1} \cdot s^3 \cdot A^2$
sievert	Sv	dose equivalent	$J/kg$	$m^2 \cdot s^{-2}$
tesla	T	magnetic flux density	$Wb/m^2$	$kg \cdot s^{-2} \cdot A^{-1}$
volt	V	electric potential, potential difference, electromotive force	$W/A$	$m^2 \cdot kg \cdot s^{-3} \cdot A^{-1}$
watt	W	power, radiant flux	$J/s$	$m^2 \cdot kg \cdot s^{-3}$
weber	Wb	magnetic flux	$V \cdot s$	$m^2 \cdot kg \cdot s^{-2} \cdot A^{-1}$

**Table 4.** SI-Derived Compound Units

Name	Symbol	Quantity	In terms of other units
ampere per meter	$A/m$	Magnetic field strength	-
ampere per square meter	$A/m^2$	Current density	-
candela per square meter	$Cd/m^2$	Luminance	-
coulomb per cubic meter	$C/m^3$	Electric charge density	$m^{-3} \cdot s \cdot A$
coulomb per kilogram	$C/kg$	Exposure (X-rays and $\gamma$ -rays)	-

Table 4. Continued

Name	Symbol	Quantity	In terms of other units
coulomb per square meter	C/m <sup>2</sup>	Electric flux density	m <sup>-2</sup> ·s·A
cubic meter	m <sup>3</sup>	Volume	-
cubic meter per kilogram	m <sup>3</sup> /kg	Specific volume	-
farad per meter	F/m	Permittivity	m <sup>-3</sup> ·kg <sup>-1</sup> ·s <sup>-4</sup> ·A <sup>2</sup>
henry per meter	H/m	Permeability	m·kg·s <sup>-2</sup> ·A <sup>-2</sup>
joule per cubic meter	J/m <sup>3</sup>	Energy density	m <sup>-1</sup> ·kg·s <sup>-2</sup>
joule per kelvin	J/K	Heat capacity, entropy	m <sup>2</sup> ·kg·s <sup>-2</sup> ·K <sup>-1</sup>
joule per kilogram	J/kg	Specific energy	m <sup>2</sup> ·s <sup>-2</sup>
joule per kilogram kelvin	J/(kg K)	Specific heat capacity, specific entropy	m <sup>2</sup> ·s <sup>-2</sup> ·K <sup>-1</sup>
joule per mole	J/mol	Molar energy	m <sup>2</sup> ·kg·s <sup>-2</sup> ·mol <sup>-1</sup>
joule per mole kelvin	J/(mol K)	Molar entropy, molar heat capacity	m <sup>2</sup> ·kg·s <sup>-2</sup> ·K <sup>-1</sup> ·mol <sup>-1</sup>
kilogram per cubic meter	Kg/m <sup>3</sup>	Density, mass density	-
meter per second	m/s	Speed, velocity	-
meter per second squared	m/s <sup>2</sup>	Acceleration	-
mole per cubic meter	mol/m <sup>3</sup>	Concentration (amount of substance per volume)	-
newton-meter	N·m	Moment of force	m <sup>2</sup> ·kg·s <sup>-2</sup>
newton per meter	N/m	Surface tension	kg·s <sup>-2</sup>
pascal second	Pa·s	Dynamic viscosity	m <sup>-1</sup> ·kg·s <sup>-1</sup>
radian per second	rad/s	Angular velocity	-
radian per second squared	rad/s <sup>2</sup>	Angular acceleration	-
reciprocal meter	m <sup>-1</sup>	Wavenumber	-
reciprocal second	s <sup>-1</sup>	Frequency	-
square meter	m <sup>2</sup>	Area	-
square meter per second	m <sup>2</sup> /s	Kinematic viscosity	-
volt per meter	V/m	Electric field strength	m·kg·s <sup>-3</sup> ·A <sup>-1</sup>
watt per meter kelvin	W/(m K)	Thermal conductivity	m·kg·s <sup>-3</sup> ·K <sup>-1</sup>
watt per square meter	W/m <sup>2</sup>	Heat flux density, irradiance	kg·s <sup>-3</sup>
watt per square meter steradian	W/(m <sup>2</sup> sr)	Radiance	-
watt per steradian	W/sr	Radiant intensity	-

### Manuscript Checklist

The manuscript must be prepared based on the guideline for each type of article. To ensure that all manuscript components have been completed as stated in the Author Instructions, please use the following list during the final checking of your manuscript prior to submitting it to the journal for review. Ensure that the following items are present:

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