

WHO WE ARE

Environmental Health Perspectives (EHP) is a monthly open-access journal that publishes peer-reviewed research and news concerning human health and the environment. One of the overarching principles of the journal is to provide a forum for the objective and balanced presentation of scientifically credible information. Although *EHP* is sponsored by the National Institute of Environmental Health Sciences (NIEHS), its editorial policies are independent of the institute.

All papers submitted to *EHP* are evaluated by a group of consulting editors to determine whether the topic is within the scope of the journal and to evaluate adherence to word limits and journal format. Papers also are assessed for originality, scientific quality, environmental health significance, clarity of presentation, and conciseness. Before papers are sent for peer review, they are screened for possible plagiarism (see “Scientific Integrity” below), and authors must submit a Competing Financial Interests Declaration form on behalf of all authors (see “Competing Financial Interests” below). Papers selected for review are assigned to an Associate Editor, who identifies reviewers and makes recommendations to the Editor-in-Chief. Members of the Editorial Review Board serve as a pool of potential reviewers of papers. Both the Board of Associate Editors and the Editorial Review Board are composed of leading scientists from all segments of the environmental health sciences. The overall acceptance rate of papers submitted to the journal in 2011 was 15%.

In 2004 *EHP* became an open-access journal. All News and Research Articles published since the beginning of the journal in 1972 are available free online (<http://www.ehponline.org/>). *EHP* is committed to promoting the discussion and exchange of information internationally, as described in detail at <http://www.ehponline.org/international/>. *EHP* also is committed to promoting the use and understanding of scientific literature through its Science Education Program (<http://www.ehponline.org/education>).

WHAT WE PUBLISH

The environmental health sciences include many fields of study and increasingly comprise multidisciplinary research areas. *EHP* publishes articles from a wide range of scientific disciplines encompassing mechanistic research, experimental and observational human studies, and *in vitro* and *in vivo* animal research with a clear relationship to human health effects. Studies involving exposure science, climate change, ecologic issues, or effects on wildlife populations are welcome, but the relevance of the findings to human health should be made clear. Physicians and others working in environmental medicine may submit Grand Rounds articles or Case Reports for consideration. *EHP* also addresses ethical, legal, social, and policy issues related to environmental public health. Because children are uniquely sensitive to their environments, *EHP* devotes a research section specifically to issues surrounding children’s environmental health.

EHP provides additional information on environmental health issues through its News

and Editorials. Although *EHP* welcomes ideas for News and Editorials, the journal does not accept unsolicited manuscripts of these types. Please contact the Editor-in-Chief for further information.

ABOUT YOUR MANUSCRIPT

TYPES OF MANUSCRIPTS

Manuscripts in the categories below are considered for publication. All manuscripts are peer reviewed except Correspondence. See “Article Length” below for details concerning word limits.

Correspondence (≤ 750 words) should address specific scientific issues or questions raised by Research or News Articles published in the print version of the journal within the previous 6 months. Authors of papers cited in Correspondence will be given the opportunity to respond. Letters addressing issues raised in previously published letters are discouraged. Correspondence may include a brief table or small figure if it is critical to the discussion. New data must not be included. Authors may include data from or redrawing of previously published materials as long as the work is cited and written permission from the original authors and/or publishers has been granted for republication in both printed and electronic form. Each figure is considered equivalent to 250 words toward the total word count. Correspondence that cites abstracts or unpublished observations is not acceptable and will not be published. Letters that are highly polemic or personal in nature will not be published. Correspondence is not peer reviewed and is published at the discretion of the *EHP* editors. Conclusions and opinions expressed by the authors do not necessarily reflect the policies of *EHP*.

Commentaries ($\leq 5,000$ words) present information and personal insight on a particular topic. Commentaries should not be extended critiques of single articles appearing in *EHP* or elsewhere. Factual data should be included to substantiate arguments. *EHP* reserves the right to reject Commentaries without review if they are perceived as being too polemic or personal in nature. *EHP* also reserves the right to propose that Commentaries be reviewed as one side of a point/counterpoint debate. Assuming the original author agrees, *EHP* will ask another author to address the opposite side of an argument. If both papers are accepted, *EHP* will publish them together. Manuscripts on ethical, legal, social, or policy issues may also be accepted in this category.

Research Articles ($\leq 7,000$ words) report original scientific research and discovery in the broad field of environmental health sciences. Research Articles may come from any field of scientific research relevant to the study of human health and the environment.

Emerging Issue Reviews ($\leq 5,000$ words) identify emerging ideas, concepts, or trends in the area of environmental health sciences. These papers have a highly focused narrative (about two to three print pages) and a limited set of references. Because the intent of the Emerging Issue Review is to get new and novel ideas into the literature in a timely fashion, the review of these manuscripts will be expedited.

Substantive Reviews ($\leq 10,000$ words) provide an overview, integration of information, and critical analysis of a particular field of research or theme related to environmental health sciences. Previous research should be comprehensively reviewed regardless of whether the findings are consistent with expectations or the review authors’ hypotheses. However, it is appropriate for authors to discuss the strengths and weaknesses of individual studies; focus on high-quality studies that add to the weight of the evidence on the topic under review; identify information gaps; and make recommendations for future research. Lengthy historical perspectives generally are not appropriate.

Quantitative Reviews and Meta-Analyses ($\leq 10,000$ words) present, contrast, and (when appropriate) combine data across studies to address a specific study question related to environmental health. Inclusion criteria and strategies used to search the literature should be explicitly described, along with analytic methods used to evaluate or combine data. The potential for publication bias and heterogeneity among studies should be investigated, and graphical displays of data contributed by individual studies are encouraged. The strengths and weaknesses of individual studies and potential causes of discordant findings among studies also should be discussed. As with Substantive Reviews, authors should integrate and critically analyze information from previous research, identify information gaps, and make recommendations for future research.

Reviews Based on Meetings or Conferences ($\leq 10,000$ words) should review the state of the science for a particular area, identify research gaps and needs, and explain how the outcome of the meeting or conference addresses those gaps and needs. These reviews should focus on the science or theme but not on the conference or meeting itself. *De novo* data, participant lists, dialogue of workgroups or committees, and discussion of the internal organization of the meeting are not allowed. These papers should be submitted to *EHP* no more than 1 year after the meeting or conference takes place. Prospective authors should consult with the Editor-in-Chief before submitting a review based on a meeting or conference.

Grand Rounds ($\leq 6,000$ words) present discussions of case presentations of patients or community health issues with a clearly established link of relevance to environmental exposures and environmental health, including children’s health. The format requires that a case scenario be presented to illustrate the environmental issues under consideration, followed by a discussion of the clinical and public health implications of these issues. Visual images (e.g., X rays, microscopic pathology) or other graphics are encouraged.

Case Reports ($\leq 6,000$ words) differ from Grand Rounds articles in that the diagnosis pertaining to the clinical presentation is not necessarily conclusive. Instead, evidence for an environmental etiology may be indirect—for example, a case report of hepatitis suspected to be related to a chemical that has not been previously linked with hepatitis. Visual images (e.g., X rays, microscopic pathology) or other graphics are encouraged.

ORIGINALITY OF SUBMISSION

Contributions submitted to *EHP* must be original works of the author(s) and must not have been previously published in print or online or simultaneously submitted to another publication. Previously published material (e.g., figures, tables) may be included in Commentaries and Reviews, assuming the original authors have given permission to reproduce the material and all copyright issues have been resolved. For original Research Articles, previously published schemata or illustrative figures are acceptable with the proper attribution. Text or narrative from guidance documents, technical reports, and position papers by various government and nongovernmental organizations may be considered if they include new information. *EHP* will consider papers from dissertations that have been published in their entirety by a university in partial fulfillment of a degree. Manuscripts presented at a scientific meeting but not published in full or under review for publication in a proceedings or similar format also will be considered. Previously published material may be included in the Supplemental Material of the paper. As indicated in *Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication* [International Committee of Medical Journal Editors (http://www.icmje.org/urm_full.pdf)], it is the responsibility of the author to make a full statement to the editor concerning materials in a manuscript that might be considered redundant or duplicative. For additional clarification, please contact the Editor-in-Chief.

SCIENTIFIC INTEGRITY

EHP requires assurances that animals used in a study have been treated humanely and with regard for the alleviation of suffering. Research involving humans must have been conducted according to the Common Rule (<http://ori.dhhs.gov/education/products/ucla/chapter2/page04b.htm>). Research involving humans also must be approved by an appropriate institutional review board and comply with all relevant national, state, and local regulations. For research conducted outside the United States and thus exempt from U.S. federal regulations, authors must perform the research in accordance with principles of the Declaration of Helsinki (<http://www.wma.net/en/30publications/10policies/b3/>). Approval and compliance with research requirements regarding human subjects and information regarding informed consent procedures must be noted in the Methods section of manuscripts concerning human subjects research.

EHP is sometimes confronted with issues regarding potential research misconduct, such as plagiarism or data fabrication. Authors should be aware that all papers submitted to *EHP* are screened routinely for plagiarism, defined as “the appropriation of another person’s ideas, processes, results, or words without giving appropriate credit” (American Medical Association. 2007. *AMA Manual of Style: A Guide for Authors and Editors*, 10th edition. New York:Oxford University Press). Instances of documented plagiarism and allegations of data fabrication will be brought to the attention of

the authors’ host institutions. Documented cases of plagiarism or data fabrication could lead to a 3-year ban on future publication in *EHP* by the authors, a published Expression of Concern and/or retraction of the paper.

DUAL-USE RESEARCH

EHP anticipates receiving submissions on research that, based on current understanding, can be reasonably anticipated to provide knowledge, products, or technologies that could be directly misapplied by others to pose a threat to public health and safety, agriculture, plants, animals, the environment, or material (also known as dual-use research). Papers flagged for dual-use issues by *EHP* editors will undergo an additional level of review concerning the implications to society of publishing such a paper. It is possible that the editors of *EHP* may not be technically qualified to evaluate such cases independently; thus, *EHP* reserves the right to seek expert advice in cases where such concerns may be evident. Authors should be aware that *EHP* could determine that the risks to public health and safety of publishing the paper outweigh the benefits of publishing, even though the paper has otherwise been deemed acceptable for publication.

COMPETING FINANCIAL INTERESTS

EHP has a policy of full disclosure. Authors must declare all actual or potential competing financial interests involving people or organizations that might reasonably be perceived as relevant. Disclosure of competing interests does not imply the information in the article is questionable or that conclusions are biased. Decisions to publish or reject an article will not be based solely on a declaration of a competing interest.

For each manuscript, authors must submit a Competing Financial Interests Declaration (CFID) form (available online at <http://ehp.niehs.nih.gov/cfi.pdf>). Papers will not be processed for peer review unless a CFID form has been submitted. Authors of Correspondence and Editorials also are required to submit a CFID form.

Authors must disclose all actual or potential competing financial interests occurring within the last 3 years, including but not limited to:

- Grant support
- Employment (past, present, or firm offer of future)
- Patents (pending or applied)
- Payment for expert witness or testimony
- Personal financial interests by the authors, immediate family members, or institutional affiliations that may gain or lose financially through publication of the article
- Forms of compensation, including travel funding, consultancies, board positions, patent and royalty arrangements, stock shares, or bonds. Diversified mutual funds or investment trusts do not constitute a competing financial interest. Authors should carefully examine the wording of documents such as grants and contracts to determine whether there might be an actual or potential competing interest.

Employment of any author by a for-profit or nonprofit foundation or advocacy group or working as a consultant also must be declared.

As a condition of review and publication, authors must further certify that their freedom to design, conduct, interpret, and publish research is not compromised by any controlling sponsor.

A statement of disclosure consistent with the information contained in the CFID form must be included in the Acknowledgments section of the manuscript submitted to the journal. If there are no actual or potential competing financial interests, a declaration of “no competing financial interests” must be included in the Acknowledgments of the manuscript.

Editors and reviewers also should disclose to the Editor-in-Chief any actual or potential competing interests, both financial and non-financial, that have occurred within the last 3 years and could reasonably be perceived as relevant. Competing nonfinancial interests include former or current mentor–student relationships, faculty appointments in the same department or organization, familial relationships, service on advisory boards that oversee the research under review, collaborations, or membership in organizations that hold ideological views that are contradictory to the theme or topic under review.

EHP relies on the integrity of all authors to provide accurate disclosure statements. However, authors can expect scrutiny of their statements by the editors, reviewers, and readership. Alleged inaccuracies of declared competing interests should be addressed to the Editor-in-Chief. *EHP* will impose a 3-year ban on publication in *EHP* by any authors found to have willfully failed to disclose a competing financial interest. A paper may also be retracted or an Expression of Concern published and appended to the online version of the article.

MANUSCRIPT PREPARATION

ARTICLE LENGTH

All words in the main text, title pages, abstract, tables, and references count toward *EHP* word limits. In addition, each figure is counted as 250 additional words. Manuscripts that do not conform to the word limits may be returned to the author(s) for revision before the review process is initiated. Depending on the topic and potential impact of a paper, the Editor-in-Chief reserves the right to waive word limits. Authors should consider placing some types of information such as lengthy descriptions of previously published methods into Supplemental Material; however, these methods must be summarized briefly in the text of the paper. Information included in Supplemental Material does not count toward the word limit. The judicious use of references also may help meet the following word limits:

- Correspondence: ≤ 750 words
- Commentaries: ≤ 5,000 words
- Research Articles: ≤ 7,000 words
- Emerging Issue Reviews: ≤ 5,000 words
- Substantive Reviews: ≤ 10,000 words
- Quantitative Reviews and Meta-Analyses: ≤ 10,000 words
- Reviews Based on Meetings or Conferences: ≤ 10,000 words
- Grand Rounds: ≤ 6,000 words
- Case Reports: ≤ 6,000 words

PARTS OF A MANUSCRIPT

Title Pages

The title pages should include the following items in the order shown, beginning on the first page of the manuscript:

- Manuscript title, not to exceed 20 words (titles generally should not contain abbreviations or numerical values, with the possible exception of abbreviated study names [e.g., NHANES])
- Names of the authors spelled out in full
- Full addresses of the institutions where the work was performed
- Affiliations of all authors
- Name of and contact information for corresponding author to whom page proofs should be sent, including complete address for express mail service, telephone and fax numbers, and e-mail address
- A short running title, not to exceed 50 characters and spaces
- 5–10 key words for indexing purposes
- Acknowledgments, including grant information
- A competing financial interests declaration, not to exceed 50 words
- A list of relevant abbreviations and definitions used in the manuscript.

Abstract

All papers must include a structured abstract, which is not to exceed 250 words and should not contain references. No information should be reported in the abstract that does not appear in the text of the manuscript. In general we recommend that authors indicate study names or sources of data that are integral to the study in the title or abstract. Conclusions should mention the impact of the work to environmental health sciences. Headings to be used in the structured abstracts vary by article type as described below:

- Commentaries: Background, Objectives, Discussion, Conclusions
- Research Articles: Background, Objectives, Methods, Results, Conclusions
- Substantive Reviews, Emerging Issue Reviews, and Reviews Based on Meetings or Conferences: Background, Objectives, Methods, Discussion, Conclusions
- Quantitative Reviews and Meta-Analyses: Background, Objectives, Methods, Results, Conclusions
- Grand Rounds and Case Reports: Context (the relevance to environmental exposures and environmental health), Case Presentation, Discussion, Relevance to Clinical or Professional Practice.

Main Text

The organization of the text will vary by article type and roughly reflects the structure of the abstract with some exceptions as described below:

- Commentaries: Introduction (comprising the Background and Objectives stated in the abstract), Discussion, Conclusions
- Research Articles: Introduction (comprising the Background and Objectives stated in the abstract), Methods, Results, Discussion, Conclusions. Concise subheadings (not to exceed 8 words each) may be used to designate major topics within each of these sections; do not include tables and figures in these headings.

- Reviews: Introduction (comprising the Background and Objectives stated in the abstract), Methods (including data sources), Results (as appropriate), Discussion, Conclusions
- Grand Rounds and Case Reports: Context (the relevance to environmental exposures and environmental health), Case Presentation, Discussion, Conclusions.

References, Tables, Figures, and Supplemental Material

The following items should be provided after the main text of the paper in this order: References, Tables, Figure Legends, Figures, Supplemental Material. The References, Tables, and Figure Legends must each begin on a new page of the manuscript. Figures and Supplemental Material should be provided as separate files. Additional information concerning each of these sections is provided in “EHP Style” below.

CONFORMANCE TO EHP STYLE GUIDELINES

Manuscripts submitted to *EHP* must conform to all *EHP* style requirements as described in “EHP Style” below. Authors should take special note of requirements for citations and references, figures, and tables. Manuscripts that do not conform to style requirements may be returned to the authors for modification before the initiation of the peer-review process. This step will cause a significant delay in the review and possible acceptance of the manuscript. All manuscripts must be submitted to *EHP* in English.

MANUSCRIPT FORMATTING

Manuscript pages must be numbered consecutively, beginning with the title page, and lines should be numbered in the original submission and all subsequent revisions. The manuscript should be prepared using Times New Roman font at 12-point size. The manuscript must be double-spaced, with all margins set at 1 inch. Authors should note that page charges are calculated based on the number of manuscript (Microsoft Word) pages.

For additional information, see the *AMA Manual of Style: A Guide for Authors and Editors*, 10th edition (American Medical Association 2007). A basic source for spelling is *Merriam-Webster's Collegiate Dictionary*, 11th edition.

Resources for assistance with research, presentation, and language are available from the following organizations:

- International Committee of Medical Journal Editors [*Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication* (<http://www.icmje.org/>)]
- AuthorAID (<http://www.authoraid.info/>).

EHP STYLE

PLAIN LANGUAGE

EHP covers all disciplines engaged in the broad field of environmental health sciences. Therefore, authors should write in a clear and simple manner, in the active voice, and avoid unnecessary jargon, so the article is understandable to readers in other disciplines and to those whose first language is not English. In deference to the breadth of the journal's readership, please define terms that may not be universally recognized among all environmental health scientists.

Results should be presented in a clear and unambiguous manner. Clearly define all outcomes, exposures, predictors, confounders, and covariates, and describe the methods or assays used to characterize study data. Comparison groups or reference conditions should be clearly indicated when reporting measures of association or effect and when reporting *p*-values for statistical tests comparing outcomes or effects between groups.

We recommend against the use of “-fold” terminology because it can be difficult to determine whether it is being used to describe relative versus absolute differences or changes between groups or conditions.

Whenever possible, provide an estimate of variability or precision when reporting measures of association or central tendency (e.g., confidence intervals, standard deviations, interquartile ranges), regardless of whether *p*-values are also reported for these estimates.

ABBREVIATIONS

All abbreviations, including abbreviations for elements (e.g., Fe, Cu) and chemical compounds [e.g., polychlorinated biphenyls (PCBs), carbon dioxide (CO₂)], should be defined in the text on first use with abbreviations used thereafter.

Units of measure should be abbreviated only when a specific amount is given (e.g., “concentration of 10 ng/mL” versus “units of nanograms per milliliter”).

IN-TEXT CITATIONS AND REFERENCE LISTS

References and citations must be formatted according to *EHP* style as described below. This will reduce copyediting time and the number of author queries included in page proofs. Authors should double-check all references for accuracy and completeness of information, spelling, diacritical marks, symbols, subscripts/superscripts, and italics. Authors are fully responsible for the accuracy of their references.

In-Text Citations

All in-text citations must be in name/date form. Place the citation immediately after the textual information cited, placing name and date within parentheses without a comma. EndNote (<http://www.endnote.com/>) is a useful source for *EHP* reference style.

- Single author: (Wing 2002)
- Two authors: (Wing and Wolf 2000)
- Three or more authors: Use first author's last name plus “et al.” (Wing et al. 2008)
- Multiple sources cited at one time: List publications alphabetically by author in the citation. Separate publications by the same author(s) with commas and those by different authors with semicolons: (Aldridge et al. 2005; Jameson et al. 2006; Levin et al. 2007; Slotkin 2004a, 2004b; Slotkin et al. 2008)
- Multiple sources cited at one time with different first authors but same last name and date: Use first author's last name plus initial(s) (Smith A 2000; Smith J 2000).

Provide references for any quotations used in the text. For example:

According to Rubin et al. (2001), “it is only with a multidisciplinary and collaborative approach that the environmental and public health significance of *Pfisteria* will be fully understood.”

All manuscripts submitted but not yet accepted, unpublished data, and personal communications—any items that must be cited but are not accessible to the public—must appear in the text in parentheses but should not be listed in the references: (Ramsdell JS, Moeller PDR, personal communication); (Reeves MK, unpublished data).

Reference List

Authors are fully responsible for the accuracy of their references. The list of references should begin on a new page after the Conclusions of the manuscript. All references must include:

- Author/editor last name plus initials (for six or fewer authors; if there are more than six authors, use “et al.” after the sixth) or authoring agency
- Year of publication
- Full title of article or chapter (lower case)
- Title of journal (abbreviated according to BIOSIS, *Index Medicus*, or PubMed) or book/proceedings in title case
- For books and meeting reports, city/state/country of publication and name of publisher
- Volume and inclusive page numbers
- DOI number, if available, with online publication date; this information is required for articles published online only.

If you are uncertain what to include, please include all information.

List references alphabetically by the last name of the first author. If the first author has more than one publication, list references in alphabetical order (letter by letter) of subsequent authors. If the first author shares the last name with another first author (Smith JM vs. Smith RB), alphabetize by initials. If you list more than one publication by the same author/group of authors, arrange publications by date, early to late. If you list more than one publication published in the same year by the same author/group of authors, use a, b, c, d, and so on to distinguish the publications.

SAMPLE ALPHABETICAL LIST

- Slotkin TA. 2004a. Cholinergic systems in brain development and disruption by neurotoxicants: nicotine, environmental tobacco smoke, organophosphates. *Toxicol Appl Pharmacol* 198:132–151.
- Slotkin TA. 2004b. Guidelines for developmental neurotoxicity and their impact on organophosphate pesticides: a personal view from an academic perspective. *Neurotoxicology* 25:631–640.
- Slotkin TA. 2005. Developmental neurotoxicity of organophosphates: a case study of chlorpyrifos. In: *Toxicity of Organophosphate and Carbamate Pesticides* (Gupta RC, ed). San Diego:Elsevier Academic Press, 293–314.
- Slotkin TA, MacKillop EA, Ryde IT, Tate CA, Seidler FJ. 2007. Screening for developmental neurotoxicity using PC12 cells: comparisons of organophosphates with a carbamate, an organochlorine and divalent nickel. *Environ Health Perspect* 115:93–101.
- Slotkin TA, Persons D, Slepets RJ, Taylor D, Bartolome J. 1984. Control of nucleic acid and protein synthesis in developing brain, kidney, and heart of the neonatal rat: effects of a difluoromethylornithine, a specific, irreversible inhibitor of ornithine decarboxylase. *Teratology* 30:211–224.
- Slotkin TA, Seidler FJ. 2007. Comparative developmental neurotoxicity of organophosphates in vivo: transcriptional responses of pathways for brain cell development, cell signaling, cytotoxicity and neurotransmitter systems. *Brain Res Bull* 72:232–274.

TYPES OF REFERENCES

Journal article—conventional reference

Lewin SW, Arthur JR, Riemersma RA, Nicol F, Walker SW, Millar EM, et al. 2002. Selenium supplementation acting through the induction of thioredoxin reductase and glutathione peroxidase protects the human endothelial cell. *Biochim Biophys Acta* 1593:85–92.

Journal article—DOI reference

Fanshawe TR, Diggle PJ, Rushton S, Sanderson R, Lurz PWW, Glinianaia SV, et al. 2007. Modelling spatio-temporal variation in exposure to particulate matter: a two-stage approach. *Environmetrics*; doi:10.1002/env.889 [Online 17 December 2007].

Journal article—conventional reference and DOI reference

Berglund M, Lind B, Björnberg KA, Palm B, Einarsson Ö, Vahter M. 2005. Inter-individual variations of human mercury exposure biomarkers: a cross-sectional assessment. *Environ Health* 4:20; doi:10.1186/1476-069X-4-20 [Online 3 October 2005].

Journal article, “in press”

Theppeang K, Glass TA, Bandeen-Roche K, Todd AC, Rohde CA, Schwartz BS. In press. Sex and race/ethnicity differences in lead dose biomarkers: predictors of lead in blood, tibia, and patella in older, community-dwelling adults in an urban setting. *Am J Public Health*.

Chapter in edited book

Clark K, Cousins I, MacKay D, Yamada K. 2003. Observed concentrations in the environment. In: *The Handbook of Environmental Chemistry*, Vol 3, Part Q: Phthalate Esters (Staples CA, ed). New York:Springer, 125–177.

Agency as author

Institute of Laboratory Animal Resources. 1996. *Guide for the Care and Use of Laboratory Animals*. 7th ed. Washington, DC:National Academy Press.

Proceedings

Zaslavsky I, Pezzoli K, Valentine D, Lin A, Sarabia H, Ellisman MH, et al. 2006. Integrating GIS and portal technologies for assessing environmental health impacts of Hurricane Katrina. In: *Proceedings from the Second International Conference on Environmental Science and Technology*, 19–22 August 2006, Houston, TX, Vol 2 (Starrett SK, Hong J, Lyon WG, eds). Houston, TX:American Science Press, 385–390.

Web site

NTP (National Toxicology Program). 2008. *NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of Bisphenol A*. NIH Publication no. 08-5994. Available: <http://cerhr.niehs.nih.gov/evaluations/chemicals/bisphenol/bisphenol.pdf> [accessed 24 June 2010].

FOOTNOTES

Do not use footnotes. Place all textual information within the manuscript and all references in the proper form both in text and in the reference list.

PREPARING TABLES AND FIGURES

Tables

Each table must begin on a new page after the References. Tables must be numbered with Arabic numerals, followed by a brief title (not to exceed 25 words). Tables should contain no more than three layers of column headings, and the entire table should fit on one journal page or less. Large tables (> 2 manuscript pages) may be published online as Supplemental Material. A column heading must be

provided for each column. Rather than placing additional column heads in the middle of a table, a new table should be created. For tables spanning > 1 page in the Microsoft Word version of the manuscript, authors should indicate that the table is continued from the previous page [e.g., “Table 1 (cont.)”], and all column headings should be repeated at the top of the table on each new page. List abbreviations and definitions under each table. Type footnotes directly after the abbreviations, beginning on the next line. General footnotes to tables must be indicated by lowercase superscript letters beginning with “a” for each table. Footnotes indicating statistical significance must be identified in the following order: asterisks (*, **), number signs (#, ##), and daggers (†, ††). The comparison to which the *p*-value applies must be clearly indicated (e.g., “compared with untreated controls”). For presentation of data in tables, please use the “±” symbol for arithmetic mean and standard deviation or standard error (e.g., “mean ± SE”) and parentheses for the standard error when presented with the geometric mean [e.g., “GM (SE)"]. Please present number and percent as “*n* (%)” (i.e., in one column separated with one space). Confidence intervals should be presented in parentheses in the same column as the point estimate, with the upper and lower bounds separated by a comma [e.g., (0.1, 2.3)].

Figure Legends

Figure legends should be provided on a new page after tables. Each figure legend should include a title for the entire figure and descriptors for each panel [e.g., “Figure 1. Incidence of hepatocellular adenomas (A) and carcinomas (B) in mice exposed to DEHP”]. Define error bars and any abbreviations not defined in the text. Footnotes indicating statistical significance must be identified in the following order: asterisks (*, **), number signs (#, ##), and daggers (†, ††). The comparison to which the *p*-value applies must be clearly indicated (e.g., “compared with controls from the corresponding age group”). Type footnotes directly after the abbreviations beginning on the next line.

Figures

Each figure must be provided as a separate file in one of the following formats: TIFF, JPG, EPS, or PDF. Do not embed figures in the main text (Microsoft Word) file. Each figure must be labeled with the figure number. For TIFF or JPG format, the resolution should be 300 dpi for color images, 600 dpi for grayscale images, and 1200 dpi for line art (black-and-white art). JPG files should be saved on the “highest quality” setting. Color images should be RGB and saved at a minimum of 8 bits per channel. Because figures may be reduced or enlarged to fit our layouts, sufficient resolution is essential. Vector images should be saved as editable EPS files. Any images embedded in the EPS should also be included in a separate file. Do not convert text to path outlines before submission.

Graphics must fit standard letter-size paper (8.5 × 11 inches, portrait orientation). Multiple panels within a figure also must fit on a single page. All letters, numbers, and lines must be clearly legible and easy to differentiate. Provide a key defining representational elements (e.g., dotted/dashed lines, symbols) for each figure. All axes must be clearly labeled, giving both the measure and the unit of measurement where applicable. Consistency

among terms and styles (including symbols and colors) used in figures is desirable. For example, if “luteinizing hormone” is abbreviated “LH” in the text, “LH” should be used in figures; if a black circle represents the control in Figure 1, a black circle (or a black bar) should be used for controls in all other figures. Photomicrographs should include a scale bar in each image, and the length should be specified in the typed figure legend (e.g., “bar = 10 μm ”).

EHP editors reserve the right to request that complex figures (e.g., figures with multiple panels showing information in a variety of formats, or that include panels related to different experiments) be divided into separate figures for publication. Questions concerning figures should be directed to EHPmanuscripts@niehs.nih.gov.

Image Integrity

Adjusting an image for brightness and contrast is acceptable if it is applied to the entire image. Background data of gels and blots must not be removed. The final image must accurately represent the original data.

SUPPLEMENTAL MATERIAL

EHP welcomes reasonable amounts of material suitable for inclusion as online documentation for submitted manuscripts. Examples are bioinformatic data, formulae, statistical derivations, full gene data and analysis, additional high-resolution microscopic data, kinetic analyses, and other supporting tables, figures, or videos. The submitted manuscripts must be able to stand alone in the absence of Supplemental Material. All information included as Supplemental Material should be directly relevant to the article and cited in the main body of the paper. The principal methodological approach must be clearly described in the main body of the paper and not relegated to Supplemental Material.

Supplemental Material must not exceed a total of four tables or figures. Text, exclusive of figure legends, tables, and references, must not exceed a total of 750 words. If the Supplemental Material exceeds this limit, the author must request a waiver from the Editor-in-Chief before the paper is submitted to the journal. Authors may provide a separate (ideally permanent) web repository for information that is not included in the Supplemental Material file if they believe it would be of interest to readers. This material should be clearly identified as not peer reviewed. This information should be cited in the text and included in the reference list (formatted as a web site).

Information included as Supplemental Material does not count toward the word count for the paper. Supplemental Material must be uploaded as a separate single PDF file and labeled as such. Although Supplemental Material is published online only, it will be peer reviewed along with the manuscript and thus must meet the same rigorous standards.

The Supplemental Material PDF file that you provide will be linked with your paper through a common DOI number. We use Supplemental Material files “as is” (i.e., *EHP* will not copyedit or reformat the file). Therefore, please carefully check the text and figures to confirm that they are complete and accurate.

1. Provide a single Supplemental Material file in PDF format to ensure that the formatting of the file is exactly the way you want it, without the possibility of inadvertent changes in formatting as the file is converted from a .doc file to a PDF.
2. Begin the file with a title page that indicates “Supplemental Material” followed by the title of the paper and the author list.
3. Include page numbers, but remove all line numbers before generating the PDF file.
4. Provide a Table of Contents (on or after the title page) if the Supplemental Material comprises multiple tables, figures, and/or sections of text.
5. Place figure legends below corresponding figures. Landscape (versus portrait) layout may be used when needed.
6. Tables or figures included in the Supplemental Material should be labeled as Supplemental Material, Table 1; Supplemental Material, Figure 1; and so on.
7. When referring to Supplemental Material in the main manuscript, indicate the table, figure, or section as follows: See Supplemental Material; see Supplemental Material, Table 1; see Supplemental Material, p. 6; see Supplemental Material, Part 2.
8. A separate reference list must be included in the Supplemental Material file for any sources cited in the Supplemental Material, even if they are cited in the main paper.

PUBLIC DATABASES

Manuscripts using microarrays must follow the Minimum Information About a Microarray Experiment (MIAME) guidelines developed by the Microarray Gene Expression Data (MGED) Society (<http://www.mged.org/miame>). On acceptance, all integral data supporting the article’s conclusions should be submitted to either the ArrayExpress (<http://www.ebi.ac.uk/arrayexpress>) or GEO (<http://www.ncbi.nlm.nih.gov/geo/>) database.

MANUSCRIPT SUBMISSION

MANUSCRIPT CENTRAL

Manuscripts submitted to *EHP* will be processed using Manuscript Central, an online manuscript submission and tracking program (<http://mc.manuscriptcentral.com/ehp>).

INITIAL SUBMISSION OF A MANUSCRIPT

Authors may either log in or select the “Create a New Account” icon to create a new account. To determine if an account exists, e-mail EHPmanuscripts@niehs.nih.gov. Once logged in to the Manuscript Central site, authors must select the “Author Center” link. From this point, the system will guide the user through the submission process. Online help is available at all times during the process via the “Get Help Now” button in the upper right corner of the screen. Users may also exit and reenter the submission process at any time before completing a manuscript submission.

After completing an online submission, authors must submit a CFID form as soon as possible. This form can be found by selecting the “Instructions & Forms” link in the Author Center. The assigned manuscript number should be noted on the form. Authors should complete and sign the form, then submit a scanned document by e-mail to

EHPmanuscripts@niehs.nih.gov. Completed forms may also be faxed to 919-541-0273 or mailed to:

Editor-in-Chief
Environmental Health Perspectives
National Institute of Environmental Health Sciences
Mail Drop K3-01
PO Box 12233
Research Triangle Park, NC 27709-2233
USA

Authors can monitor the progress of submissions at any time by logging in to the Author Center using their ID and password. Forgotten passwords may be obtained by entering your e-mail address in the “Password Help” section of *EHP*’s Manuscript Central homepage. If an account exists, instructions for resetting the password will be e-mailed to the user.

Manuscripts may be submitted only via the online system. Manuscripts submitted by other methods (e.g., hard copy, e-mail) will not be processed.

REQUIRED COVER LETTER

A cover letter must accompany the manuscript and include the following points:

- Assurances that the manuscript *a*) is an original work, *b*) has not been previously published whole or in part, and *c*) is not under consideration for publication elsewhere
- A statement that animals used in research have been treated humanely according to institutional guidelines, with due consideration to the alleviation of distress and discomfort. The source of those guidelines must be provided
- A statement that participation of human subjects did not occur until after informed consent was obtained
- Confirmation that all authors have disclosed any actual or potential competing interests regarding the submitted article and the nature of those interests (the required CFID form is available at <http://ehp.niehs.nih.gov/cfi.pdf>)
- If applicable, written permission from any copyright holder (usually the publisher) to reproduce figures, tables, questionnaires, or a substantial block of text in both print and electronic forms
- A statement indicating that all authors *a*) have read the manuscript, *b*) agree the work is ready for submission to a journal, and *c*) accept responsibility for the manuscript’s contents
- The names and e-mail addresses of up to six possible preferred reviewers, as well as up to six nonpreferred reviewers for the manuscript
- If applicable, a statement concerning previous publication of a manuscript or materials that might be considered redundant or duplicative.

PEER REVIEW

Manuscripts are assessed for originality, scientific quality, environmental health significance, clarity of presentation, and conciseness. Scientific quality and environmental significance have a higher weight than the other criteria.

At least two peer reviewers will be solicited for comments on the manuscript, and authors will not know the identity of the reviewers. Peer review is conducted electronically to accelerate the process, and each reviewer is asked to complete the review

of each version of the paper within three weeks. Authors may nominate up to six preferred reviewers for the manuscript. Providing the names and contact information, including e-mail addresses, is strongly encouraged. Authors may also identify up to six nonpreferred reviewers.

After editorial consideration, a decision letter and reviewers' comments will be e-mailed to authors. If a revision of the manuscript is required, authors must submit the revised manuscript to *EHP* within 6 weeks of the request. If authors fail to meet this deadline, the submission will be canceled unless the authors have obtained prior permission for an extension from the Editor-in-Chief. Authors must submit both the revised manuscript and a letter responding to reviewers' comments.

RESUBMISSION OF A REVISED MANUSCRIPT

If *EHP* requests revisions or accepts the manuscript, authors will need to submit all of the following through Manuscript Central (<http://mc.manuscriptcentral.com/ehp>):

- All text, tables, and figure legends must be in one Microsoft Word document. Please ensure that any symbols and equations appear correctly on printed copies and that all figures and tables are cited in the body text in numerical order.
- Each revised figure must be submitted as a separate file in one of the following formats: TIFF, JPG, EPS, or PDF. Each figure must be labeled with the correct figure number for the revised manuscript. Additional information on formatting and content requirements is provided in "Preparing Tables and Figures" above.
- Authors must submit a cover letter with point-by-point responses to the reviewers' comments, a copy of the revised manuscript with changes tracked in Microsoft Word, and a clean version of the revised manuscript with all changes accepted. In order to expedite the processing of revised manuscripts, it is important to be as specific as possible in responding to reviewers' comments. Authors should copy the editors' and/or reviewers' comments into the response letter and respond to each comment individually, including the specific changes made in response to each comment (if any) and where the changes are located in the revised draft. As in the original submission, the revised manuscripts must have numbered lines to facilitate locating specific text or changes.
- Revised manuscripts must conform to *EHP* length requirements, even if additional material is added to the manuscript in response to reviewer requests. Authors may want to consider moving text, tables, and figures to Supplemental Material to reduce the length of the manuscript, provided such material is not necessary for most readers to follow or interpret the findings. Authors should consult with the Associate Editor for their paper for additional guidance if needed. Papers that substantially exceed *EHP* word limits may be returned to authors for additional revisions to reduce their length before acceptance.

PUBLICATION SEQUENCE

AHEAD OF PRINT

Authors will be notified their paper has been accepted provisionally, at which point they may be asked to respond to additional post-review requests from the *EHP* Editor-in-Chief or Science Editor. Authors also are asked at this point to conduct their own final review of their paper to confirm it is ready for Ahead of Print publication. Final acceptance will occur after papers have undergone in-house editorial review for scientific content and accuracy and compliance with *EHP* formatting and CFI requirements.

Papers are not copyedited until they are prepared for print publication. *EHP* publishes unedited PDF versions of articles online as Ahead of Print articles (<http://www.ehponline.org/>) within 24 hours of final acceptance unless a prepublication embargo period is agreed upon in advance (for more information on embargoes, see "Press Releases and Embargo Policy" below). Additionally, unedited abstracts are published online in PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>) and at <http://www.ehponline.org/>.

Ahead of Print articles are citable using the assigned DOI (Digital Object Identifier) number for the article. The DOI number enables the article to be immediately referenced and establishes publication priority. The PDF version of Ahead of Print articles will be replaced with the copyedited, formatted version as soon as possible, but the DOI number will remain with the copyedited article. In addition to the DOI number, the copyedited article will include assigned volume and page numbers that will allow full conventional citation.

COPYEDITING/PAGE PROOFS

To prepare each paper for print publication, *EHP* staff will convert electronic material to a desktop publishing format and copyedit the manuscript. The copyedited version, with embedded author queries, will be converted to a PDF version (page proofs) and sent to authors by e-mail. The authors can use free Acrobat Reader software (<http://get.adobe.com/reader/otherversions/>) to review the proofs. Authors should return corrected page proofs to the responsible editor by e-mail or fax (919-541-0273). There are two methods of correcting and returning proofs:

- Authors may use Comment and Markup Tools in Acrobat and e-mail the corrected proof.
- Authors may print the proof and write corrections directly on the printed copy; then return the corrected proof by fax (919-541-0273), or scan the marked proof and return it by e-mail. Authors using this method should also include with the page proofs a list of itemized changes (including their locations).

The copyedited proofs of an article may be slightly different from the Ahead of Print version as a result of the editing process, but no substantive changes will be allowed. Any significant changes at this stage of processing will require a correction to be published at the end of the article. Extensive changes cannot be made at the proof stage; only

minor changes, such as spelling, grammar, clarification, and referencing, should be requested. If new information has become available after acceptance of the manuscript, an addendum in proof can be included with the permission of the Editor-in-Chief. Articles will usually be published in the print version in order of acceptance as journal space permits.

PAGE AND COLOR FIGURE CHARGES

On acceptance of the manuscript, authors will be required to pay page charges at the current rate of \$35 per accepted Microsoft Word manuscript page (excluding the first three pages). Authors will also be charged \$500 for the first color figure and \$100 for each additional color figure.

PUBLICATION DATE OF RECORD

Manuscripts accepted for publication in *EHP* will appear online within 24 hours of final acceptance unless they have been embargoed. The date the article is posted on the web site will be considered the publication date of record.

COPYRIGHT, REPRODUCTION, AND CITATION

EHP is a publication of the U.S. Government. Publication of *EHP* lies in the public domain and is therefore without copyright. All text from *EHP* may be reprinted freely. Use of materials published in *EHP* should be acknowledged (for example, "Reproduced with permission from *Environmental Health Perspectives*"); pertinent reference information should be provided for the article from which the material was reproduced. Articles from *EHP*, especially the News section, may contain photographs or figures copyrighted by other commercial organizations or individuals that may not be used without obtaining prior approval from the holder of the copyright. For further information, contact *EHP* Permissions (ehponline@niehs.nih.gov).

PRESS RELEASES AND EMBARGO POLICY

Authors are responsible for arranging media outreach with their own press offices in conjunction with *EHP*. *EHP* will happily tailor publication dates to suit the needs of authors and their press officers. We recommend an embargo period of at least 2 full working days for any paper that receives a press release. This gives members of the media time to prepare stories and contact corresponding authors for additional information.

Authors whose papers have been provisionally accepted for publication should contact Susan Booker, *EHP* News Editor, at booker@niehs.nih.gov to coordinate embargo and publication dates. Authors or press officers should also provide *EHP* a copy of their final press release.

Upon final acceptance *EHP* will send press officers a PDF copy of the article to be distributed to media who request it. All pre-press materials will be clearly identified as embargoed and will include the embargo date and time established by *EHP* in conjunction with the authors. Authors must adhere to *EHP*'s embargo policy, and authors and media alike are responsible for ensuring that all third parties with whom they share pre-press materials honor the embargo.

TYPES OF REFERENCES

Journal article—conventional reference

Waalkes MP, Liu J, Diwan BA. 2007. Transplacental arsenic carcinogenesis in mice. *Toxicol Appl Pharmacol* 222:271–280.

Journal article—DOI reference

Latendresse JR, Bucci TJ, Olson G, Mellick P, Weiss C, Thorn B, et al. 2009. Genistein and ethinyl estradiol dietary exposures in multigenerational and chronic studies induce similar proliferative lesions in mammary gland of male Sprague-Dawley rats. *Reprod Toxicol*; doi:10.1016/j.reprotox.2009.04.006 [Online 19 April 2009].

Journal article—conventional reference and DOI reference

Glas AM, Floore A, Delahaye LJ, Witteveen AT, Pover RC, Bakx N, et al. 2006. Converting a breast cancer microarray signature into a high-throughput diagnostic test. *BMC Genomics* 7:278; doi:10.1186/1471-2164-7-278 [Online 30 October 2006].

Journal article, “in press”

Holmes AK, Maisonet M, Rubin C, Kieszak S, Barr DB, Calafat AM, et al. In press. A pilot study of exposures to endocrine-disrupting compounds in pregnant women and children from the United Kingdom. *Int J Child Adolesc Health*.

Article in non-English language

Rateau JG, Broillard M, Morgant G, Aymard P. 1986. Etude experimental chez le lapin de l'effet de la cholestyramine dans le traitement des diarrhees infectieuses d'origine cholérique [in French]. *Actualite Therapeut* 22:289–296.

Magazine article

Grant M. 1997. The cell from hell. *People*, 19 May:101–103.

Newspaper article

Clabby C. 2001. Study details how centuries of fishing depleted sea life. *News and Observer* (Raleigh, NC) 27 July: B1.

Book

Luna LG. 1968. *Manual of Histopathologic Staining Methods of the Armed Forces Institute of Pathology*. 3rd ed. New York:McGraw-Hill.

Book, edited

Gross TL, Ihrke PJ, Walder EJ, eds. 1992. *Veterinary Dermatopathology*. St. Louis, MO:Mosby Year Book.

Chapter in edited book

Gurevitch J, Hedges LV. 1993. Meta-analysis: combining the results of independent experiments. In: *The Design and Analysis of Ecological Experiments* (Scheiner SM, Gurevitch J, eds). New York:Chapman & Hall, 378–398.

Book chapter, “in press”

McCoy KA, Guillette LJ. In press. Endocrine disruptors. In: *Amphibian Biology*. Vol 8. Conservation and Decline of Amphibians (Heatwole HF, ed). Chipping Norton, New South Wales, Australia:Surrey Beatty & Sons.

Agency monograph

IARC (International Agency for Research on Cancer). 1993. Cadmium and cadmium compounds. *IARC Monogr Eval Carcinog Risk Hum* 58:119–237.

Agency as author

CDC (Centers for Disease Control and Prevention). 2005. *Fourth National Report on Human Exposure to Environmental Chemicals*. Atlanta, GA:Centers for Disease Control and Prevention. Available: <http://www.cdc.gov/exposurereport/> [accessed 14 January 2010].

Proceedings

Ibrahim K. 1994. The status of marine turtle conservation in Peninsular Malaysia. In: *Proceedings of the first ASEAN Symposium Workshop on Marine Turtle Conservation*, 6–10 December 1993, Manila, Philippines (Nacu A, Trono R, Palma JA, Torres D, Agas F Jr, eds). Manila, Philippines:ASEAN, 87–103.

Technical paper

NTP. 2006. *Toxicology and Carcinogenesis Studies of Bromodichloromethane (CAS No. 75-27-4) in Male F344/N Rats and Female B6C3F₁ Mice (Drinking Water Studies)*. TR 532. Research Triangle Park, NC:National Toxicology Program.

Dissertation/thesis

Gelobter M. 1993. *Race, Class, and Outdoor Air Pollution: The Dynamics of Environmental Discrimination from 1970 to 1990* [PhD Dissertation]. Berkeley, CA:University of California, Berkeley.

Software manual

SAS Institute Inc. 2001. *SAS/STAT Guide for Personal Computers, Version 8*. Cary, NC:SAS Institute, Inc.

Web site

CDC (Centers for Disease Control and Prevention). 2003. *National Health and Nutrition Examination Survey Homepage*. Available: <http://www.cdc.gov/nchs/nhanes.htm> [accessed 6 August 2008].

Online database

National Center for Biotechnology Information. 2011. *PubMed*. Available: <http://www.ncbi.nlm.nih.gov/pubmed/> [accessed 14 July 2011].

Abstract

Barbeito AG, Guelfi N, Varga MR, Pehar M, Beckman J, Barbeito L, et al. 2005. Chronic low-level lead exposure increases survival of G93A SOD-1 transgenic mice [Abstract]. In: *Amyotrophic Lateral Sclerosis: Beyond the Motor Neuron*. Available: <http://iibce.edu.uy/ALSmeeting/abstract.htm> [accessed 14 April 2008].

Federal regulation

U.S. Environmental Protection Agency. 2001. *National primary drinking water regulations. Arsenic and clarifications to compliance and new source contaminants monitoring. Final rule*. *Fed Reg* 66:6076–7066.

Executive order; federal regulation

Clinton WJ. 2000. *Executive Order 13148. Greening of the government through leadership in environmental management*. *Fed Reg* 65:24595–24606.

U.S. Government document

U.S. Environmental Protection Agency. 2004. *Air Quality Criteria for Particulate Matter*. EPA/600/P-99/002aF. Research Triangle Park, NC:U.S. Environmental Protection Agency.

State document

State of Maryland. 1998. *Water Quality Improvement Act of 1998*. Annapolis, MD:General Assembly.

Law

Food Quality Protection Act of 1996. 1996. *Public Law 104-170*.

Court case

Leach v. E.I. du Pont de Nemours & Co. 2002. *Civil Action No. 01-C-608, 2002 WL 1270121*. Circuit Court of Wood County, West Virginia, 10 April 2002.

ABBREVIATIONS

All nonstandard abbreviations [e.g., organochlorine (OC) pesticides, limit of detection (LOD), polymerase chain reaction (PCR)] and abbreviations for elements (e.g., Fe, Cu, Ag) and chemical compounds [e.g., polychlorinated biphenyls (PCBs), carbon dioxide (CO₂)] should be defined in the text on first use and abbreviated thereafter.

Standard abbreviations, which do not need to be defined, are shown below. Units of measure should be abbreviated only when a specific amount is given (e.g., “concentration of 10 ng/mL” versus “units of nanograms per milliliter”).

Å	angstrom	m ²	square meter
amu	atomic mass unit	m ³	cubic meter
ATP	adenosine 5'-triphosphate	mCi	millicurie
BW	body weight	µg	microgram
°C	degrees Celsius	mg	milligram
cm	centimeter	mi	mile
cm ²	square centimeter	µL	microliter
cm ³	cubic centimeter	min	minute
Da	dalton	mL	milliliter
df	degrees of freedom	mM	millimolar
DNA	deoxyribonucleic acid	mm	millimeter
EDTA	ethylenediamine-tetraacetic acid	mol	mole
ft	foot	mRNA	messenger RNA
g	gram	<i>n</i>	number
<i>g</i>	gravity (10,000 × <i>g</i>)	ng	nanogram
gal	gallon	nL	nanoliter
Gy	gray (unit of absorbed dose of ionizing radiation)	nmol	nanomole
ha	hectare	o.d.	outside diameter
HEPES	<i>N</i> -2-hydroxyethylpiperazine- <i>N</i> '-2-ethane sulfonic acid	pg	picogram
HPLC	high-performance liquid chromatography	ppb	parts per billion
hr	hour	ppm	parts per million
Hz	hertz	ppt	parts per trillion
i.d.	inside diameter	RNA	ribonucleic acid
IM	intramuscular	RNase	ribonuclease
in.	inch	SD	standard deviation
IU	international unit	SDS/PAGE	sodium dodecyl sulfate-polyacrylamide gel electrophoresis
J	joule	SE	standard error, standard error of the mean
kDa	kilodalton	sec	second
kg	kilogram	U	unit
km	kilometer	V	volt
<i>K_m</i>	Michaelis constant	vol/vol	volume/volume
L	liter	W	watt
lb	pound	wt	weight
ln	natural logarithm	wt/vol	weight/volume
M	molar	yd	yard
m	meter		