Molecular Pharmacology
Instructions to Authors

[Revised March 30, 2021]

ASPET welcomes manuscripts supported by Plan S-affiliated funders. Please see the information for Plan S-funded manuscripts highlighted in blue below.

Unsure if your work is within the scope of the journal? Please see the Presubmission Inquiry option highlighted in yellow below.

Scope of Submitted Manuscripts

Molecular Pharmacology welcomes original reports of technically robust and scientifically sound research providing new insights into molecular mechanisms relevant to pharmacology, pharmaceutical sciences, and drug discovery across therapeutic modalities. Examples include studies of drug-receptor interactions, the impact of receptor function on cell or system physiology, receptor-linked intra- or intercellular signaling systems, enzyme or transporter function, drug delivery, drug metabolism, pharmacogenomics, ion channel function, transcriptional mechanisms, molecular mechanisms underlying disease, mechanisms of agonism, antagonism, allosteric modulation, and signaling bias. Work focused on the major receptor types (GPCRs, receptor tyrosine kinases, nuclear receptors, etc.) and ion channels, for example, are encouraged. Manuscripts that identify novel drug targets, approaches to treat disease or protect tissues from damage, mechanisms of action for xenobiotics, or insights into toxicologic mechanisms are also welcome, as are studies that report the development of novel reagents or technologies that are of broad applicability or yield new molecular insights. Reports that include translational studies, relevant to any of the molecular topics mentioned above, are also encouraged. Studies involving molecular or mathematical modeling relevant to drug design or drug action will also be considered if they include new experimental data or test existing experimental data to support the model(s). The journal welcomes minireview articles addressing timely subjects/topics in the field of molecular pharmacology.

Types of Studies

ASPET journals are interested in studies that support or refute important questions, and that use appropriate methodology, controls, and sample size to provide reasonably precise answers; the results may be either positive or negative.

Presubmission Inquiry

Authors may submit a presubmission inquiry to have an editor review whether their work is in scope for *Molecular Pharmacology* in advance of a full submission. There is **no submission fee** for a presubmission inquiry. Inquiries must include a cover letter, abstract, significance statement, and full author information.

Submission of Manuscripts

All manuscript submissions must be made through the journal's online manuscript system at molpharm.msubmit.net. If you are using the system for the first time, you must create an account before you can submit a paper. To do so, please click on "New users: Register here."

There is a manuscript submission fee of $75. Payment is made online through the manuscript submission system. Wire transfers are not permitted. The manuscript submission fee is waived for manuscripts where any author is an ASPET member in good standing. To get the fee waiver, the system will ask for the name of the ASPET member during the submission process.

All authors must digitally sign the Copyright Transfer Form or Open Access License using the manuscript submission system. Submission of a manuscript amounts to assurance that it has received proper clearance from the author's company or institution, that it has not been copyrighted, published, or accepted for publication elsewhere, that it is not currently being considered for publication elsewhere, and that it will not be submitted elsewhere while under consideration by *Molecular Pharmacology*. Indicate all potential conflicts of interest.

During the manuscript submission process, the corresponding author will be asked to:

- list each author's contributions to the paper (in addition to noting that information in the manuscript itself; see Section 11 below),
- disclose all financial conflicts, and
- certify that the chemical structure of all new compounds cited or discussed in the manuscript is presented or a citation to the published structure is provided.

The corresponding author is responsible for obtaining permission from the copyright owner to reproduce or modify figures and tables and to reproduce text (in whole or in part) from previous publications; permissions must allow electronic reproduction as well as print. A permission request form is available from the online Instructions to Authors. Signed permissions forms must be submitted with the manuscript as a supplemental file and be identified as to the relevant item in the manuscript (e.g., "permissions for Fig. 1"). In addition, a statement indicating that the material is being reprinted with permission must be included in the relevant figure legend or table footnote of the manuscript. Reprinted text must be enclosed in quotation marks, and the permission statement must be included as running text or indicated parenthetically.

Manuscripts must be in English, typewritten using **Arial** or **Times New Roman** fonts only, and double-spaced throughout, including references, tables, and figure legends, with at least 1 inch (25 mm) margins. Authors for whom English is not their native language are encouraged to have their manuscripts reviewed for grammar, vocabulary, syntax, and punctuation. Many English-language editing services can be found through an online search and are available for a fee. ASPET does not endorse or recommend any particular service.

Once manuscript preparation is complete, authors have the option to submit individual text and figure files or to provide a single PDF file containing the text and figures (but supplemental data in a separate file) with a file size of less than **250 MB**. PDF preparation can be done by using Adobe Acrobat, which is available for purchase http://adobe.com/products/main.html. Microsoft Word also has a "Save As" feature that will allow you to save a file in PDF format. (PC versions 2007 and higher, Macintosh 2004 and higher.) Figure resolution may be reduced if this option is used. Authors are responsible for ensuring the accuracy and quality of the PDF. If submitting a single PDF:

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- File must not contain supplemental data or supplemental legends. These must be uploaded separately.
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- Remove password protections from the file.
- Do not place restrictions on the extraction of content or modification of the PDF (this will disable reference extraction).

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Preprint Servers

Manuscripts deposited in a preprint server may be submitted to *Molecular Pharmacology*. A footnote must be included noting that the manuscript has been deposited in a preprint server.

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ASPET does not offer refunds of open access fees. If an error related to open access is identified in a published article (e.g., missing Creative Commons license, article not freely accessible, or article not deposited with PubMed Central), ASPET will correct the error.

Plan S

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Organization of the Manuscript

Manuscripts should contain the following sections **in the order listed**. Each section should be titled and begin on a new page. All pages, excluding figure pages, should be numbered consecutively.

1. Title Page. This should contain the complete title of the article, the names of all authors, and the primary laboratory of origin. Affiliation should be indicated by author initials only. Financial support for the research should not be on this page but indicated as an unnumbered footnote to the title and included with other footnotes on a separate page following the *References* section.

2. Running Title Page. The running title page should contain the following:

a) A running title, which conveys the sense of the full title (not to exceed 60 characters, including spaces and punctuation). Commonly used abbreviations (e.g., "ATP", "Ach", etc.) may be used.

b) The name, address, telephone and fax numbers, and e-mail address of the corresponding author. Only one author may be designated as the corresponding author. The e-mail address will also be used as a hypertext link in the paper. It is possible to list up to four additional co-corresponding authors on the published manuscript. In such cases, the relative roles of the co-corresponding authors need to be explained in the cover letter that accompanies submission. The additional co-corresponding author(s) should be listed on the manuscript's running title page only and not entered into the online manuscript submission system. Nonetheless, a ***single*** author needs to be designated at the time of submission who will be responsible for all correspondence during review and processing of the manuscript. The additional co-corresponding author(s) should be listed on the manuscript's running title page only and not entered into the online manuscript submission system.

c) The number of text pages, number of tables, figures, and references, and the number of words in the *Abstract*, *Introduction*, and *Discussion* (each item should be placed on a separate line).

d) A list of nonstandard abbreviations used in the paper, with abbreviations listed in alphabetical order. A list of standard abbreviations is available at http://bit.ly/2gbenCB. The use of abbreviations should be minimized to enhance readability and comprehension of the text.

3. Abstract. The abstract should concisely present the hypothesis being tested or the question being asked, general methods, results, and conclusions. Abstracts of more than 250 words will not be accepted. A word is one or more characters bounded by white space. The abstract must be a single paragraph. The quantitative effect size (difference or ratio) for principal findings should be given (e.g., "approximately doubled" or "almost eliminated"; not just "increased" or "decreased"); P values may be included along with effect size but are optional. IMPORTANT: If your manuscript is accepted, the abstract entered into the online metadata form will appear online EXACTLY the way you enter it during the submission process. Please make sure to code all special characters, including sub- and superscripts, using the codes available from the online submission system. **For revisions, update the abstract, if changed from the original.**

4. Significance Statement. The significance statement should succinctly explain in 1-2 sentences (80-word maximum) the relevance of the work in a broad context to a broad readership. It should identify the 2-3 most important points of the paper. A significance statement is required for all manuscripts that contain an abstract. The significance statement appears immediately after the abstract.

5. Visual Abstract. In addition to a text abstract, authors may submit a visual or graphic abstract that is intended to catch a reader's attention and provides a quick visual impression of the gist of the article. The graphic must be 440 pixels wide by 350-365 pixels tall, saved as RGB. TIFF or PDF file formats are preferred. Visual abstracts submitted in Word or PowerPoint are acceptable but should be avoided if possible. Follow the image preparation guidelines given below for figures. The visual

abstract will appear below the text abstract in the abstract and HTML full-text views. A smaller version of the image, converted from the authors' file by our compositor, will appear on the table of contents.

A visual abstract should use color, be simple and clear, be entirely original (reprinted images and figures will not be accepted), and should not include an image of any person, living or dead. Trademarked items (e.g., company logos, images, and products) may not be used. The image should be labeled "Visual Abstract," similar to labeling a figure for identification by reviewers and for use in the "Fast Forward" version of the paper.

6. Introduction. This section must contain a clear statement of the aims of the work or of the hypotheses being tested. A brief account of the relevant background that supports the rationale of the study should also be given. The length of the *Introduction* should not exceed 750 words.

With respect to introducing the experimental design, either the *Introduction* or the *Materials and Methods* section must state which parts of the study (if any) were done in an exploratory manner, and which (if any) present results collected and analyzed according to a preset plan (including sample size). Either approach is acceptable when supported by appropriate analysis methods.

7. Materials and Methods. Authors must affirm that original studies in animals have been carried out in accordance with the Guide for the Care and Use of Laboratory Animals as adopted and promulgated by the U.S. National Institutes of Health, and were approved by the Institution's Animal Care and use Committee or local equivalent. For investigations involving human subjects, authors must affirm that they have been carried out in accordance with the Declaration of Helsinki and approved by the Institutional Review Board(s) or equivalent ethics committee. For multisite studies, all IRBs must be in agreement.

This section should contain explicit, detailed, and concise descriptions of all new methods or procedures employed. Authors should review the NIH Principles and Guidelines for Reporting Preclinical Research (www.nih.gov/about/reporting-preclinical-research.htm). Whereas modifications of previously published methods must be described, commonly used procedures require only a citation of the original source. Descriptions of methods must not only be sufficient to enable the reader to judge the accuracy, reproducibility, and reliability of the experiment(s) but also to be able to reproduce the results. The name and location (city and state or country) of commercial suppliers of chemicals, reagents, and equipment must be given. For biological materials, give the source, catalog, and batch numbers (where applicable). For antibodies, also provide references describing their selectivity, if this is not assessed in the current paper, and dilutions used.

Sources of compounds, reagents, and equipment not available commercially should be identified by name and affiliation here or in the *Acknowledgments* section. The chemical identity or structure of novel drugs or research compounds must be provided. The structures of novel biologic agents must also be provided, at the level of current knowledge. Report the source of cell lines and, if known, their authentication and mycoplasma contamination status.

For animal experiments, authors should report the source, species, strain, sex, age, randomization, blinding, and husbandry of the animals. Report the strain characteristics of genetically engineered animals including generations of back-crossing, or percentage of contributing strains if genetic analysis was performed.

In vivo studies and studies using primary cultures of cells or tissues from animals or humans must state the sex of the experimental subjects or tissue donors in the Materials and Methods section. The designations "mixed" or "unknown" should be used as appropriate when the sex cannot be determined (e.g., embryonic or early postnatal cultures, cell lines immortalized from a mixed culture, previously completed experiments for which sex was not documented).

Data analysis methods should be explained in enough detail to allow the reader to reproduce the same results. Some of these details may be included as supplemental data.

8. Results. Contained in this section are the experimental data, with no discussion of their biological significance. Results are typically presented in figures or tables, with no duplication of information in the text. If a table or figure includes less than four values, the data should be presented in the text rather than as a separate table or figure. Magnitudes of variables reported should be expressed in numerals. Generally, units are abbreviated without punctuation and with no distinction between singular and plural forms (e.g., 1 mg, 25 mg).

Data should be presented in a quantitative manner where possible, with descriptive statistical measures. Some details regarding data analysis can be included within the *Materials and Methods* section or the figure legends. All data transformation or normalization methodologies must be clearly described to allow the reader to reproduce the results. Report the full name of each statistical test used and the exact sample size for each group included in the analysis. Report how often each experiment was performed and explain whether the sample size/number of experiments was set before data were obtained or were adapted thereafter. The statistical methodology and appropriate controls for all multiple comparisons between samples must be clearly described.

Authors are strongly encouraged to read Michel MC, Murphy TJ, and Motulsky HJ (2019) New author guidelines for displaying data and reporting data analysis and statistical methods in experimental biology. *Mol Pharmacol* **97(1):** 49-60, which is freely accessible at https://doi.org/10/1124/mol.119.118927.

Sufficient information about sample collection must be provided to distinguish between independent biological data points and technical replicates. For animal or human studies, authors are encouraged to use a power analysis to compute an appropriate sample size during study design and should report the results. If any data or subjects were excluded, clearly state the justification and statistical methodology that were used to make this decision and whether the criteria were set in advance.

Emphasize reporting the difference, ratio, percent change, or other measure of effect size, and report these with a 95% confidence interval. When feasible, P values should be expressed as an exact value and not as "P<." However, summaries of P values with asterisks can be used in figures with multiple comparisons. The total number of comparisons, the statistical method used to correct for multiple comparisons, and the key to map asterisks to P value ranges should be included in the figure legend. Use of the word "significant" to describe the results of statistical analysis is discouraged.

All data upon which the conclusion of the paper rely must be made available upon request (where ethically appropriate) during consideration of the manuscript and to members of the scientific community thereafter.

9. Discussion. Conclusions drawn from the results presented are included in this section. Whereas speculative discussion is allowed, it must be identified as such and be based on the data presented. The *Discussion* must be as concise as possible and should not exceed 1,500 words.

10. Acknowledgments. The *Acknowledgments* section is placed at the end of the text. Personal assistance is noted here. Financial support is acknowledged as an unnumbered footnote to the title. See Section 11, Footnotes.

11. Authorship Contributions. Each author's contributions to the manuscript as detailed on the Authorship Responsibility, Financial Disclosure, and Chemical Structure Statement Form are to be given in this section. All of the appropriate individuals must be named as authors of the work. Each of the applicable authorship categories from the form is to be listed followed by the last name of each respective author (use first initials when multiple authors share a last name). For example:

Participated in research design: Sung, Smith, Gupta, and Abel.

Conducted experiments: Sung, Smith, Gupta, J.D. White, S.T. White, and Abel.

Contributed new reagents or analytic tools: Sung, J.D. White, and S.T. White.

Performed data analysis: Sung, Gupta, J.D. White, and Abel.

Wrote or contributed to the writing of the manuscript: Gupta, J.D. White, S.T. White, and Abel.

12. References. References are cited in the text by giving the first author's name (or the first and second if they are the only authors) and the year of publication (e.g., Ruth and Gehrig, 1929; McCarthy, 1952; or Kennedy et al., 1960). In the reference list, references should be arranged alphabetically by author and not numbered. Names of all authors should be given in the reference list. If reference is made to more than one publication by the same author(s) in the same year, suffixes (a, b, c, etc.) should be added to the year in the text citation and in the references list. Journal titles should be abbreviated as given in the National Center for Biotechnology Information U.S. National Library of Medicine catalog. References to personal communications, unpublished observations, preprints, and papers submitted for publication are given in parentheses at the appropriate location in the text, not in the list of references. Preprints should be used with discretion. Only papers that have been officially accepted for publication may be cited as "in press" in the reference list. Authors are responsible for the accuracy of references. The format for journal article, chapter, book, and publish-ahead-of-print journal article references is as follows:

Fricks IP, Maddileti S, Carter SRL, Lazarowski ER, Nicholas RA, Jacobson KA, and Harden TK (2008) UDP is a competitive antagonist at the human P2Y14 receptor. *J Pharmacol Exp Ther* **325:** 588-594.

Kappas A (2002) Development of heme oxygenase inhibitors for the prevention of sever jaundice in infants: studies from laboratory bench to newborn nursery, in *Heme Oxygenase in Biology and Medicine* (Abraham NG, Alam J, and Nath KA eds) pp 3-17, Kluwer Academic/Plenum Publishers, New York.

Wilson JH and Hunt T (2008) *Molecular Biology of the Cell: A Problems Approach*, 5th ed. Garland Science, New York.

Hanada K, Ikemi Y, Kukita K, Mihara K, and Ogata H (2008) Stereoselective first-pass metabolism of verapamil in the small intestine and liver in rats. *Drug Metab Dispos* doi: 10.1124/dmd.107.020339.

13. Footnotes. Footnotes should be listed on a separate page and presented in the following order:

a) Unnumbered footnote providing the source of financial support. This information must be in the form of a sentence with the name of the funding agency written out in full. Research funded by the NIH, the Wellcome Trust, and UK Research and Innovation and its agencies **MUST** include the grant number in square brackets:

This work was supported by the National Institutes of Health National Institute of Diabetes and Digestive and Kidney Diseases [Grant XXXX].

Multiple grant numbers should be separated by a comma and a space. Where the research was supported by more than one agency, the different agencies should be separated by a semi-colon with "and" before the final funder:

This work was supported by the Wellcome Trust [Grants XXX, YYY]; the National Institutes of Health National Cancer Institute [Grants ZZZ, AAA]; and UK Research and Innovation [Grant BBB].

Funding from these agencies may not be cited without a grant number.

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When one or more authors are NIH employees, the following footnote must be included:

This research was supported [in part] by the Intramural Research Program of the National Institutes of Health [name of institute].

If the research being reported received no outside funding, a footnote should state that:

This work received no external funding.

b) Unnumbered footnote providing thesis information, citation of meeting abstracts where the work was previously presented, etc.

c) The name and full address (with street address or P.O. box and postal code) and e-mail address of person to receive reprint requests.

d) Numbered footnotes, using superscript numbers, beginning with those (if any) to authors' names and listed in order of appearance.

14. Figure Legends. Figures are numbered consecutively with Arabic numerals and listed in order rather than one per page. Legends must provide sufficient explanation for the reader to understand the figure independent of the text. Authors should provide details regarding group sizes, biological and technical replicates, and the statistical analysis used for all experiments shown in each figure in the legends. It is preferred that the title of the figure legend not state the conclusion(s) drawn from the experiment. The full name of any statistical test should be provided in either the figure legend or the *Materials and Methods* section (e.g., "two-tailed paired t-test"; "repeated measured one-way ANOVA with Dunnett's multiple comparisons tests"). Legends may appear directly underneath figures during initial PDF submission to facilitate review, but must be provided as a separate section (as part of the text file) upon acceptance.

15. Tables. Each table must be double-spaced and begin on a separate page, each page numbered continuous with the rest of the manuscript. Tables are numbered consecutively with Arabic numerals. A brief descriptive title is provided at the top of each table. General statements about the table follow the title in paragraph form. Footnotes to tables are referenced by italicized, lower case, superscript letters and defined beneath the table. Acceptable formats for tables are Word and WordPerfect.

16. Figures. There is no charge for using color figures.

Figures should clearly depict the experimental data. Scatter plots are preferred over mean and error. With larger sample sizes, box-and-whisker or violin plots are preferred. When plotting error bars, use confidence intervals to plot precision and standard deviations (SD) to plot variation. Avoid standard error of the mean (SEM) error bars [see Motulsky HJ (2014) Common Misconceptions about Data Analysis and Statistics, *J Pharmacol Exp Ther*, **351(1):** 200-205; DOI: https://doi.org/10.1124/jpet.114.219170]. All data transformations, normalization, and curve fitting methodologies should also be clearly described in the figure legends.

Image Manipulation: Figures in manuscripts considered for acceptance will be examined for evidence of manipulation. While certain modifications of primary data are often needed for clarity and/or brevity, image manipulation for deceptive purposes, to unfairly enhance or eliminate or otherwise obscure data, are grounds for rejection and may constitute misconduct. Inappropriate image manipulation will result in rejection of the manuscript. Suspected misconduct may be reported to the authors' institution(s) and funder(s). No specific feature within an image may be enhanced, obscured, moved, removed, or introduced. The groupings of images from different parts of the same gel, or from different gels, fields, or exposures must be made explicit by the arrangement of the figure (e.g., using dividing lines or ensuring white space separates lanes from different gels) and in the text of the figure legend. Adjustments of brightness, contrast, or color balance are acceptable if they are applied to every pixel in the image and as long as they do not obscure, eliminate, or misrepresent any information present in the original, including the background. Nonlinear adjustments (e.g., changes to gamma settings) must be disclosed in the figure legend. This policy is consistent with many leading peer-reviewed journals publishing biological data. For more detailed information, see the "Guidelines for Best Practices in Image Processing" at http://bit.ly/2gbA5Sf from the Office of Research Integrity. *[With thanks to Rockefeller Univ. Press.]*

Figure Preparation: If your manuscript is accepted for publication, you will be required to provide source files prepared according to the following instructions.

To publish the figures in your article with the highest quality, it is important to submit digital art that conforms to the appropriate resolution, size, color mode, and file format. Doing so will help to avoid delays in publication and maximize the quality of images. These instructions are available as a PDF file with screen shots and example images at http://bit.ly/2h3I19s.

Sizing and Preparation: Submit figures at their final publication size; do not scale figures (printed 1:1). Most figures should fit within a single column. See the table below for allowable widths. The height of all figures must be ≤ 9.375 inches / 24 cm / 56.5 picas.

Columns	Inches	Centimeters	Picas
1	≤ 3.5	≤ 8.9	≤ 21
2	≤ 7.125	≤18.2	≤ 43

All panels of a multipart figure should be provided in the same file. Identify figure panels with capital letters. If symbols are not explained on the face of the figure, only standard print characters may be used. Include figure titles in the legend and not on the figure itself. Photomicrographs and electron micrographs must be labeled with a magnification calibration in micrometers and Angstrom units. A statement concerning the magnification must appear in the figure legend.

Labeling and Font Usage: Please use the same font for all figures in your manuscript, and use a standard font such as Arial, Helvetica, Times, Symbol, Mathematical Pi, and European Pi. Do not use varying letter type sizes within a single figure; use the same size or similar sizes throughout. The preferred font size is 8 points; the minimum font size is 6 points. Embed all fonts used in vector files. In Illustrator, either convert text to outlines or check the box that reads **Embed Fonts** when saving the file.

Number each figure at the bottom, outside the image area. Do not put a box around the figure. Legends may appear directly underneath figures during initial PDF submission to facilitate review, but must be provided as a separate section (as part of the text file) upon acceptance.

Two Categories of Digital Artwork:

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Vector images are preferred because they have the highest quality and produce the best results in publication. JPEG and GIF are not recommended formats for providing figures.

Resolution and Raster Images: Low-resolution images are one of the leading causes of art resubmission and schedule delays. Submitted raster (i.e., pixel-based) images must meet the minimum resolution requirements. Raster images can be classified as monochrome (line-art), halftone, and or combination halftone. TIFF, EPS, PDF, PNG file formats are preferred.

- **Monochrome (1-bit) images (line-art):** Common examples are graphs and charts made of solid black and white, with no gray values. The suggested minimum resolution for this type of image is 1,000 ppi at publication size.
- **Combination Halftones:** Common examples are color or grayscale figures containing halftone and line art elements. The suggested minimum resolution for this type of image is 600 ppi at publication size.
- **Halftones:** Common examples are color or grayscale figures containing pictures only, with no text or line art. The suggested minimum resolution for this type of image is 300 ppi at publication size.

Color Mode: All color image files must be submitted in their original RGB color. To ensure accurate color in publication when you work with raster images, it is best to use an application that supports ICC profiles, such as Adobe Photoshop. Whatever application you use, be sure to always embed the originating ICC profile when saving the file. This is usually the default behavior. The box to embed the ICC profile is checked by default. Just be sure to leave the box checked. If you are using a different application, please check the documentation to be sure you are properly embedding the ICC profiles.

Vector Graphics: Vector images are typically generated using drawing or illustration programs (e.g., Adobe Illustrator) and are composed of mathematically defined geometric shapes—lines, objects, and fills. Vector graphics are resolution independent and can be enlarged to any size without quality loss.

- **Vector line art:** Common examples are graphs and charts created in illustration programs. It is preferable to have these saved as EPS files, with all fonts embedded or converted to outlines, and graph lines at least 0.25 points thick.
- **Combination line/halftone:** Common examples are color or grayscale figures containing halftone and line art elements. The halftone elements should be processed in Photoshop and the line elements in Illustrator, and the two elements from the two applications should be combined in Illustrator. It is preferable to have these saved as EPS files, with all fonts embedded or converted to outlines, and graph lines at least 0.25 points thick.

Microsoft Office: Figures submitted in Word or PowerPoint are acceptable but should be avoided if possible. Excel files cannot be used. If MS Office is your only choice, please follow these general rules to ensure that the file is properly prepared:

1. Do not use pattern or textured fills in graphics. Instead, use solid fills or percentage screens: these will be effectively maintained as vector data during file conversion. **Note:** A 20% difference in percent screens is most effective for differentiation.
2. Artwork placed within an MS Office application should be of acceptable minimum resolution for print production: 300 ppi for halftones, 600-900 ppi for combinations, and 1,000-1,200 ppi for line art.

3. When insterting pictures/images into files, be sure to select "insert" rather than "insert link." The latter will not properly embed the high-resolution image into the MS Office file.
4. Always embed fonts in your documents. Follow these guidelines for embedding fonts in MS Office documents:
   a. From the file menu, select Save As…
   b. From the **Tools** menu, select **Save Options…**, then check the **Embed Fonts in the file** box.

Authors who do not comply with these guidelines will be asked to resubmit their figures in a print-quality format, which may delay publication.

Schemes should be placed after tables, but before figures. Appendices should be placed after tables and figures.

17. Cover Images. The image that appears on the journal's cover is taken from an article in the issue. Authors may submit for consideration by the editor a separate cover image based on their article. A composite of multiple images from the article is permissible. All submitted images must be in color. Previously published covers are in the journal's archive of all online content.

The ideal image is wider than it is high and no larger than 6.5 inches wide by 5.5 inches high. Submissions should be of a similar width-to-height ratio. Submit the image as a .tiff or .eps file at a resolution of at least at 600 DPI.

Cover art created by a nonauthor must be submitted with a signed copyright transfer form, and an acknowledgment to the creator should be included in the legend.

Submit the cover image file through the online submission system when invited to submit a revised manuscript or source files. Authors will be notified if their cover image has been selected for the cover.

18. Supplemental Data. Materials that cannot be presented within the body of a manuscript may be published as supplemental data. These materials are subject to the same review process as the rest of the manuscript. Supplemental data must be cited in the text.

Acceptable formats for supplemental data include Adobe PDF, Microsoft AVI video, MPEG movie, QuickTime video, and PDB files. Large data sets may be submitted in other file formats as necessary. Manuscripts including pharmacokinetic or pharmacodynamic simulations and modeling should be accompanied by a representative model output file in Excel or another compatible format that is widely accessible. Authors are encouraged to also upload CMPX files together with the compound summary table and compound file, where applicable. Files may be compressed using the ZIP® compression utility. Multiple still images, tables, and text must be combined into a single PDF file.

Except for videos and large data sets, supplemental data must be labeled with the article's authors and title and the journal title. This is to identify the source article of the supplemental data should a reader print the file. The label should be placed at the top of the page. Data supplement pages will be neither edited nor formatted by ASPET. They should be prepared with the reader in mind. For example, legends should appear below figures instead of on separate pages. Text may be single spaced and put in columns for easier reading.

Videos should be submitted in QuickTime 3.0 or higher format and may be prepared on either a PC or Mac computer. All videos should be submitted at the desired reproduction size and length. The legend must be included as a separate file. To avoid excessive delays in downloading the files, videos must be no more than 5 MB in size and 30 to 60 seconds in length. Authors are encouraged to use QuickTime's "compress" option when preparing files to help control file size. Additionally, cropping frames and image sizes can significantly reduce file sizes. Files submitted can be looped to play more than once, provided file size does not become excessive. Authors will be notified if problems exist with videos as submitted and will be asked to modify them. No editing will be done to the videos at the editorial office. All changes are the responsibility of the author.

Regular Articles

Regular articles are traditional manuscripts that include substantial original data and tell a complete story with impactful findings. They can be brief. The format for these submissions is described in detail in other sections of the Instructors to Authors.

Minireviews

Molecular Pharmacology regularly publishes short, focused reviews or commentaries on important or emerging topics related to any aspect of modern molecular pharmacology. Suggestions for topics or authors should be directed to the Minireview Editor, Dr. Martin Michel.

Minireviews may be invited or unsolicited. In the latter case, a presubmission inquiry is advised to determine whether the topic is within the scope of the journal. There is an option in the journal submission system to make such an inquiry.

Published minireviews are generally 8-12 printed pages in the journal. This corresponds to approximately 40-50 double-spaced typewritten pages, including all components of the manuscript and counting each figure as a page of typewritten text.

Other Types of Articles

In addition to conventional scientific papers and minireviews (the bulk of the journal), the editors will consider high-quality papers that advance the field of molecular pharmacology in the categories of "emerging concepts" and "perspectives." For these categories, please contact the editor with your idea/plan before submitting a manuscript.

Emerging Concepts

This category provides a venue for authors to present ideas for timely consideration by the readership. For example, the article may present a new concept that the author feels is worthy of further investigation. The topic must be relevant to topic areas for the journal, and the manuscript must include appropriate citations. However, the article should contain no original data and should not be a review article. A figure can be included to illustrate the concept being presented. Manuscripts must not exceed 3 printed pages in the journal. This corresponds to approximately 15 double-spaced typewritten pages, including all components of the manuscript and counting each figure as a page of typewritten text. Submissions will be peer reviewed in a particularly expedited manner.

Perspectives

This category is generally reserved for submissions that are invited by an Editor. For example, the article may serve as an introduction to a special issue or may comment on a regular article published in the journal. The brief manuscript will not contain original data but will include appropriate citations.

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Letters to the Editor are typically submitted without invitation to comment on a published article. Depending on the content, they may be peer reviewed, and the authors of the article being commented upon will be invited to provide further discussion.

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As a condition of publication, the authors agree to distribute freely to academic researchers for their own use any propagatable reagents and materials (e.g., DNA, antibodies, cell lines, and mouse strains) developed for the published study that are not

available from commercial suppliers. Although structures of novel chemicals and their method of synthesis must be disclosed, authors should also make a good-faith effort to meet researchers' requests for such chemicals whenever available quantities allow. Authors are required to make any noncommercial software used in the study available on request or indicate how it can be obtained.

Data Deposition

In all instances described below, sequence accession numbers must be provided in the text of the manuscript. The deposited data must have a release date no later than the date of acceptance, and no data are to be withdrawn or modified following acceptance.

Nucleic Acid and Protein Sequences: Novel nucleic acid and protein sequences must be deposited in the appropriate databases.

Structural Data and Molecular Modeling: For studies including crystallographic data, both the coordinates and structure factor amplitudes must be submitted to the Protein Data Bank, and a validation report from the Protein Data Bank must be provided with the initial submission. For studies involving theoretical/homology models, file(s) in Protein Data Bank format (pdb) for all molecular models used in the manuscript need to be included as supplemental data files. The list of supplemental figure legends must include a caption for each pdb file. The caption will be used as a link to the file from the online supplemental data page. Integrity of the files should and will be checked by the ability of free viewers from (SPDBV, Rasmol) to open and manipulate the model without errors. For NMR structures, the coordinates must be deposited with RCSB and the other restraints to BioMagResBank (BMRB). Data deposited should include resonance assignments and all restraints used in structure determination (NOEs, spin-spin coupling constants, amide exchange rates, etc.) and the derived atomic coordinates for both an individual structure and for a family of acceptable structures.

High-throughput Data: For studies including functional genomics data (e.g., microarray, ChIP seq, RNA-seq, proteomics, or other high-throughput data), the data must be deposited in a MIAME-compliant database such as GEO (www.ncbi.nlm.nih.gov/geo), ArrayExpress (www.ebi.ac.uk/arrayexpress) or Genomic Expression Archive (GEA) (https://www.ddbj.nig.ac.jp/gea/index-e.html). If such a database is not available, the entire data set should be uploaded as supplemental data in a commonly used file format (e.g., Excel).

Western Blotting

For studies utilizing western blotting for relative quantitation of protein levels, the method of quantitation should be clearly explained and validated. Signal intensities may be normalized to total protein loading or to "house-keeping" proteins. If the latter method is chosen, the effect of the experimental conditions on the housekeeping proteins should be reported. For blots measuring post-translational modifications, the effect on the unmodified form should also be reported. It is recognized that these guidelines may be difficult to adhere to in some special cases (e.g., clinical samples with variable protein quality), and some latitude is afforded in this respect.

Structural Data and Molecular Modeling

For studies including crystallographic data, both the coordinates and structure factor amplitudes must be submitted to the Protein Data Bank prior to publication, and the accession number given in the text of the manuscript. For NMR structures, the coordinates should be deposited with RCSB and the other restraints to BioMagResBank (BMRB). Data deposited should include resonance assignments and all restraints used in structure determination (NOEs, spin-spin coupling constants, amide exchange rates, etc) and the derived atomic coordinates for both an individual structure and for a family of acceptable structures.

File(s) in the Protein Data Bank format (pdb) describing all molecular modeling of proteins presented in submitted manuscripts need to be included as supplemental data files. The format for pdb files is standardized, and details are available from a variety of sources. Integrity of the files will be checked by the ability of free viewers from (SPDBV, Rasmol) to open and manipulate the model without errors.

The list of figure legends must include a caption for each pdb file. The caption will be used as a link to the file from the online supplemental data page. Each pdb file must be cited parenthetically in the body of the manuscript. Use the format "(Data Supplement)."

Drugs, Drug Discovery, and Chemical Biology

Generic drug names are used in text, tables, and figures. Trade names may be given in parentheses following the first text reference, but should not appear in titles, figures, or tables. Whereas trade names are capitalized, generic or chemical names are not. The chemical structure of new compounds (or a citation to the published structure) must be given. The form used in calculating concentrations (e.g., base or salt) must be indicated.

Studies describing new chemical entities or drug discovery need to provide or cite clear methods for synthesizing or purifying the compounds under investigation. Purity needs to exceed 95% by accepted methods (mass spectrometry, chromatography, NMR). Studies of extracts of natural products that contain compounds in unknown proportions or of unknown structure should not be submitted. Only in rare and unique circumstances would manuscripts describing drug discovery efforts that yield compounds with low potency (100's of micromolar EC50 values) be considered for publication. Similarly, descriptions of classes of compounds that are well-known to be non-selective (flavonoids, polyphenols, dyes) and that are frequently active across many biological assays are unlikely to be considered for publication.

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The nomenclature used to identify receptors and ion channels should conform to guidelines of the Committee on Receptor Nomenclature and Drug Classification of the International Union of Basic and Clinical Pharmacology (NC-IUPHAR). These are published periodically in *Pharmacological Reviews* and are accessible at www.iuphar-db.org/nomenclature.html.

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Revised manuscripts must be submitted within the designated time and must contain an itemized list of all changes made, or a rebuttal, in response to each of the reviewers' suggestions. Address the format deficiencies noted in the decision letter. Make sure figures conform to specifications (see Figures) and the Abstract metadata box is updated, with special characters coded. Publication of accepted papers will be delayed pending correction of any outstanding deficiencies.

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Submission Checklist

____ Letter of submission
____ Running title page includes the number of text pages, tables, figures and references, and the number of words in the *Abstract*, *Introduction*, and *Discussion*
____ Manuscript double spaced throughout including references, figure legends, and tables
____ References checked for accuracy