

Women in science

## Mind the (Gender) Gap

Women in science always had to fight a little harder than their male colleagues to receive the same acknowledgment for their work. Even in the eighties, studies showed that manuscripts submitted by a female first author were rated lower overall when compared to submissions by male researchers (Paludi and Bauer, *Sex Roles* vol. 9: 387; Lloyd, *J. App. Behav. Anal.* vol. 23: 539). However, for all researching feminists, good news seems to be emerging from the shadows: two recent studies suggest that things have changed in the interim.

Lutz Bornmann from the Department of Social Psychology and Research on Higher Education at the ETH Zurich, Switzerland, and Herbert Marsh from the Department of Educational Studies at the University of Oxford, UK, joined forces and merged their respective data to re-analyse the sheer mass of 353,725 grant proposals from eight countries. In the end, they came to the conclusion, particularly by invalidating Bornmann's earlier results in the process, that the outcome of grant applications in a wide range of research disciplines is *not* influenced by gender of the first author (*Nature* vol. 459: 602).

In addition, another recent study conducted by Robyn Borsuk *et al.* from the Department of Biology at the University of Toronto indicates that the gender gap is steadily closing (*BioScience* vol. 59: 985). Participants of the study, biology undergraduates,

graduates and post-docs, were given a previously published article, edited to look like a manuscript, in which the first author appeared as neither a male or female name but as initials; or no name was supplied at all. In a seven-question survey, the suitability for publication and the general quality of



the article was rated – and finally revealed that the gender of the first author had absolutely no effect on the acceptance/rejection rate.

Interestingly though, the study brought to light that among all participants, it's the female post-docs, who are the most critical, with the highest rejection rates and the lowest quality ratings. The authors of the study even provide a possible explanation for this phenomenon, "Female biologists are more critical because they were subjected to more critical experiences in science."

However, the future might look a little brighter for the next generation of female researchers. When taking these studies into account, it doesn't seem to be a disadvantage to have two X chromosomes, at least when it comes to equal rights in the peer reviewing process. And so, Ms Borsuk and her male and female co-authors rejoice, "We hope this preliminary study reflects positive changes within the biological field in tandem with the overall increase in the number of female biologists."

Looking good so far but when it gets down to the nitty-gritty, speaking of female professors or institute directors, it's still a long way to go.

-KATGRA-

Questionable study

## Strange Chemistry

When, in October 2009, *Science* published the paper "Reactome array: Forging a link between metabolome and genome" (vol. 326: 252-7) by authors from Spain, Germany, the UK and Italy, many life science researchers rubbed their hands in euphoric anticipation: no less than a new exciting tool, which could be used to study metabolic phenotypes of single cells or even whole tissues seemed to dawn on the horizon. However, despite the fact that the authors of the article validated their invention by reconstructing the metabolic map of the well-characterised bacteria *Pseudomonas putida* and *Streptomyces coelicolor*, "Concerns have been raised about the methods and data presented in this article," says *Science* editor-in-chief Bruce Alberts in his "edito- ▶▶

BY RAFAEL FLORÉS

PAUL THE POSTDOC



## Recently Awarded

▶ Two researchers share this year's **Louis-Jeantet prize for medicine**: **Michel Haïssaguerre**, professor of cardiology at the University Victor-Segalen Bordeaux II, and **Austin Smith**, Medical Research Council professor at the Department of Biochemistry and director of the Wellcome Trust Centre for Stem Cell Research at Cambridge University. **Michel Haïssaguerre** and his team discovered that atrial fibrillation does not originate in the heart muscle, as had been thought for a long time, but outside the heart in the pulmonary veins. These results have led to the development of a new treatment for this cardiac rhythm disorder, which consists of destroying or isolating the affected tissues using cryotherapy or ultrasound. **Austin Smith** and his co-workers have essentially contributed to highlighting the molecular network underlying the pluripotency of embryonic stem cells. This led him to propose that a pluripotency 'ground state' exists, where a naïve cell can proliferate and survive largely independently from its neighbours, but on the other hand is highly sensitive to any perturbation caused by external stimuli. Each of the prize-winners will receive CHF 600,000 for the continuation of their work, and CHF 100,000 for their personal use.

▶ **Stephen G. Young**, professor of medicine at the University of California, Los Angeles, and **Peter Carmeliet** of the Vesalius Research Center in Leuven, Belgium, have been named the recipients of the 2010 **Ernst Jung Medical Award**. **Young** is being honoured in particular for the elucidation of specific disease-causing genetic defects in lipid metabolism. **Carmeliet** receives the award for uncovering the importance of different growth factors for the formation of blood vessels (angiogenesis) and how inhibiting angiogenesis can help treating cancer and other diseases. Both **Young** and **Carmeliet** will receive € 150,000. Furthermore, German B-cell expert **Klaus Rajewsky** (Harvard University) has won this year's **Ernst Jung Medal** in gold for his lifetime achievements.

▶ rial expression of concern" published online on December 17th.

The stumbling block is the very heart of the array, creating all chemicals that are needed. This includes the synthesis of all of the 1,676 metabolites and 807 other substrate molecules, which add up to an astonishing number of 2,483 compounds and, according to the authors, represent "the central metabolic pathway of all forms of life". However, many scientists with an organic chemistry background, who had been sceptical right from the beginning, simply couldn't believe what they saw in the supplementary material to the paper, which was published a little later. Among the thousands of chemical reactions described in detail, there were many "impossible reactions", so they said. In fact, it was Figure 1, documenting the whole strategy of the array as coupling the substrate to both a Cy2 dye and a cobalt-containing linker,



which was the centre of controversy. Laura Kiessling, editor of *ACS Chemical Biology*, commented on this, "The chemistry just doesn't make sense."

One of the lead authors, Manuel Ferrer, now has to stand up for his array and in doing so already admitted to a couple of "small errors" in the supplementary information and the infamous "Figure 1", which have now been corrected. However, many questions remain; one of them also puts *Science* in the dock. Editors have to answer the question why not one chemist was assigned to review a manuscript, which mainly builds on the synthesis of chemical compounds.

Investigations demanded by Alberts and others will take place in Manuel Ferrer's lab at the Institute of Catalysis of the Spanish National Research Council (CSIC) in Madrid as well as in the labs of his collaborators in Germany, the UK and Italy. Because of the amount of data awaiting the investigators in the respective labs, it will probably take months before the final verdict can be expected.

Hopefully, this rather promising new research tool wasn't too good to be true.

-KATGRA-

UK universities

## Big Budget Cuts

Representatives of UK universities and their staff have been making dire predictions about the consequences of government funding cuts. Describing it as the bleakest time for higher education since the Thatcher cuts of the 1980s, the Russell Group (a collaboration of the twenty largest research-intensive universities) says, "It has taken more than 800 years to create one of the world's greatest education systems and it looks like it will take just six months to bring it to its knees." Their grim prognosis follows December's pre-budget report on the scale of initial cuts, as the Labour government seeks to reduce public debt caused by the financial crisis and economic downturn.

Lord Mandelson, Secretary of State for Business, who is also responsible for universities, announced a £135 million funding cut by 2011, in addition to previously announced funding cuts of £600 million by 2013, on top of £180 million, the government had already "asked" universities to find in "efficiency savings". In total, there will be a reduction in public funds of £950 million for the period 2010-2013. However, the economic research Institute for Fiscal Studies has warned that an extra £1.6 billion in cuts, representing 12.3% of current funding, will be necessary over 2011/12 if the UK government is to achieve its target of halving national debt by 2013.

The Russell Group (which includes Oxford, Cambridge, UCL, Leeds, etc.) warned in the *Guardian* newspaper (12<sup>th</sup> January, 2010), "If government targets these huge cuts on university budgets they will have a devastating effect not only on students and staff but also on our international competitiveness, national economy and ability to recover from recession. Cuts of this magnitude in overall funding will impact on the sustainability of our research and cannot fail to affect even the most outstanding universities." They claim that at least 30 UK universities could disappear and the rest face possible "meltdown".

In a similar vein, Sally Hunt, for the lecturers' union, UCU, explained, "Unless these savage cuts are reversed, we face the very real prospect of many universities being forced to close, over 14,000 staff losing their jobs and some of the biggest class sizes in the world. The higher education system is already creaking under the pressure of government efficiency savings and the planned cuts will be a devastating blow to the sector." ▶▶

▶▶ Lord Mandelson immediately responded to the Russell Group's accusations with his own article in the Guardian, "Our universities are not under threat. Their income is at record levels." He said that, contrary to the Group's claims, UK universities will do just fine with a bit less government cash and insisted that income for research and tuition would still grow between 2009 and 2011. "We are absolutely committed to increasing the opportunities for young people to study at university and we are clear that excellent research and teaching are vital to this country's competitiveness and character."

David Lemmy, higher education minister, said it was normal that universities "play a part in helping to manage the pressures on public finances brought about by the impact of the financial downturn". He noted that the government still spends £15 billion a year on higher education and that the research budget for 2010 will grow, despite the funding cuts.

Nevertheless, the Russell Group universities, that receive fully two-thirds of the research grant, remain concerned that reductions in their teaching budgets and capital projects will have negative effects on their ability to maintain their research activities.

There will be a UK general election in 2010 but prospects for UK universities under a Conservative government are unlikely to improve, since the Conservative Party says it will try to reduce the national debt more rapidly, making even deeper cuts in public funding.

Meanwhile, both Houses of Parliament have set up enquiries to try to determine just how bad things could get. In the House of Lords they are looking at UK science funding priorities, while the Science and Technology Committee of the House of Commons will investigate "the impact of spending cuts on science and scientific research." -JERGAR-

## France

# The "Big Loan"

In France, the economic crisis has also unbalanced the government's budget, reducing revenues and increasing debt. However, despite cutting expenditure for all government departments, a novel solution has been found to maintain investment – *Le Grand Emprunt* (the Big Loan). The idea is that the French government will simply borrow a lot of money at low interest rates to spend exclusively on scientific research, higher education and development of future technologies.

In 2009, a commission was set up, presided over by two ex-prime ministers, Michel Rocard and Alain Juppé. Their task was to determine just how much money the French government could borrow without upsetting the European Union. Under the Maastricht Treaty, France must try to maintain a 'balanced budget', restricting its public deficit to 3% of its gross domestic product (GDP) and its national debt to less than 60%. Instead, in 2010, the public deficit will attain 8.5%, and the debt 84%, of GDP.

In December, President Sarkozy announced the adoption of all the Commission's recommendations with a total investment of 35 billion euros on five "priorities for the future". *Le Grand Emprunt* finally accounts for 22 billion euros, borrowed exclusively from the financial markets. Interest payments on this loan will be immediately deducted from current government expenditure. The remaining 13 billion euros represents the reimbursement by commercial banks of rescue loans made by the government during 2008/2009.

The biggest winner will be the universities, "We want the best universities in the world!" declared Sarkozy, allocating 11 billion euros to them, of which eight billion will be used to generate five to ten "campuses of excellence" with the means, critical size and links to industry necessary to help them "compete with the best universities in the world". In mid-January, university presidents met Sarkozy to learn how they are expected to set up "campuses of excellence" before the end of 2010. For a start, they must become autonomous, financially independent entities, as envisaged under 2007's LRU law (see *LT 2/08*). However, thus far only nine of France's 83 universities have formally agreed to accept responsibility for their own campuses, the rest are still waiting for answers to questions like: How much will it cost us? Can we assure the maintenance? What is our tax status? Will we have to pay taxes on our campuses once we become the owners?



In addition, the fine print on *Le Grand Emprunt* suggests that it isn't quite as generous as the President claims. For a start, the universities will not actually receive the 11 billion euros. Instead, this money will be given to "foundations" who will re-invest the money in financial markets. The 'lucky' universities will simply receive the gains from these investments, e.g. a 4% return on one billion euros is a more modest 40 million euros. Already, questions have been posed as to the security of the proposed investments – as US and UK universities have learnt to their cost, investments in the stock market can go down as well as up. So far, the indications are that these investments will be in less volatile financial products with modest, but secure, gains. Nevertheless, some might wonder at the logic of borrowing money and paying interest only to re-invest it in order to earn interest!

Second big winner of *Le Grand Emprunt* is research with eight billion euros. Most of this will be divided between projects that "direct work from our laboratories towards industrial applications" (3.5 billion), and health and biotechnologies (2.5 billion).

Again, the fine detail is less inspiring. The researchers' pressure group, *Sauvons la Recherche* (SOS research; see *LT 1/08*), notes that far

from new investment, this money is simply an attempt to reverse previous cuts. Furthermore, the government has its own conception of life science research, targeting the agro-alimentary industry, which it has decided is "fragile", despite being the second largest in the world. A key project here concerns the questionable development of bio-carburants.

Investment in biomedical research is also complicated since it assumes that all public research in this domain is under the direction of the National Alliance for Life and Health Sciences, a body created on paper in April 2009. Following a similar logic to the "campuses of excellence", the main proposal calls for the creation of "University-Hospital Institutes of Excellence" whose main objective will be to "simplify the collaboration between research and industry". The government has been actively encouraging the direct transfer of research from the pharmaceutical industry into public laboratories, raising huge questions about the independence of public researchers and sanctioning the closure of several private research centres, e.g. Sanofi-Aventis sites for "discovery and pre-clinical research" at Bagneux, Rueil-Malmaison, Porcheville and Labège. -JERGAR-