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Scope of the Journal

Biochemistry provides an international forum for publishing exceptional, rigorous, high-impact research across all of biological chemistry. This broad scope includes studies on the chemical, physical, mechanistic, and/or structural basis of biological or cell function, and encompasses the fields of chemical biology, synthetic biology, disease biology, cell biology, nucleic acid biology, neuroscience, structural biology, mechanistic enzymology, and biophysics.

Manuscript Types

Biochemistry publishes original research in three formats: Communications, Research Articles, and, for the description of new biological chemistry methods, a format called From the Bench. Biochemistry also publishes Reviews and Perspectives, as well as Viewpoints that focus attention on recent, significant discoveries in the field reported in Biochemistry or elsewhere.

COMMUNICATIONS. *Biochemistry* Communications are short manuscripts reserved for high-impact results. They must be prepared using the *Biochemistry* Communications template (available [here](#)). An abstract of up to 250 words is required. All other text (including title, figure/scheme captions, author names and information, acknowledgements, tables, references, etc.) must sum to 3000 words or fewer. Up to four figures/schemes are allowed, and there is no limit on the number of tables and references. The editors will make every effort to facilitate especially rapid publication of *Biochemistry* Communications by returning initial decisions within three weeks of receipt. A brief statement explaining how the manuscript meets the impact criteria stated above should be included in the cover letter that accompanies the submission. *Biochemistry* Communications must include a Table of Contents graphic. Detailed Experimental Procedures should be included in a separate Supporting Information document.

RESEARCH ARTICLES. *Biochemistry* Research Articles describe rigorous, significant, and high-quality advances in biological chemistry that will interest the diverse and contemporary *Biochemistry* readership. Articles contain an Introduction that places the work in context followed by sections describing Materials and Methods, Results, Discussion, and Conclusions. Results and Discussion may be combined into a single section. *Biochemistry* Research Articles include an Abstract of fewer than 250 words but no restrictions with regard to the number of figures, tables, or references. A brief statement explaining why the manuscript is appropriate for *Biochemistry* must be included in the cover letter that accompanies the manuscript. Article submissions prepared without the template should begin with a Cover Page that includes the manuscript title and all author names, with complete contact information for the corresponding author, an Abstract, and a Table of Contents graphic. Display Items (Tables, Schemes, and Figures) along with their legends should be embedded in the main text. All procedures should be described in sufficient detail to allow the results to be reproduced by others. Brief Acknowledgments and References are included at the end of the main text document.

FROM THE BENCH. *Biochemistry* From the Bench submissions are designed to report detailed protocols of high interest to members of the biological chemistry community: they should describe either fundamentally novel experimental, computational, or bioinformatics methods or significant improvements to established research techniques. From the Bench submissions must include a

detailed description of the method, including all technical details necessary to ensure reproducibility, and the results of a validation study that demonstrates a clear advantage of the new method when compared to currently available approaches. While the reported method should be novel, application of the method to provide new biological insight is not required.

From the Bench submissions should include a Cover Page that lists the manuscript title and names of all authors, with complete contact information for the corresponding author, an Abstract of 250 words or fewer, and a Table of Contents graphic. The main text of the manuscript should include a 1-2 paragraph Introduction that places the new method in context, followed by a detailed description of how the method was developed, tested, and validated and how it compares with previous approaches. The submission concludes with a step-by-step description that includes all technical details necessary to ensure reproducibility. Display Items (Tables, Schemes, and Figures) along with their legends should be embedded in the main text. Brief Acknowledgments and References are included at the end of the main text document. An example From the Bench article can be found [here](#).

REVIEWS. Reviews should provide a comprehensive overview of a particular field or topic, including critical past context and recent advances that are driving the area forward. Topics that have been extensively reviewed recently in other journals are unlikely to be considered. Authorship is usually by invitation, but suggestions sent to eic@biochem.acs.org of both topics and authors are welcome. Submissions should begin with a Cover Page that includes the manuscript title and all author names, with complete contact information for the corresponding author, an Abstract of 250 words or fewer, and a Table of Contents graphic. Reviews are recommended to occupy approximately 5-10 pages of printed text with no limit to the number of references or figures. Reviews will be peer-reviewed to ensure accuracy and balance.

PERSPECTIVES. Perspectives are designed to communicate a focused (as opposed to comprehensive) assessment of the most exciting new developments in a field or area and with an eye toward guiding future research. Topics that have been extensively reviewed recently in other journals may be considered, but only if the author's new commentary on the field provides a unique contribution. Authorship is usually by invitation, but suggestions sent to eic@biochem.acs.org of both topics and authors are welcome. Please detail in your suggestion how the proposed Perspective will be unique, especially in the context of any related reviews. Submissions should begin with a Cover Page that includes the manuscript title and all author names, with complete contact information for the corresponding author, an Abstract of 250 words or fewer, and a Table of Contents graphic. Perspectives are recommended to occupy approximately 4-7 pages of printed text with no limit to the number of references or figures. Perspectives will be peer-reviewed to ensure accuracy and balance.

VIEWPOINTS. Viewpoints are designed to inform readers about an especially exciting recent biological chemistry advance that has been published in *Biochemistry* or elsewhere. Most Viewpoints are commissioned, but proposals may be sent to the Editor-in-Chief at eic@biochem.acs.org. Viewpoints may contain up to 1000 words and a **maximum of five citations** and should be written to ensure accessibility to a non-expert. A Table of Contents graphic is required. The submission of 1-2 additional figures and artwork is strongly encouraged, to illustrate both specific points made in the piece and the more general context. Viewpoints are not peer reviewed but will be evaluated by a member of the editorial board prior to publication. Minor revisions for clarity or adherence to author guidelines may be requested. Upon submission of a Viewpoint, please indicate the editor who commissioned your submission as the preferred editor.

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- [Mastering the Art of Scientific Publication](#), which shares editor tips about a variety of topics including making your paper scientifically effective, preparing excellent graphics, and writing cover letters.
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- When required by a journal's structure or length limitations, manuscript templates should be used.
- References can be provided in any style, but they must be complete, including titles. For information about the required components of different reference types, please refer to the [ACS Style Quick Guide](#).
- Supporting Information must be submitted as a separate file(s).

Document Templates and Format

The templates facilitate the peer review process by allowing authors to place artwork and tables close to the point where they are discussed within the text. Learn more about document templates [here](#).

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See the list of [Acceptable Software](#) and appropriate [File Designations](#) to be sure your file types are compatible with ACS Paragon Plus. Information for manuscripts generated from [TeX/LaTeX](#) is also available.

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A cover letter must accompany every manuscript submission. During the submission process, you may type it or paste it into the submission system, or you may attach it as a file.

The cover letter must include the title of the manuscript, the name of the corresponding author, the type of manuscript submitted, and a paragraph explaining why the manuscript will appeal to the broad *Biochemistry* readership. The letter should also identify any Supporting Information and/or Review-Only Material and, where appropriate, describe any presubmission communications with a *Biochemistry* Editor or the Managing Editor.

Manuscript Text Components

TITLE. Titles should clearly and concisely reflect the emphasis and content of the paper and be accessible to a broad audience. Do not use trade names of drugs or abbreviations. Serial numbers may be used only if consecutive papers appear in the same issue of *Biochemistry*.

AUTHOR LIST. Include all individuals who have made substantial contributions to the work. To facilitate indexing and retrieval and for unique identification of an author, use first names, initials, and surnames (e.g., Katherine M. Jones) or first initials, second names, and surnames (e.g., K. Mary Jones). Additionally, authors are encouraged to register for an ORCID iD. At least one author must be designated with an asterisk as the person to whom correspondence should be addressed. *Biochemistry* allows for the designation of multiple first authors.

ABSTRACT. All Communications, Research Articles, From the Bench, and Perspectives contributions should contain an abstract. The Abstract should, in fewer than 250 words, succinctly present the problem studied, the experimental approach employed, and the major findings, conclusions, and significance of the work. The Abstract should be self-explanatory and suitable for direct reproduction. Footnotes or undefined abbreviations may not be used.

INTRODUCTION. The Introduction should state the motivation for the investigation and its relationship to other work in the field. Extensive reviews of the literature should be avoided. The last paragraph of the introduction should summarize the major findings, conclusions, and significance of the work, without reproducing the abstract. The Introduction has no header.

MATERIALS AND METHODS. Materials and experimental details should be described in sufficient detail to enable others to repeat the experiments. UniProt Accession IDs and/or protein IDs (www.uniprot.org/) should be provided for all proteins that are purified and/or characterized. Names of products and manufacturers should be included only if alternate sources are deemed unsatisfactory. Articles reporting data from experiments on live animals must include a statement identifying the approving committee and certifying that such experiments were performed in accordance with all national or local guidelines and regulations. Results from experiments involving humans or tissue samples must additionally include a statement that informed consent

was obtained from the subject or from the next of kin. Novel experimental procedures should be described in detail, but published procedures should merely be referred to by literature citation of both the original and any published modifications. In submitting a manuscript to *Biochemistry*, authors agree to make available to interested academic researchers for their own use any materials reported in their manuscript that are not otherwise obtainable. Such requests should respect the purpose for which an author has prepared the materials being requested in order to avoid conflicts of competition with the originating laboratory.

RESULTS AND DISCUSSION. Results should be presented concisely. Tables and figures should be referred to directly, and data should be presented in only one figure or table. In the interest of economy of space, Supporting Information (also subject to review) should be submitted as a separate file. The discussion should interpret the results, relate them to existing knowledge in the field, and clearly state their significance. To conserve space, please submit supplemental information as a single PDF as Supporting Information for Review. The Results and Discussion sections in Research Articles may be combined into a single section or described separately.

ACCESSION CODES. *Biochemistry* is committed to improving the functional annotation of protein databases to improve their value to the biological chemistry community. To achieve this goal, we ask that **all proteins** referred to in a manuscript published in *Biochemistry* be linked to an accession ID from a public domain database (UniProt or NCBI) to facilitate the transfer of functional information reported in the manuscript to the database. **Accession IDs need to be listed as a separate section at the end of the manuscript**, e.g.,

- SPBP: Q9UGU0
- TOPBP1: Q92547
- ETS1: P27577

For Communications, list accession codes in the **Associated Content** section of the Communications template.

The accession ID may also be indicated in parenthesis after the protein name when it is first mentioned in the manuscript, e.g., “Stromelysin-1 PDGF responsive element binding protein (SPBP, UniProtKB Q9UGU0)...”

Accession IDs should be as accurate as possible, e.g., an isoform identifier can be used if the full sequence of the molecule is known or can unambiguously be inferred, e.g., UniProtKB Q9UGU0-2. However, for example, if the protein is identified by a peptide which may be present in more than one isoform, only the entry-level, canonical identifier should be given (UniProtKB Q9UGU0).

Sequence-level features such as domains, variants or site-directed mutations should be mapped to the version of the sequence in the database.

ACKNOWLEDGMENT. Acknowledgments in this section should include technical assistance, advice from colleagues, and gifts of reagents or materials. Prior permission must be obtained from persons whose contribution to the work is acknowledged in the manuscript.

REFERENCES. References should clearly identify the original contributor to the work being cited. The number of references should be appropriate for the scope of the work. Excessive references should be avoided. All references should be compiled into a list at the end of the manuscript and must be verified by the author for accuracy. Literature references should be numbered with Arabic numerals in the order of their first citation in the text and the corresponding superscripted numbers

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This information is provided to the reviewers during the peer-review process (for Review Only) and is available to readers of the published work (for Publication). Supporting Information must be submitted at the same time as the manuscript. See the list of [Acceptable Software by File Designation](#) and confirm that your Supporting Information is [viewable](#).

If the manuscript is accompanied by any supporting information files for publication, these files will be made available free of charge to readers. A brief, nonsentence description of the actual contents of each file, including the file type extension, is required. This description should be labeled Supporting Information and should appear before the Acknowledgement and Reference sections. Examples of sufficient and insufficient descriptions are as follows:

Examples of sufficient descriptions: “Supporting Information: ^1H NMR spectra for all compounds (PDF)” or “Additional experimental details, materials, and methods, including photographs of experimental setup (DOC)”.

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When including supporting information for review only, include copies of references that are unpublished or in-press. These files are available only to editors and reviewers.

Research Data Policy

All ACS journals strongly encourage authors to make the research data underlying their articles publicly available at the time of publication.

Research data is defined as materials and information used in the experiments that enable the validation of the conclusions drawn in the article, including primary data produced by the authors for the study being reported, secondary data reused or analyzed by the authors for the study, and any other materials necessary to reproduce or replicate the results.

The [ACS Research Data Policy](#) provides additional information on Data Availability Statements, Data Citation, and Data Repositories.

Data Requirements

UniProt Accession IDs for Proteins. Authors of manuscripts that report functions for previously uncharacterized proteins also are encouraged to submit data directly to the UniProtKB database (<http://www.uniprot.org/update>); refer to <http://www.uniprot.org/help/submission> for additional information. Relevant data include sequence updates, post-translational modifications, functional information, subunit structure, mass spectrometry data, protein interactions, and/or any additional characterization data that may be of use to the biological chemistry community.

Kinetic and Equilibrium Data. Authors are referred to the STRENDA (Standards for Reporting Enzymology Data) Commission of the Beilstein Institut (<https://www.beilstein-strenda-db.org/strenda/>) for detailed guidelines on how this data should be organized and formatted. For

publication in *Biochemistry*, steady-state, pre-steady-state, or approach-to-equilibrium kinetic data and equilibrium binding data for proteins, nucleic acids, and other species must include a description of the identity of the catalyst or binding molecule, its origin, purity of composition, and any modifications such as mutations, post-translational modifications, or any other modifications made to facilitate expression and purification. The assay method and the exact experimental assay conditions must be provided as a reference to previous work, with or without modifications, or fully described if a new assay. Regardless of whether previously reported, the temperature, pH, and pressure (if other than atmospheric) must be included. Terms such as “not detectable” (ND) should be avoided. Instead, an estimate of the limit of detection based on the sensitivity and error analysis of the assay should be provided. First-order and second-order rate constants (including steady-state values of k_{cat} and k_{cat}/K_M for enzymes and nucleic acids) should be reported in units of s^{-1} and $M^{-1}s^{-1}$, respectively. Equilibrium constants describing a binding interaction should be reported as equilibrium dissociation constants with units of concentration (e.g., M, mM, μ M, etc.). Steady-state enzyme activity (specific activity) should be optimally reported as k_{cat} or, if there is uncertainty in the molar concentration of the catalyst, as a V_{max} (e.g., nmol, mol) of product formed per amount of protein per unit time. All reported parameters should be given with a calculated estimate of error and a description of the software used in the data analysis.

Sequence Data. We ask that all authors submit sequence data to a public repository prior to submission and include accession numbers in their paper where appropriate. Examples of suitable public repositories for DNA and RNA sequences include [GenBank](#) or [Protein DataBank](#); nucleic acid sequencing data can be deposited in [NCBI Trace Archive](#) or [NCBI Sequence Read Archive \(SRA\)](#). Protein sequences can be submitted to [Uniprot](#).

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Manuscripts that report X-ray crystallographic structures should include a table of data statistics that contains the number of reflections, data cutoff (e.g., $F > 0$), R_{work}/R_{free} , $I/(I)$, percent completeness, redundancy, R_{merge} , number of atoms per asymmetric unit, and B -factors for protein, waters, and ligands/ions. For papers that involve NMR studies in which complete or nearly complete resonance assignments of biopolymers have been carried out, authors are required to deposit relevant NMR assignments and related experimental data at the BioMagResBank (BMRB; [www.bmrb.wisc.edu](#)). These data may include assigned chemical shifts, coupling constants, relaxation parameters (T_1 , T_2 , and NOE values), dipolar couplings, or other data accepted by BMRB. The author is responsible for obtaining a BMRB entry accession number (e.g., 4238), which should appear in a data deposition paragraph. The data must be released upon publication.

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Target-based Screening. Bioactive molecules identified through target-based and/or phenotypic screening assays should include thorough structure-activity relationship (SAR) characterization and detailed biophysical testing for functional validation and artifactual assay activity. Counterscreens for irreversible inhibition as well as nonspecific activity by pan-assay interference compounds (PAINS) should be performed. Full concentration response curves, binding constants, compound stability and purity should be measured and reported for all compounds of interest. Screening hits should be reviewed for resemblance to known PAINS chemotypes, either using *in silico* tools (found [here](#)) or through careful literature review.

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Every manuscript submitted to *Biochemistry* undergoes an initial editorial assessment to ensure that it contains sufficient elements of novelty, breadth, and impact to appeal to the broad biological chemistry readership. Submissions that are judged to lack these elements are returned without extensive review.

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Manuscripts evaluated beyond this initial assessment are reviewed by at least two independent experts, who return written comments, transmitted faithfully to the author, typically within 4 weeks (2 weeks for Communications). Reviewers are expected to disqualify themselves if their evaluations could be marred by even an appearance of a conflict of interest, such as a prior or current association with the laboratory of the author or a preconceived opinion about the work. Authors are required to recommend at least four experts who could offer expert and unbiased reviews and are not members of the Editorial Advisory Board. Authors may also identify in their cover letter as many as three individuals who should be excluded from the potential reviewer pool; these exclusions must be accompanied by an explanation. Members of the Editorial Advisory Board cannot be disqualified from participating in the final disposition of a manuscript. The reviewers are advisory to the Editor, and their reports are used to reach the editorial decision. If the reviewers disagree, or if in the judgment of the Editor the manuscript has not received adequate consideration, the manuscript and the reviewers' opinions may be submitted to a member of the Editorial Advisory Board for arbitration. Editorial decisions that result from this process are considered final. Reviews will normally be sent to authors by e-mail unless the authors request otherwise.

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Appendix 1: PREPARING FOR SUBMISSION

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Appendix 2: Preparing Graphics

Resolution

Digital graphics pasted into manuscripts should have the following minimum resolutions:

- Black and white line art, 1200 dpi
- Grayscale art, 600 dpi
- Color art, 300 dpi

Size

Graphics must fit a one- or two-column format. Single-column graphics can be sized up to 240 points wide (3.33 in.) and double-column graphics must be sized between 300 and 504 points (4.167 in. and 7 in.). The maximum depth for all graphics is 660 points (9.167 in.) including the caption (allow 12 pts. For each line of caption text). Lettering should be no smaller than 4.5 points in the final published format. The text should be legible when the graphic is viewed full-size. Helvetica or Arial fonts work well for lettering. Lines should be no thinner than 0.5 point.

Color

Color may be used to enhance the clarity of complex structures, figures, spectra, and schemes, etc., and color reproduction of graphics is provided at no additional cost to the author. Graphics intended to appear in black and white or grayscale should not be submitted in color.

Type of Graphics

Table of Contents (TOC)/Abstract Graphic

Consult the Guidelines for [Table of Contents/Abstract Graphics](#) for specifications.

Our team of subject-matter experts and graphical designers can also help generate a compelling TOC graphic to convey your key findings. Learn more about our [Graphical Abstract service](#).

Figures

A caption giving the figure number and a brief description must be included below each figure. The

caption should be understandable without reference to the text. It is preferable to place any key to symbols used in the artwork itself, not in the caption. Ensure that any symbols and abbreviations used in the text agree with those in the artwork.

Charts

Charts (groups of structures that do not show reactions) may have a brief caption describing their contents.

Tables

Each table must have a brief (one phrase or sentence) title that describes the contents. The title should be understandable without reference to the text. Details should be put in footnotes, not in the title. Tables should be used when the data cannot be presented clearly in the narrative, when many numbers must be presented, or when more meaningful inter-relationships can be conveyed by the tabular format. Tables should supplement, not duplicate, information presented in the text and figures. Tables should be simple and concise.

Schemes

Each scheme (sequences of reactions) may have a brief caption describing its contents.

Chemical Structures

Chemical structures should be produced with the use of a drawing program such as ChemDraw.

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