Making It Easier for the Reviewer

The second in a series of articles providing guidance to researchers on the publishing process for peer-reviewed scientific journals.

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This article is the second of four based upon presentations made during an IMMUNOLOGY 2011™ AAI Publications Committee Symposium titled In the Lion's Den: The Manuscript Review Process and How to Survive It. *Brown is currently a member of the AAI Publications Committee, having formerly served as a section editor for* The Journal of Immunology.

Reviewers: The Final Obstacle before Publication of Your Important Work

Melissa Brown

You have been working for some time on a most interesting project and have just finished a set of key experiments. It is clear that you now have all the makings of a good, maybe even great, story. The data are sound and will fill in critical gaps in our understanding of some previously confounding immunological process. You are ready to write a manuscript that describes your findings. When finally published and the data are disseminated to other scientists, this work will make an important contribution to the field. Only one thing stands between you and publication: The reviewers!

Whether you are in the middle of writing or are just beginning, some insight into the mind of the reviewer (or at least this reviewer) can enhance your chances of a favorable review. Some of this insight is just common sense, but some may not be so obvious. I can't guarantee that this information is the ticket to acceptance (After all, inherent to science careers are the endless questioning and challenges, criticisms and rejections), but I can guarantee that the reviewer will have a more favorable overall impression of your manuscript as he/she goes through it. This more benign impression can't hurt your chances for a thoughtful, considered, and fair review. Even if there is no immediate "accept" decision, the comments, whether you agree with them or not, are always useful and provide insight into how others perceive your work and interpretations. If taken into serious consideration, these comments can guide your revisions and lead to an improved manuscript, one that is ready for public consumption.

Who Reviews Manuscripts and Why Would Anyone Do This for Free?

There are many reasons a person agrees to review a manuscript, but it is a certainty that those of us who volunteer are not doing so to fill empty time. Reviewers, like you, have all too many demands on their time. All of us are already extremely busy, for as you know, a scientist's work never really ends. Then, there's all the juggling of responsibilities of teaching, administration of a department or laboratory, service on grant review panels, student and post-doctoral fellow mentoring, collaborations, seminar presentations at home or at a distant site, time to attend seminars, as well as writing one's own grants and papers. All this before we can try to claim some time for our personal lives.

Given all these demands, why do so many people provide such a valuable service to those of us who aspire to publish? Most reviewers believe they have a responsibility to contribute to the publication of good science. Peer review, albeit imperfect, provides the foundation that assures the veracity of reported findings. Although reviewers are unpaid advocates of publishing good science, there are some perks for the reviewer, too. Reading about new findings before they are ready and available for general consumption is often exciting. Of course, serving as a reviewer is also an important addition to one's curriculum vitae, especially for those who are anticipating promotion.

Although you have spent a great deal of time on your story and know it intimately, remember that it is new to the reviewer. (One hopes!) Spell it out as clearly as you can. No reviewer wants to have to try to read your mind while wading through a confusing maze of data and prose. If a reviewer must spend too much time just trying to understand what you are trying to say or trying to locate Figure 2, you are immediately at a disadvantage. If, however, you invest time in a crafting a clear, easy-to-read manuscript, you will set the stage for a more favorable review. This is a case where everyone benefits, especially you.

Below, I review some simple principles you'll wish to consider when writing a manuscript. If these are taken to heart, your manuscript will most certainly be one that is a joy to read.

The Abstract: First Impressions Are Important!

Once a paper is published, the abstract serves a very important function for readers who are scanning the literature for studies relevant to their own work. The abstract should convey the key points of your paper, enabling the reader to assess its relevance to their own areas of interest and determine whether they should read on. For reviewers, however, the abstract serves a different purpose. This short summary of the study makes the first — and often indelible — impression. The abstract should

clearly convey the importance of the study in the field. If the reviewers get that point, though they must read on, they will be more enthusiastic about doing so.

A good abstract will include the following:

- A brief historical context and rationale for the work,
- An enumeration of the important unanswered questions in the area,
- A summary of the key findings in the study that address one or more of these questions, and
- The author's opinion regarding the importance of these findings.

And, yes, all of these points must be addressed within the confines of word-count limitations. While, at first, the word count can seem an obstacle, in fact, the word limit is your friend because it enforces use of simple, concise prose.

Figures: A Picture Really Is Worth a Thousand Words.

Figures are the visual depiction of your results and are arguably the most important component of the manuscript. If your figures are clear, the data will be easier to understand. Good clear figures give the reviewer a more favorable impression and increase the chances of a more positive review. Because your data are the centerpiece and foundation of the manuscript, you would do well to prepare the figures first. That practice will allow you to see what you have in its almost final form and decide whether the data sufficiently support a complete, logical, and convincing story.

Good figure preparation should incorporate the following:

1. Each figure, even if in multiple parts, should make just one clear point.
Don't try to get too fancy and make things complicated.

Figure 1a

DO

Figure 1b

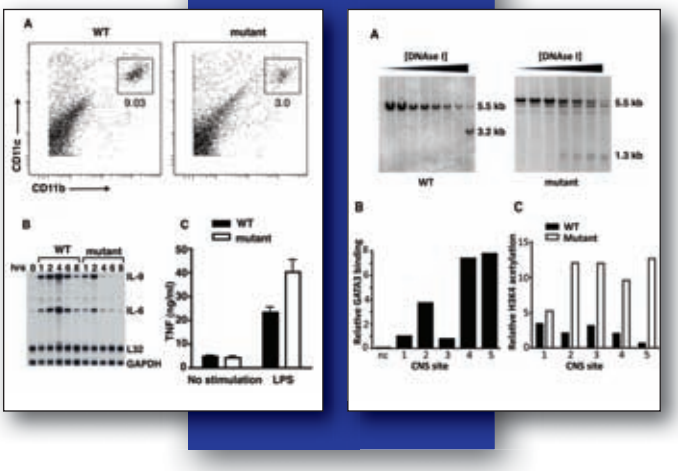
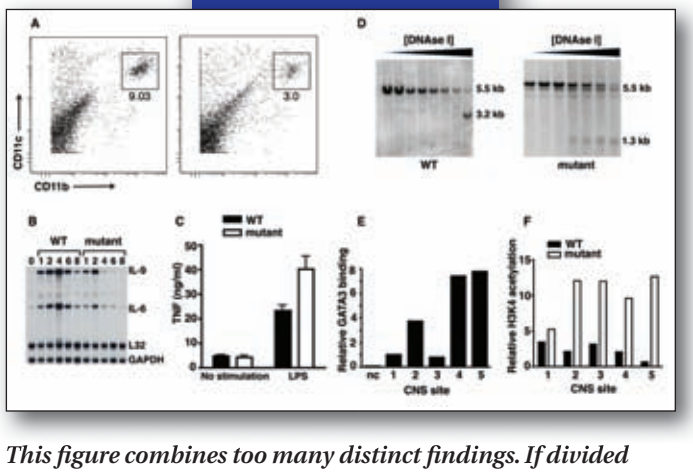


Figure 1c

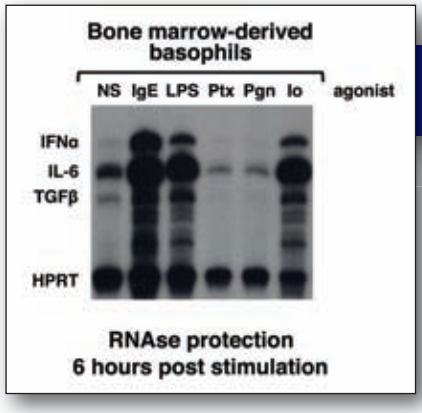
DON'T



This figure combines too many distinct findings. If divided into two parts as above left, each concept can be considered and evaluated independently.

2. A figure should be a freestanding entity. The layout and labeling of the figures should ensure that your results are understandable, independent of any description in the text. A good figure will provide sufficient information to enable the reader to grasp most of what was done and the conclusions of the experiment(s) without having to consult the legend or the results description. Of course, details will have to be filled in, but the gist of the results should be conveyed in the labeled pictures alone.

Figure 2

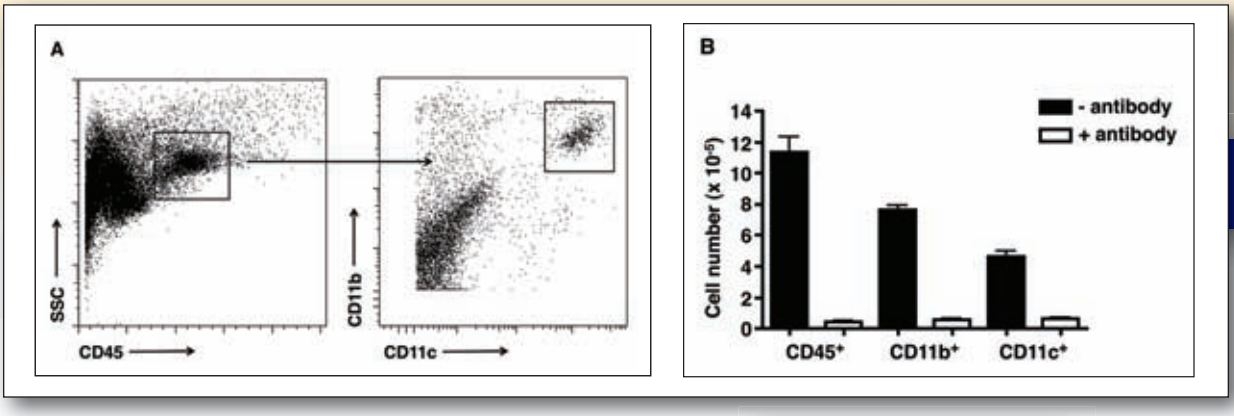


DO

Note that there is a designation of the assay used, cells analyzed, cell activators, and the mediators produced upon activation in the labeling of this figure.

3. Figures should contain a balance between primary data and graphical representations of compiled data from multiple experiments if appropriate (e.g., graphs). This balance is particularly important when one shows results of flow cytometry analyses, which can be very subjective. The inclusion of actual flow cytometric analyses plots is absolutely necessary, not just graphs of the compiled data. In these cases, an example of gating strategies should also be shown. Reviewers look for these to more easily evaluate the veracity of the conclusions.

Figure 3



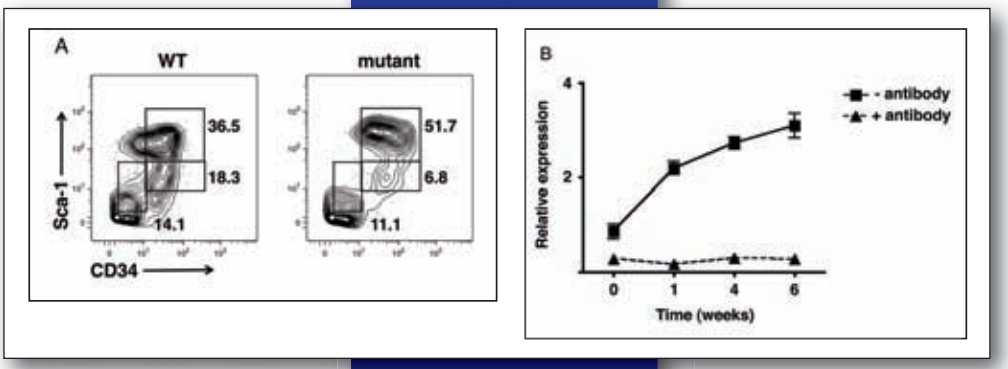
DO

4. Make sure that the figures have clear, legible labels. The font sizes must be easily readable when reduced for publication. You may be young and bright eyed with 20/20 vision, but many seasoned reviewers are at the age when not only has their thymus started its significant involution, but they also have presbyopia. Unnecessary difficulty reading small print will not make a reviewer happy. Symbols and/or distinct line styles (dashed, dotted, continuous) should also be large enough to distinguish different data groups from one another.

The examples on the bottom row are labeled with a font that is too small, and the bottom right figure has symbols and lines that are hard to distinguish. Consequently, it is almost impossible to determine which group was treated with antibody.

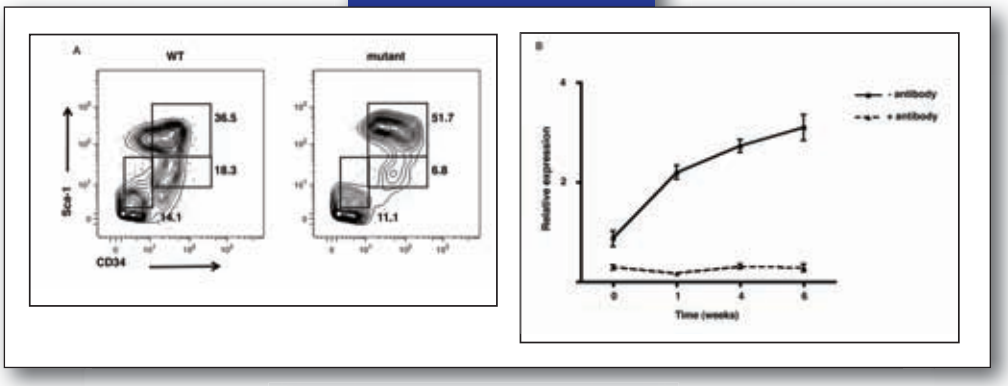
DO

Figure 4a



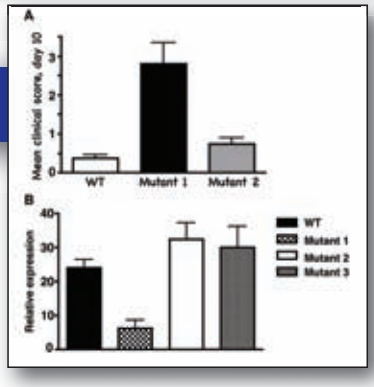
DON'T

Figure 4b



DON'T

Figure 5



5. Be sure the font sizes, labels and graph styles are consistent.

This composite figure has legends formatted in two different ways. Fonts are also different styles and sizes. Be consistent.

Continued on next page

6. **Number your figures in the text when you refer to them and on the figure you submit.** (e.g., Figure 6, Brown et al.) A surprising number of authors forget to do this and frustrate reviewers trying to find what figure is being discussed.

DO

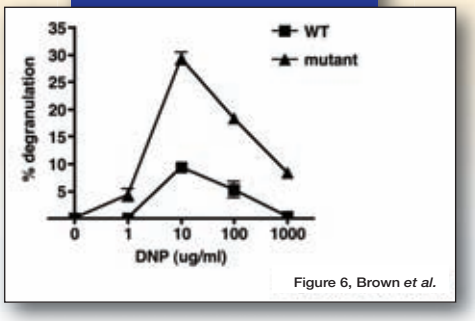
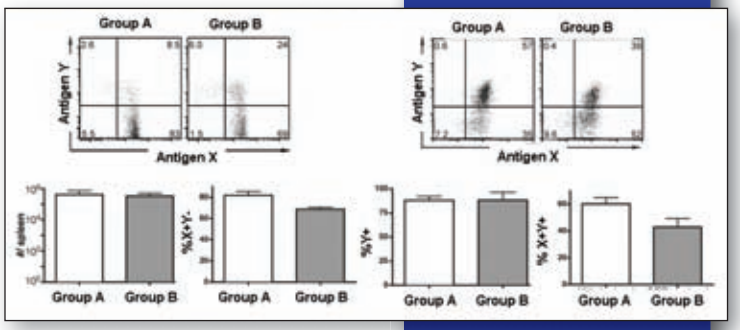


Figure 6

7. **Arrange figure panels symmetrically.**

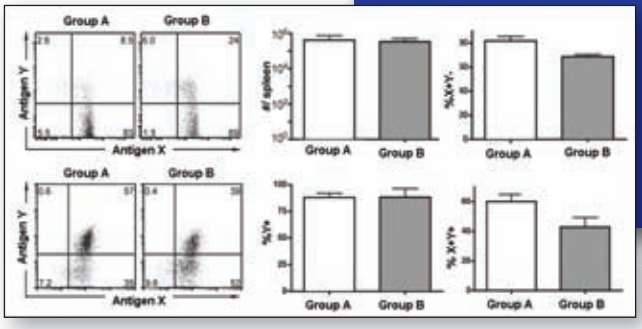
DON'T

Figure 7a



DO

Figure 7b



8. **Submit high resolution figures.** The reviewer may see fuzzy figures as a sign of haste and sloppiness, both in the lab and at the computer.

9. **Limit the amount of supplemental data included.** Don't overwhelm the reviewer! Put in only what is necessary.

10. **The figure legends should describe the point of the figure.** Legends should recapitulate key points of the experiments to make the figure understandable. But legends should not repeat all of the detail included in the Materials & Methods section. This section, by contrast, should be comprehensive enough to allow the reader to repeat the experiments.

Introduction: You Have Great Rationale for This Study, So Tell Us!

Here, you can elaborate on the historical context and unanswered questions in your area of study. This section should establish the rationale for the current study. Use key original references, not just reviews.

The Results Section: The Verbal Description to Back Up Your Figure Presentation.

Arrange the figures and describe your data in a way to tell the story logically, not necessarily chronologically. This means the order may not reflect how the project was originally conceived.

Be concise and do not repeat the Materials & Methods or include discussion items in the results.

The Discussion: Show Your Scholarship!

This is your chance to integrate your results with findings of others in the field. You can discuss discrepancies with other studies here as well. Do not repeat a lengthy description of the results in the discussion section. Merely summarize key findings and discuss how they add to the understanding of the system you are studying. More words are almost never better. Keep your text simple and clear.

Some Final Thoughts:

- **The title should inform the reader of the gist of the paper.** "Studies of..." is too vague. Try something like "T cell production of IL-4 requires...in vivo"
- **Make sure your statistical analyses are appropriate.** Get help from someone who does this for a living if you need to do so.
- **Pay attention to details.** The reviewer is taking his/her time to read your paper. If you convey an attitude of haste and inattention to detail, you render yourself a disservice. Although reviewers can forgive and look beyond a certain level of imperfection, attention to the principles outlined here will signal your respect for their efforts and increase your chance of a good outcome.

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(Figure 7 in this article first appeared in Dos and Don'ts for Writing a Scientific Manuscript by Pam Fink, AAI Newsletter, *February 2010, page 22.)*