Q&A

Douglas Kell, incoming chief executive of the UK Biotechnology and Biological Sciences Research Council (BBSRC), discusses his plans to harness the Internet to advance science.

What do you hope to accomplish at the BBSRC?

The BBSRC has long been promoting systems biology, but I have a vision of moving biology forward by taking advantage of Web 2.0 and the instant exchange of literature, data and ideas between colleagues. Specifically, I aim to create a research environment in which a systems approach will flourish to meet the world's challenges — including reinventing agricultural research to increase food security and meet bioenergy needs.

How do you see the future of biological research?

I think science as a whole is going to change completely. An entire epistemological shift is emerging with the ever more powerful Internet. For example, once Google Earth projects are live rather than stored images, it will change how we think about agricultural productivity. If we can build online maps of gene-expression profiles, it will change our understanding of how organisms work. But, at a fundamental level, biologists must build models of systems in order to properly test their understanding of them. In ten years' time, I think, future students will say: "You really did experiments on systems you hadn't modelled? How curious."

What has been your biggest career challenge?

I think if you are doing good scientific research, you are challenging the known. In every field, the party line has been wrong or seriously deficient. The reductionist strategy certainly hasn't helped us to understand complex systems. Yet, moving biology towards a systems approach is an ongoing challenge because it aims to move past molecules to look at interactions between molecules and towards studying the emergent and novel behaviour of a system.

What achievement has given you the greatest career satisfaction?

We conducted a not particularly goal-oriented study to monitor what happens to bacteria when you starve them until they are dormant. As a result, my colleagues and I discovered a molecule that resuscitates bacteria from dormancy. That molecule turned out to be the first example ever found of a bacterial cytokine, a protein required for its cell growth. The bacteria we studied, *Micrococcus luteus*, are related to the bacteria that primarily cause tuberculosis. We found that as our molecule is required to wake dormant *Mycobacterium tuberculosis*, it may serve as a target for drugs or vaccines.

What is your motto or career philosophy?

Read widely in order to seek the truth, wherever it lies.

What is the secret to scientific success?

That's easy. Find good people with new ideas who read widely, resource them adequately and leave them alone without a lot of pointless administration. ■

Interview by Virginia Gewin

POSTDOC JOURNAL

Take a scientist to work?

I've often found that when the title of a research paper poses a question, the answer is ultimately 'no'. I discovered much the same when I posed a careers-experiment question: might a 'take a scientist to work' day be a good idea?

Last month, I set out explore my potential career 'plan B' — the world of industry consulting. I wanted to be proactive. In an effort to move beyond informational interviews, I sought to experience 'a day in the life' of successful consultants working in the life sciences.

To date, I have made two local freelance consultants scratch their heads over my request to visit them at work. Both declined my proposal, in part to protect client confidentiality and largely because their work simply involves hours hunched over a computer. Perhaps I have already collected as much useful information as possible from the people whose industry careers I'm thinking of emulating. Maybe my next move should be a riskier one: leave academia and become an intern at a consulting firm, and/or pursue a Master's of Business Administration.

But I'm not quite ready to change. My lab work is going well, I have many months left on my contract, and my mentors and colleagues continue to support me and assure me that that elusive tenure-track job will materialize. I've promised myself before: academia will have to 'kick me out' before I leave the work I love. But with the gloomy economy, will that be sooner rather than later? I hope the answer is 'no'. ■

Julia Boughner is a postdoc in evolutionary developmental biology at the University of Calgary, Canada.

IN BRIEF

US faculty pay rises 3.4%

At US$79,439, the average salary for full-time faculty members at US universities in 2008–09 was 3.4% higher than it was in 2007–08, according to *On the Brink*, an annual report from the American Association of University Professors. By comparison, salaries rose an average of 3.8% between 2006–07 and 2007–08. However, the report warns that salaries for 2008–09 were set before the economic recession took hold and therefore "do not reflect the ominous economic reality that is now confronting colleges and universities across the land".

Battery unit for Kentucky

A national battery development centre will open this summer in Kentucky. The centre is expected to create at least 20 research positions and employ 20 postgraduate students, requiring expertise in chemistry and chemical and mechanical engineering. Formed by a partnership between Kentucky's state government, the University of Kentucky in Lexington, the University of Louisville, Kentucky, and Argonne National Laboratory in Illinois, the centre aims to develop advanced battery technologies. The initial focus will be on lithium-ion batteries, but future research will look into lithium-air and zinc-air batteries, which could be used both in vehicles and to store power from the electrical grid, says Mark Peters, deputy associate laboratory director for energy sciences and engineering at Argonne National Laboratory . The centre will have an initial annual budget of US$7 million.

Photonics centre launches

The Institute of Photonics and Optical Science, the newest institute at the University of Sydney in Australia and the only one of its kind in the continent, launches this month. Headed by Ben Eggleton, the centre will conduct research into areas such as metamaterials, cloaking (obscuring an object from view by redirecting light), astrophotonics and medical photonics. It currently employs about 20 postdocs and another 30 professionals including senior academics and academic and research staff. Initially headquartered in the university's school of physics, the institute will have its own building by 2012. The centre's initial budget is Aus$4 million (US$3 million).