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Scientific blues

On 27 October 2005, the Massachusetts Institute of Technology (MIT) announced Luk van Parijs had been fired. This action was the result of a yearlong investigation initiated by the university after it had been tipped off by anonymous laboratory members about alleged scientific misconduct. Van Parijs, who was an associate professor at MIT's Center for Cancer Research, admitted to falsifying and fabricating data, both in published work and in grant applications filed while at MIT. Because van Parijs was funded in part by grants from the US National Institutes of Health (NIH), MIT has forwarded its findings to the Office of Research Integrity (ORI). The ORI will conduct its own investigation to determine if other penalties might apply. These penalties could include fines and even prison sentences for knowingly falsifying data in federal grant proposals. Harvard University and the California Institute of Technology (Caltech) have also opened their own investigations of work done by van Parijs while he was a graduate student and a postdoctoral fellow.

Although the investigations are not over, one can safely assume that van Parijs' scientific career probably is. This episode marks an ignominious ending for the career of van Parijs, who was once described as a rising star in immunology. Thus, many are left scratching their heads and asking "why?" Notably, MIT found none of van Parijs' coauthors to be guilty of misconduct. In fact, MIT was pleased that procedures were in place such that the group who first called attention to this matter felt comfortable doing so without potential backlash against 'whistle-blowers' or fear of jeopardizing their own careers. Yet these junior researchers were in a sense penalized as a result of time lost in their own research careers.

The published work(s) containing falsified data has not been identified publicly. Van Parijs authored or coauthored 38 peer-reviewed papers, including two articles published by *Nature Immunology*. We are re-examining the submitted figures associated with those papers and will notify the investigation if something raises our suspicions of possible anomalies. It would be reactionary and certainly unfair to the coauthors to automatically invalidate entire data sets or to request retraction of papers without 'due process' investigation. Thus, to protect the reputations of innocent researchers, the editors of journals that published van Parijs' work should not unilaterally take action against those papers. However, we are ready to assist MIT and the ORI, which are the institutions with the legal authority for requesting such action.

One concern occasionally voiced is whether instances of scientific misconduct are on the rise. The news of van Parijs' sacking follows reports in 2005 from the ORI on the censure of Xiaowu Li, formerly a postdoctoral fellow at the University of California at San Francisco, and a highly publicized case of scientific misconduct involving Eric Poehlman, a metabolism researcher at the University of Vermont. Both researchers were accused of intentionally misleading others by deliberate falsification of research data. The pressure to publish in high-quality journals to advance one's career has been named as a likely motivation underlying data fabrication or mispresentation. However, that pressure is felt by all researchers, as voiced by David Goodstein, vice-provost of Caltech and an authority on scientific integrity, yet not everyone is tempted to manipulate data sets. Blatantly false data would ultimately fail the scientific standard of reproducibility. Cutting corners to suggest the results are representative of a larger data set when, for example, '*n*' equals only one, might be a more common form of falsification. Intriguingly, the three people named in the misconduct cases are/were at different career stages: Li, a new faculty member, van Parijs, a nontenured professor and Poehlman, a senior investigator and fully tenured faculty member. Nevertheless, why these people willfully chose to fabricate data remains unclear.

The US Public Health Service, which oversees the NIH, implemented guidelines in the early 1990s that defined scientific misconduct as fabrication, falsification or plagiarism with further refinements in their definition that addressed the issue of intent to deceive. Institutions receiving NIH grants or other sources of federal funding were requested to devise plans for both educating faculty and students on matters of scientific integrity and installing mechanisms for investigating suspected cases of misconduct. Indeed, a quick internet search using the term 'scientific misconduct' yields many entries posted by universities and other research institutes detailing their policies for dealing with such allegations and guidelines for responsible conduct of research on their campuses.

Another issue often raised is whether the peer-review system can adequately identify cases of scientific misconduct. As addressed in previous editorials, we believe expert peer review is still the best way to analyze the technical merit of manuscripts judged to be of sufficient broad appeal and novelty for our journal. Peer review requires that experts offer candid and unbiased advice regarding the scientific merits of a given manuscript under consideration. Underlying the review process is the idea that all of the authors have seen and consented to the data presented and can vouch for its authenticity, as any suspicion of data falsification might affect the reputations of all the coauthors. Yet peer review cannot always uncover deliberate attempts to deceive. Thus, particular responsibility lies with the 'senior' author, often the corresponding author, but usually the principle investigator in whose laboratory the work was done. That person is still responsible for analyzing and verifying all of the data presented. The recent cases of misconduct should raise the consciousness of all those involved in evaluating scientific results to ensure the integrity of communicating science.