

## Publishing with the JEM—Faster, Brighter, and More Accurate

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This month the *JEM*'s instructions to authors have been updated (see <http://www.jem.org>). The changes reflect our ongoing determination to offer the speediest publication times and the most accurate figure reproduction.

### *No more paper please*

Our new instructions to authors are geared entirely toward online submission. Beyond saving trees, this switch to accepting only electronic manuscripts means faster processing of papers from submission to review to publication. Currently, most reviewed manuscripts are returned within one month, and the time from acceptance to publication is only 4–6 weeks. Of course this not only reflects a dedicated office staff, who are being helped a great deal by online submissions, but also an exceptional group of referees.

### *Cutting edge color*

With a fully electronic publication process in place, we can achieve new levels of accuracy in the reproduction of color micrographs. All color images will now be published online in their original red-green-blue (RGB) format.

Digital images are captured in RGB color, which can be viewed by projection or on a computer monitor. But for the printed page, RGB images must be converted to CMYK (cyan-magenta-yellow-black), the color format used by industrial and desktop printers. Previously, we asked authors to convert their RGB images to CMYK color, which we would then convert back to RGB for online publication. There is a considerable loss in image quality at each step, and with most people now looking at the online version it seemed there must be a better way.

Earlier this year our sister journal, the *Journal of Cell Biology*, took the plunge and became the first biomedical

journal to publish original RGB images online (1). The response from the community has been universally positive. The *JEM* is now accepting only RGB color image files, and the August 2nd issue will be our first RGB issue.

With this change the online journal, rather than the printed journal, becomes the definitive version. Authors will now receive electronic figure proofs, and it is the accuracy of the online figures rather than the printed figures that will be assured. Although there will be some color shift when converting to CMYK, we do not expect print quality to suffer. Our new conversion process is capable of producing a much more accurate color match than a simple mode change in Photoshop.

### *Digital correctness*

For your manuscript to proceed smoothly in our streamlined production process, we need figures at the right resolution and in the right file format. With experience this is fairly straightforward, but for the uninitiated the preparation of publishable electronic figures can be a headache. So we have clarified our requirements and included some additional instructions. Only figure files in TIFF or EPS format are compatible with our production software and we require submission of figures for accepted manuscripts in one of these formats. As mentioned above, all color figures should be in RGB format. Most problems can be avoided by preparing the figures at the intended publication size using a dedicated illustration software package (such as Adobe Photoshop or Illustrator). Although Microsoft PowerPoint is easy to master, the files are not compatible with our production software. Although it is possible to save PowerPoint figures as TIFF files, the

resolution of these files is too low for publication. Photographic images need to be at least 300 dpi (dots per inch—the standard measure of resolution) at publication size, and the best way to check this is to open the original data file in Adobe Photoshop. Some software packages will allow you to artificially increase the resolution, but this should be avoided as this process is essentially creating data.

### *Altered images*

In addition to state-of-the-art color reproduction, we are ensuring data accuracy at a more fundamental level. In the Photoshop age there is a greater potential for data manipulation. Some of these are useful and acceptable. Adjustments of color balance, brightness, and contrast, for example, are fine if they are applied to the whole image and do not obscure any information in the original. But the contrast on gels and blot images is often over-adjusted so that the background disappears. This raises the suspicion that unwanted bands have also disappeared. In the interest of openness, we require that the original background be evident in all such images. Another problem we have encountered is the removal of artifacts or unwanted background using the rubberstamp or eraser tool in Photoshop. We do not view this “tidying-up” as harmless because it deceives colleagues who assume they are seeing an honest representation of the original data. This basic scientific trust must be conserved. To this end, we are carefully checking the integrity of all digital images in accepted manuscripts. From time to time questions arise, and authors may be asked to provide original data or more representative figures. Cases of deliberate misrepresentation are rare, but by setting these high standards for digital images we can help preserve the

fundamental trust between authors and readers.

Our updated procedures will improve the quality of publication and, we hope, make the publication process

easier for everyone involved. If you have any difficulty submitting online or creating the right files, please do not hesitate to call the *JEM* editorial office.

## References

1. Rossner, M., and R. O'Donnell. 2004. The *JCB* will let your data shine in RGB. *J. Cell Biol.* 164:11–13.