

## Publications in toxicology: the current situation

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The rapid development of information media, having led to new means of publication, has greatly influenced the way of publications in toxicology. This was key for the organizers of the recent International Congress on Toxicology (ICT2010), held in Barcelona, 19–23 July 2010, to include a Round Table Discussion “*Publications in Toxicology*” in their congress programme. I had the privilege of chairing this session. Round Table participants were editors of well-established journals in toxicology: Allan Boobis, London (*Food and Chemical Toxicology*), Wolfgang Dekant, Würzburg (*Toxicology Letters*), and Jan G Hengstler (*Archives of Toxicology*). The editorial round was supplemented by Philip Wexler, Bethesda MD (*National Library of Medicine, National Institutes of Health*). Roger O. McClellan, Albuquerque NM (*Critical Reviews in Toxicology*) transmitted his contributions to the Round Table electronically.

The session started with an overview by Philip Wexler both on the general history of publishing in toxicology and on new developments, including mobile electronic devices, e-books, social networks, new databases, online publishing systems and open-access strategies.

There was the unanimous feeling that the introduction of online support in manuscript handling and publication has led to significant shortening of technical publication times, coinciding with a significant increase in the number of incoming manuscripts. At the same time, new journals have emerged, and bibliometric measures (impact factors, Hill index) have reached a decisive influence on both authors and journals.

During the following discussion, several key issues were addressed more in detail:

- *Scientific quality of manuscripts*: The number of toxicological manuscripts has increased in total, but at the same time, editors also complain about an increasing number of manuscripts of insufficient quality. A geographic imbalance was noted. It seems that pressure to publish as many papers as possible has increased world wide; the old imperative “publish or perish” has globalized.
- *Scientific/geographic balance*: There is a changing balance between topics and origins of submissions on the one hand and reviewing expertise on the other hand. As an example mentioned, there are many publications on natural products from developing countries, but most reviewers in “traditional centres” are more focussed on “omics” matters. Many publications on natural products (frequently anti-oxidants) use very traditional methods, and frequently an insufficiency in analysis/characterisation/specification of the test materials may be noted. On the contrary, editors complained that a clear-cut toxicological scope in many of the incoming “omics” manuscripts is not sufficiently developed (Degen and Hengstler 2008; Bolt et al. 2010b).
- *Peer review process*: All editors reported about growing difficulties to recruit competent reviewers, in order to make their editorial decisions within due time. Writing reviews for journals remains anonymous to the public and needs time; mostly an honorarium cannot be paid. This coincides with a growing cost/efficiency pressure upon the individual scientist at his/her home institution. This present situation results in low incentive to act as a journal reviewer.

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- Some editors commented on cases of *fraud and plagiarism*, as well as of double publications, which may not be detected during the editorial process.
- A classical problem of publishing in toxicology is the dissemination of “negative” data. Established journals have little tendency to publish such results, which is in part also due to the growing “impact factor” imperative. The resulting “*publication bias*” is well known. The possibility of special depositories for such “negative” data should be considered more deeply.
- There is also a “*funding bias*”. High-quality research is expensive. The availability of funds in areas of political preference may have a higher impact on the choice of a particular research field than scientific considerations. A now classical example for such a development is the global wave of publications on “endocrine disruptors” (Degen and Bolt 2000).
- *Ethical aspects* have been a matter of discourse for a number of journals (Bolt et al. 2010a). Especially in the United States, the traditional way of acknowledgements in journal manuscripts is no longer felt adequate. In particular, Roger O. McClellan explained that his journal has taken a position that emphasis should be placed on a complete declaration of interest, including notification of (i) employer and nature of business, (ii) who paid for the research or preparation of the manuscript, (iii) participation of the author(s) in regulatory decisions or legal proceeding, related to the subject of the manuscript. “Conflict of interest are in the eye of the beholder. All of us have interests, others will decide if we have conflicts of interest.”
- *Fields of scientific competence*: It was noted that a growing number of investigators have only limited

experience outside the own area of specialization. However, significant progress can reasonably be expected in the future from combinations of methodology and diligent expertise, for instance, epidemiological studies—controlled experimental in vivo studies—in vitro studies—in silico studies. Integrations of multiple kinds/fields of research should be encouraged. Such a development can be triggered by editorial policies of journals.

The very high degree of attendance of this Round Table session at ICT2010 made it clear that the topic was considered important. It was therefore agreed that the International Union of Toxicology (IUTOX) should observe the developments carefully and put the matter again on the agenda of a forthcoming international meeting, within due time.

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