

Taming Supplemental Material

As a complement or appendix to the printed article, supplemental material represents a powerful advantage of online publishing, allowing authors to present supporting evidence, such as movies and large data sets, that cannot be included within printed journal pages. Unfortunately, over the years supplemental material has evolved into a seemingly limitless repository for additional “stuff”: a wide range of control experiments, preliminary next-step experiments, data responding to specific reviewers’ concerns, results that just “don’t fit” within the main paper, extended discussions, and methodological details. It has become a mechanism for expanding the overall content of a paper without any delineated change in editorial standards. In some cases where length limits are particularly strict, even major points in the paper can be based on experiments that only appear in the supplement.

Although this rapid expansion of supplemental material may provide a sense of increased rigor and appear cost-free in the age of online publishing, it has many drawbacks for authors, reviewers, and readers. Authors often feel compelled, by their own desire to be comprehensive and in response to questions raised in the review process, to include increasingly large amounts of data that exceed the traditional restrictions of the printed article. Reviewers may feel responsible, as the supplemental material is ultimately published as part of the peer-reviewed publication, to assess this information with the same attention and standards as the main body of the article, which often means that they are asked to evaluate the equivalent of two papers in the place of one. And readers may find it difficult to navigate through large supplements and may be unsure about how carefully the supplemental material was evaluated in the review process. As with the paper itself, which has over time evolved a reasonably agreed upon standard and structure, it seems time to begin to define a similarly accepted standard for supplemental material.

This month, we are rolling out across Cell Press new author guidelines for Supplemental Information, and we hope that they will help to provide a framework and standard for evaluating, accessing, and communicating information that stands in support of the main text and figures. One of the first issues we confronted in thinking about structuring supplemental material was one of setting limits. Limits of course have both positives and negatives. On the plus side, it seems in the best interest of everyone in the scientific community that the concept of a “publishable story” be at least roughly defined. A downside of length limits is that they don’t have a conceptual basis—they aren’t about the science. After much discussion and debate, both within our editorial group and with scientists, strict overall length limits struck us as somewhat arbitrary, and we instead focused on a more conceptual organization.

In considering what would be most appropriate to include in supplemental material, we came away from these discussions with three major conceptual categories. One is evidence that provides deeper support for the points made in the main paper; another is large data sets and multimedia that can only be presented online; and a third is detailed information about the

methods. We also believe that the main paper should provide a clear and compelling presentation of a scientific discovery that is sufficiently streamlined to be readily accessible to nonexperts, whereas the Supplemental Information can provide information in greater depth for aficionados and those actively looking to repeat and build on the experiments presented.

This overall conceptual framework forms the basis for our new guidelines, in which each item of supplemental data (including display data, tables, and movies) will be specifically associated with a figure or table in the main paper and will be supportive of the main conceptual point of that figure or table. In addition, all of the pieces of supplemental data associated with a main figure will be organized into a single, easy-to-navigate figure. We believe that this organization will enable a clearer integration of the information in the supplement with the information in the main paper and facilitate more fluid navigation between the two. It will also point the experts to the additional supporting information relating to a particular experiment while allowing more general readers to absorb the take-home message without being overwhelmed by additional details. Finally, by limiting supplemental data to only those that directly support a point made in one of the main figures, preliminary data that attempt to extend the scope of a paper would be excluded. We hope that this new framework will make it easier for authors to decide what to present in the main paper, what to include in the supplement, and what not to show at all. Our overall aim is to make it more straightforward for everyone involved in the publication process—authors, reviewers, editors, and readers—to organize, evaluate, navigate, and use the Supplemental Information associated with a published paper.

This new organization of Supplemental Information will also mesh with forthcoming changes to the online format for *Cell* articles in which we intend to move the supplemental figures and text into the presentation of the main article as a clearly delineated second or nested layer. In this new online format, readers will be able to opt for either a basic or an extended view. In the basic view they can easily follow the flow of the main findings as in the current print version, which hopefully encourages crossdisciplinary browsing, whereas in the extended view they can see all the supplemental text and figures positioned adjacent to the sections of the main article to which they relate. In this way, over time the concept of supplemental material will gradually give way to a more modern concept of a hierarchical or layered presentation in which a reader can define which level of detail best fits their interests and needs.

We are implementing the new guidelines for papers to be published in *Cell* starting in January 2010 and in the other Cell Press journals shortly afterwards. Authors and reviewers will begin to notice the changes already this fall. As with all new initiatives at *Cell*, we welcome feedback from the community as we continue to evolve the presentation of scientific articles to meet the changing needs of the scientific community.

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