Biochemistry Forever

by Chris Willmott, Science Editor

In July, I had the pleasure of participating in Biochemistry Forever, the 43rd Federation of European Biochemical Societies (FEBS) Congress in Prague. This was the second time I’d been to the annual FEBS jamboree and on both occasions I have been struck by both the scale and the quality of the event. Almost 2000 delegates from 67 countries were involved and were offered over 340 presentations to attend and the choice of nearly 1350 posters to read. The diversity of content might not suit everyone, and I know we at the Biochemical Society tend to prefer events with a narrower focus, but I appreciated the opportunity to bring myself (more) up to speed on a broad range of topics.

A particular strength of the FEBS set-up is the work of their Young Scientists’ Forum. For the past several years, the YSF have organized an additional 3-day event in the same location, and directly preceding the main Congress. A generous package covers most of the expenses of these early-career researchers to attend both events, including their accommodation and travel. There are spaces for about 100 YSF delegates (including two kindly supported by the Biochemical Society). Unsurprisingly the Forum is very heavily oversubscribed. As part of the arrangement, all YSF delegates also get the opportunity of a one-to-one consultation in which their CV is forensically critiqued by our own Keith Elliott.

Among several very good offerings at the Congress, the standout for me was a final morning session on “Scientific (mis)conduct: how to detect (and avoid) bad science”. Although there was some consideration of overt fraud, a lot of the discussion focused on sloppy science, the “reproducibility crisis” and the hurdles that have to be overcome in order to correct errors in published work. A particular spotlight was shone on structural biology, both crystallography and cryo-EM. Here the implication seemed to be that many researchers looking to exploit these techniques lack either the chemical or statistical know-how to avoid making erroneous conclusions from their data.

Within the emerging field of cryo-EM, there is a suggestion that many people are overstating the resolution of their data. There is an associated danger of circularity; data are used to refine an initial (possibly biased) model which, unsurprisingly, returns the initial model. There are agreed ‘gold standard’ procedures which greatly reduce the chances of over-interpreting the data, but it is relatively easy for the novice to come unstuck at some point or other. Issues of this sort are also found with other techniques. I am reminded of the “non-independence errors” and setting of inappropriate baseline controls which have led to some dubious observations using functional MRI, most famously the measurement of brain activity in a dead salmon (albeit set up to demonstrate the perils of misusing the technology).

If you are interested in more about the specifics of that session, I have blogged about it at tinyurl.com/FEBSmisconduct. And if the FEBS Congress sounds like a suitable conference for you and/or early-career researchers in your group to attend, the next event is being held in Krakow in July 2019. ■