

Policy update

Scientific standards are in permanent flux, as is science policy. The editors and publishers of this journal continually enhance editorial policies to serve the aim of this publication better; namely, to provide broad access to key conceptual advances in cellular and molecular biology, on the basis of exceptionally high-quality data. We have recently incorporated several changes to our submission and publication policy; these are outlined below and full details can be found online (<http://www.nature.com/ncb/authors/index.html>). To cultivate consistency, we have integrated these guidelines across eight *Nature* research journals.

Contributing transparency: Although cell biology has evolved clear standards that define what level of involvement justifies first and senior authorship, contributions from the other co-authors can be trickier to decipher. We have always insisted that all authors should have actively contributed to the data presented; however, in reality contributions can range from providing reagents or intellectual input to active experimentation. To rectify this, *Nature Cell Biology* henceforth encourages authors to include a statement after the Acknowledgments section that specifies what each co-author has contributed.

Drowning by numbers: Almost every study published in *Nature Cell Biology* presents quantitative data — yet it is still, on occasion, a struggle to ensure that the conclusions are based on statistically significant data. The acquisition of such data relies on careful experimental design, but equally on unbiased data analysis. Much cell biology is based on testing hypotheses and it is essential to ensure that data are obtained in a ‘blind’ fashion, that unjustified data exclusion is avoided and that adequate sample sizes are analysed (see also *Science* **307**, 645; 2005). It is equally important to ensure that appropriate statistical tests are applied. To this end, with the advice of statisticians we have formulated a set of guidelines (<http://www.nature.com/ncb/authors/submit/index.html#stastical>). These point out a few of the more common fallacies of statistical analysis, such as the use of inappropriate tests for small sample sizes or the application of standard tests to data that are not normally distributed. The guidelines also specify what information will now be required to support quantitative data: the Methods section should contain a description and justification of the statistical tests applied, and the data should be accompanied by n , the actual P values and alpha levels, as well as the appropriate statistical measures and error bars. When complex statistical analysis is critical to key conclusions, we may on occasion consult a referee with expert statistical knowledge and it would be helpful if authors obtained appropriate advice before submission. The guidelines are accompanied by a check-list for authors and referees.

Sharing materials: It is long established that scientific data are only meaningful if and when they are reproduced independently by other laboratories. Furthermore, the unrestricted sharing of materials and data is clearly essential for the community as a whole to build

on knowledge. Without the free exchange of ideas and reagents, scientific progress would grind to an abrupt halt. Although almost everyone shares these fundamental academic ideals in principle, all too often concerns about competition and financial ties dampen enthusiasm for sharing. As a result, we have now issued expanded guidelines on this topic (http://www.nature.com/ncb/about/ed_policies/index.html). In a nutshell, we require disclosure of any restrictions on the availability of materials at the time of manuscript submission. Access to materials should be explained in the Methods section, and where restrictions have been agreed with the editors, these must be detailed (materials transfer agreements may be posted as Supplementary Information). As so often is the case, the crux is money; and whereas a reasonable charge to cover the production and distribution of materials is allowed, distribution on a ‘for profit’ basis will have to be declared at the time of submission and in print. As before, all new sequence and structure data must be made available to the referees and ultimately the readers. Cell lines and animal models should be submitted to established public repositories wherever possible; gene, microarray and structural data must be entered into the appropriate databases and accession numbers specified.

Opening access: Nature Publishing Group has long been a member of HINARI and AGORA (*Nature Cell Biol.* **5**, 1027; 2003), initiatives that facilitate unrestricted access to the content of *Nature* journals in the developing world. Since 2002, the *Nature* journals have also taken an ‘exclusive license to publish’, rather than copyright, and allowed authors to post primary research papers on their personal websites. This policy has now been broadened to allow authors to post their version of a peer-reviewed, accepted research paper on the author’s institutional and funding body archives six months after publication in the journal. That said, the fully edited, published version of the paper should continue to serve as the scientific record and the formal citation of the paper, and the article’s doi should be provided in the repository version.

This policy is in line with the 3 February announcement from NIH, which encourages researchers to post their accepted manuscripts within a period of twelve months in PubMed Central, which is managed by the National Library of Medicine (<http://www.nih.gov/news/pr/feb2005/od-3.htm>). NIH estimates that it will cost an additional \$2–4 million annually to maintain this archive (*Nature* **433**, 561; 2005).

Other national funding bodies and governments, such as Germany’s main grants agency, the DFG, continue to explore open-access publishing. Indeed, last autumn the UK House of Commons Science and Technology committee published a report on this issue, updated on 26 January with further responses from the government and the Office of Fair Trading (<http://www.publications.parliament.uk>), and the European Commission is expected to publish a report this year (<http://europa.eu.int/rapid>).

Improvements to our policies evolve in close consultation with the community. We hope these changes are perceived as constructive and we welcome feedback.