Made to measure

Defining the scope and venue of a scientific paper requires a balance between the authors’ goals for the study and reasonable feedback gleaned through peer review.

Opinions on the extent of data necessary for publication of a research study vary widely across scientific disciplines and can be a point of contention between a paper’s authors and its referees. These opposing viewpoints are influenced, on one hand, by the reality that an individual scientist’s publication record is often used as a measure of researcher productivity, and on the other, by the fact that peer review is designed to ensure the rigor and completeness of papers in the scientific literature. Authors, referees and editors share the responsibility for balancing these views and defining the scientific scope of each paper as it moves from the research lab toward publication.

Defining the publishable unit in an interdisciplinary area such as chemical biology remains a significant challenge given the diverse research interests and publication habits of scientists at the chemistry-biology interface. Yet it is clear that ‘complete’ chemical biology publications share certain characteristics: (i) the study, independent of its length, explores an important research question in breadth and/or depth that is sufficient to provide a substantial scientific advance; (ii) the paper and its associated supplementary information contain all of the data, controls and characterization necessary to support the results and conclusions of the study and to enable independent evaluation and reproduction of the work; and (iii) the paper is held to reasonable community standards of advance, scientific rigor and mechanistic insight, which are guided by referee feedback and balanced by sound editorial judgment. Editors look for these features when evaluating manuscripts—before and after review—and authors should keep them in mind when preparing submissions and responding to referee and editorial feedback.

Because publication in a peer-reviewed scientific journal completes a cycle of scientific investigation, authors can benefit from planning their research activities and writing strategies with this end in mind. Discussions among members of the research team and consultations with objective colleagues help define the research priorities of a project by outlining the experiments necessary to provide convincing data in support of a future manuscript. In preparing manuscripts, authors collectively need to decide what their goals are for a particular paper and arrive at a plan to ensure that their manuscript is best positioned for the outcome they seek. For example, do the authors want to publish in a particular journal, or do they have a broader plan for a series of related papers? They also need to consider alternative courses to follow should their initial plans not work out.

Authors need to consider carefully which journal is most appropriate for their study. A common publishing strategy involves a ‘ trickle-down’ approach in which manuscripts move progressively down journal hierarchies if they do not succeed at higher-tier journals; this method is inherently inefficient and taxes an already overburdened peer-review system. Authors who objectively evaluate their work and match each manuscript with the most appropriate journal can help to reduce the time from manuscript submission to publication, which is a shared priority of researchers and editors. To determine whether a journal is a suitable venue for a paper, authors should consult the journal web page for information about the journal’s scope, priorities and policies; read recent papers in the journal to get a more concrete sense of these factors; and seek out journal editors, who can provide authors with informal guidance on the appropriateness of a manuscript for the journal.

In cases where a research group is preparing several related manuscripts around the same time, principal investigators need to exercise care in defining the scope of each study. In addition to managing the authorships of related papers, group leaders need to pay particular attention to how the manuscripts are constructed to ensure that each is scientifically distinct and to identify studies that are overlapping or codependent or that must be published in a particular order. At the same time, authors need to remain flexible, as peer review may provide them with compelling reasons to reconsider their publication plans; referee feedback, guided by appropriate editorial oversight, generally leads toward more complete publications with greater scientific reach, priorities that authors share.

This forethought is also important because most journals require authors to be transparent about related work that is under consideration elsewhere or ‘ in preparation’. Nature Chemical Biology requires that authors provide copies of any unpublished or ‘ in press’ papers from their labs that have scientific overlap with the submitted manuscript (http://www. nature.com/nchembio/authors/submit/ index.html#policy). These related papers, which should be uploaded as supplementary information, are considered during editorial assessments and are provided (in confidence) to our referees. Similarly, authors should be upfront about related work that is in preparation and provide editors with copies of these studies if they are submitted while their paper is being reviewed. We also request that authors keep editors apprised about the status of these papers for as long as we are considering their submission. The primary reason that we request this transparency is that Nature Chemical Biology and the other Nature journals have a clear policy prohibiting duplicate publication (http://www.nature. com/authors/policies/duplicate.html). Authors who publish a closely related study in another journal can effectively ‘ scoop’ themselves or severely undercut the novelty of their manuscript, which can jeopardize its further consideration even at a late stage in the process.

The scientific review process is an effective mechanism for authors to receive referee feedback about the technical merit and scientific scope of a manuscript and an editorial evaluation of whether the manuscript meets the journal’s standard for publication. At Nature Chemical Biology, we find that published manuscripts are, almost without exception, improved by peer review. In some cases the process expands the scope of a study to include more experimental validation or mechanistic data; in others, the manuscript is contracted and focused from its original format. Authors ultimately must evaluate their goals for a manuscript in light of feedback from peer review. In our experience, the process is flexible enough to accommodate the perspectives of authors, referees and editors and to ensure that each paper finds an appropriate published home.