Author identification

Be Unique, Get a Number!

At a time when all of us are identified by numbers in someone's database, an outstanding exception concerns scientific publications. Although our other numbers may not cross national borders, entries in our social security, income tax and bank accounts should only correspond to the one 'me' thanks to a suitably long and complex number (or letter/number code) that is assigned to just one person. However, this is not the case with our scientific publications – unless you happen to have a name that really is in itself unique within the world of STM (scientific, technical and medical) publishing, the chances are that every time your name is searched for in PubMEd or another bibliographic database, the matching list of papers, book chapters, etc. will be an amalgam of your own and several other similarly-named scientists.

Indeed, the situation can become quite complex – consider, for example, that some 40% of Vietnamese have the family name 'Nguyen', that transliteration of Asian names from scripts like Chinese can give dozens of different spellings for the same name, that different journals use different formats for author names or that marriage and divorce can result in the same person appearing under multiple names…

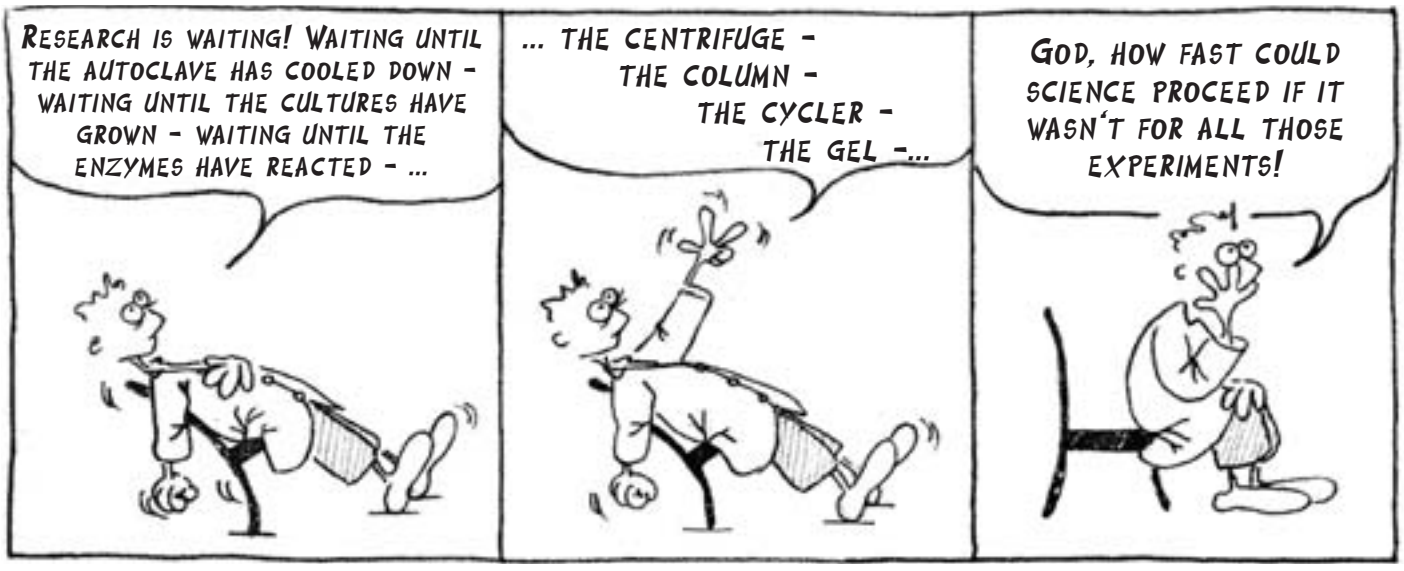
Several solutions have been proposed to resolve exactly 'who is who' in the STM literature and all of them require researchers to get a number (otherwise known as a 'unique author identifier'), whether by choice or obligation. The two largest commercial services are ResearcherID, run by Thomson-Reuters, and Scopus Author Identifier from Elsevier. The commercial interest for these companies comes from their own need to solve this problem – they both have large online STM databases: 'ISI Web of Knowledge' and 'Science Direct', respectively, and are equally frustrated by the uncertainties over author identities. Both have developed 'disambiguation' software which tries to use additional 'metadata', such as authors' addresses, co-authors, citations and research domains to refine the lists for each author name but these systems aren't perfect. Elsevier employ curators in their Asian offices who carry out additional data searches in order to manually assign publications to the correct person.

Further interest comes from the grant-funding authorities who would like to have an easier and more reliable means of tracing what grant applicants have already published and what they subsequently publish using the funds they receive. At the national level, some countries have already developed such ID systems. For example, all researchers in the Netherlands have been assigned Digital Author Identifiers since 2007. Similarly, the US National Institutes of Health (NIH), the world's largest funder of biomedical research, wants to better track what its grant holders are publishing.

However, standardising all these demands remains a problem. The latest solution is now being proposed by CrossRef, the non-profit Digital Object Identifier (DOI) Registration Agency. Launched in 2000 as a cooperative effort among publishers to enable cross-publisher citation linking in online academic journals, it is now used by every major academic publisher. It already assigns a unique DOI to millions of items from a variety of content types, including journals, books, working papers, technical reports and datasets. The proposal is that it should now perform a similar service for the authors, managing their Digital Author Identifiers (DAI). But encouraging authors to get a DAI is the next problem and what is to be done with the existing STM database? Will someone go back through the last decades retrospectively identifying formerly active authors or assigning posthumous DAIs? -JG-

BY RAFAEL FLORÉS

PAUL THE POSTDOC



Recently Awarded

▸ **Olivier Voinnet** from the CNRS Institute of Plant Molecular Biology in Strasbourg, France, is awarded the 2009 **EMBO Gold Medal**. The researcher receives this medal for his pioneering work on the mechanisms and roles of gene silencing via RNA in plants. Already during his predoc time from 1996 to 2001, Voinnet's discoveries in David Baulcombe's lab at the John Innes Centre in Norwich/UK laid the foundation for his later understanding of the way plants use silencing to defend themselves against viruses, and how viruses, in turn, counteract this defense. "We did not know anything about the microRNAs or small interfering RNAs at that time," says Voinnet. "Yet, with David, we managed to develop tools and model systems that ultimately were instrumental to ascertain the first biological role of RNA silencing, that is, antiviral defense". His most recent achievement was the discovery that microRNAs also control antibacterial defense by targeting genes involved in hormone responses and that, in response, bacteria produce suppressors of the miRNA pathway. "Yet another illustration of the never ending molecular arms race between hosts and parasites". Voinnet will receive the EMBO Gold Medal and an award of €10,000 on 30 August 2009 at The EMBO Meeting in Amsterdam.

▸ **Stephen Jackson** from the University of Cambridge was named as the inaugural Innovator of the Year by the Biotechnology and Biological Sciences Research Council (BBSRC) of the UK and endowed with £10,000. Jackson's work on DNA damage and repair led to the formation of KuDOS Pharmaceuticals in 1997. The company developed inhibitors of DNA repair enzymes for cancer therapies and was purchased by AstraZeneca in 2005. Two runners-up, **Luke Alphey** and **Jeff Errington**, were recognised for their work on spin out companies that have developed new ways to defeat disease-carrying mosquitoes and crop pests, as well as new approaches to tackling superbugs like MRSA respectively. They each received £5,000.

Funding policy

Grant Failure Leads to Total Rejection!

The UK's largest research council will refuse to consider further grant applications from researchers who have already submitted unsuccessful research proposals. In a move that has outraged many UK academics, the Engineering and Physical Sciences Research Council (EPSRC) decided in March that it had to cut the cost of its peer-review system and has come up with the apparently original solution of simply refusing to even look at applications from researchers who have previously sent in too many "low quality proposals".

Photo: istockphoto

From 2007 to 2008, the EPSRC managed £475 million of grants that it distributed to more than 3,200 researchers. It will now ban from funding consideration any principal investigators who have "three or more proposals within a two-year period ranked in the bottom half of a funding prioritisation list or rejected before panel (i.e. without external review) and an overall personal success rate of less than 25%". They estimate that this policy will exclude about 200 to 250 people and that it is retroactive – letters to those excluded have already been sent out and their proposals won't be considered after June 1st.

Professor Joe Sweeney, from Reading University's Chemistry Department, has launched a petition (*http://petitions.number10.gov.uk/UKScience/*) demanding that the council withdraw its "policy to introduce scientific blacklisting". He says that the EPSRC didn't even consult the people who are supposed to advise them on policy. Nobody knew about it. In his research field of organic chemistry, he argues that the current failure rate is estimated at 65-85%. Based on current success rates, the majority of active scientists will soon run the risk of exclusion from taxpayer funding, and adds that "Morale in UK universities is already close to rock bottom. This spectre cannot be expected to provide motivation."

Philip Moriarty, a physicist at Nottingham University, said that the community feels that it is draconian and deeply unfair and that he and others will not referee proposals while this policy is in place.

"Basically, now that the EPSRC has decided to go down this path, it will effectively decide which chemistry, or physics, or mathematics, or any other physical science department in the UK university system can remain viable, and which must close," explained chemistry Professor Karl Hale, from University College, London. "If you have 30 people in a faculty and 15 of them are banned, vice chancellors are going to have a look at the viability of that department because they rely on research council grants. It's essentially a punishment for working hard and coming up with ideas. It creates a stigma for researchers."

But David Reid, EPSRC's head of communications, defended their move, "We're facing a 3-5% shortfall in funding for research. A small number of people put a disproportionate burden on the peer-review system. We're talking about consistently low-quality proposals." Singling out chemistry, he continued, "Chemists have a culture of putting in lots of short, small proposals to us. We would like to see chemists be more ambitious and work hard on one or two bigger proposals in a year." He says that the council will review the impact of the changes after a year or two and that this is all part of an "evolving programme to reduce the burden" of the peer-review system.

(The day before this issue went to press, Nature reported that in reaction to the scientists' campaign, "the EPSRC has softened and delayed its controversial policy to bar serially unsuccessful grant applicants from making funding bids for one year. [...] The EPSRC now says that the restriction will not come in until 1 April 2010 – giving scientists more time to change their grant-submission behaviour so that they do not fall under criteria defining repeated failure. And instead of being excluded outright, researchers will be allowed one application during the year." (vol. 459: 20)) -JG-

Publication ethics

Trojan Horses

Imagine the following: You are given literature from pharma giant Merck saying, "As published in *Australasian Journal of Bone and Joint Medicine*, Fosamax outperforms all other medications…". "Never heard of that journal," is your immediate reaction. You get curious and search the internet for a corresponding website. Nothing. You check whether the journal appears in MEDLINE. Again, nothing. "Strange," you think – and forget about it.

A couple of days later, by pure chance you suddenly spot a copy of said *Australasian Journal of Bone and Joint Medicine* in your library, on top of a stack of so-called 'throwaway journals'. You take it, leaf through the pages and finally come to the conclusion, "Well, it *looks* like a proper peer-reviewed journal."

There may have been quite a number who arrived at exactly the same conclusion. However, they were all wrong. The *Australasian Journal of Bone and Joint Medicine* is a fake journal.

In fact, the journal was the result of a more than dubious 'business' between Merck and scientific publishing giant Elsevier. As reported by *The Scientist*, Merck paid a company named Exerpta Medica, a 'strategical medical communications agency', which is owned by science publishing giant Elsevier, to "produce several volumes of a publication that had the look of a peer-reviewed medical journal". Each volume, however, actually contained only reprinted or summarised articles that had already been published in other 'serious' journals.

In one issue, for example, nine of the 29 articles related to Vioxx, and another 12 to Fosamax. All of these articles presented positive conclusions regarding both Merck drugs. Disclosure of Merck's funding of the journal was not mentioned anywhere.

The Scientist concluded:the *Australasian Journal of Bone and Joint Medicine* appeared to act solely as marketing tool with no disclosure of company sponsorship, quasi a 'Trojan horse'-like publication.

No wonder, therefore, that Merck and Elsevier are currently being sharply criticised and accused of deeply unethical behaviour. Not least because, so far, not one word of remorse has been uttered by Merck or Elsevier.

(The day before this issue went to press, *The Scientist* reported that Elsevier had admitted putting out five other publications between 2000 and 2005 that were sponsored by pharmaceutical companies and looked like peer-reviewed medical journals, but did not disclose sponsorship. […] The other titles were: the *Australasian Journal of General Practice*, the *Australasian Journal of Neurology*, the *Australasian Journal of Cardiology*, the *Australasian Journal of Clinical Pharmacy* and the *Australasian Journal of Cardiovascular Medicine*. Elsevier declined to provide the names of the sponsors of these titles.") -RN-

Caught In Their Eyes

'Inverted' packaging of chromatin provides the rod cells of nocturnal mamals with high sensitivity light-collectors.

Sometimes, just re-packing the things you have another way, can lead to completely new functions. One beautiful example is provided by the chromatin packaging of DNA and protein in cell nuclei. Unconventional chromatin architecture in the rod photoreceptor cells of night-active animals has converted their nuclei into light-collecting mini-lenses, as an interdisciplinary team from the Ludwig-Maximilians University in Munich, the Max Planck Institute for Brain Research in Frankfurt and the Cavendish Laboratory in Cambridge has just reported in *Cell* (vol. 137(2): 356-68).

Typically, biologists think of DNA and its packaging into chromatin in terms of its effect on gene activity. "The idea that it had something to do with vision was a daring idea," lead author Boris Joffe is quoted. "People laughed at first." After a while, however, the results were becoming ever more convincing.

Bushbabies

In nearly all eukaryotic nuclei, heterochromatin, formed by non-coding DNA, is located at the periphery of the nucleus; while extended, active euchromatin typically resides in the nuclear interior. "This arrangement is so universal that it can be described as the 'conventional architecture' of the nucleus," explains Joffe.

However, in mouse rod photoreceptor cells, but not in other mouse cell types, this conventional chromatin arrangement is 'inverted'. Heterochromatin is shunted to the interior, where it is enveloped by a thin ring of euchromatin.

Why? When mapping the nuclear architecture of rod cells in nearly 40 mammal species first author Irina Solovei found a striking pattern: all nocturnal animals had the same inverted chromatin architecture as the mouse (which is also night-active), whereas all the diurnal animals tested had the conventional arrangement.

Could it really be that in nocturnal animals the inverted chromatin serves as a means to cope with the challenges of detecting very low light intensities? Possibly, at least in theory. Heterochromatin refracts light more strongly than euchromatin but it does not reduce scattering of light if it is located in the periphery of the nucleus. If, however, it is concentrated in the centre, the whole nucleus functions as a tiny converging lens. Adding to that, a large number of these micro-lenses are stacked on top of each other because the rod cell nuclei are arranged in columns.

Computer simulations finally confirmed what Joffe *et al.* had already expected as being the benefit of this unique cellular arrangement: the stacks of many such cell nuclei very effectively channel the light through the retina with almost no loss from scattering and focus it onto the light-sensitive outer segments of the photoreceptors.

In other words, what little light there is at night is able to travel deeper into the eye and be perceived, simply due to a little re-packing. -RN-

(More research results from European labs on pp. 30-35)