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Singapore embraces international research integrity

At the second World Conference on Research Integrity,¹ which was held in Singapore on July 21–24, over 350 researchers, university leaders, policy makers, representatives from funding institutions, journal editors, and publishers from more than 50 countries exchanged experiences and discussed the best ways to tackle research misconduct and poor research practices, and to foster research integrity collaboratively and internationally. The conference was hosted by Singapore's leading research organisations: the Nanyang Technological University, the National University of Singapore, the Singapore Management University, and the Agency for Science, Technology and Research, with the backing of the Ministry of Education and the National Research Foundation.

The first attempt to bring a diverse group of those involved in research and research oversight and management together to discuss research integrity internationally was in 2007 at the first World Conference in Lisbon, under the patronage of the Portuguese Government, which held the EU presidency at the time.² In Lisbon, discussions commonly centred around prevalence and exact definitions of research misconduct, with some speakers questioning the need for more concerted action with the familiar and misguided argument that science is self-correcting and serious misconduct is rare. By contrast, the general

consensus in Singapore was that research integrity needs urgent and more international attention. Yes, perhaps serious misconduct is rare, although true figures remain unknown and spectacular cases can tarnish the reputation of research institutions or even countries, and can set back whole research fields.^{3,4} However, deviations from extremely responsible or best conduct of research are common.⁵ The recent example at the UK's University of East Anglia in the area of climate research has shown that even less than ideal handling of data and responses to criticisms can have a devastating and lasting effect on the public's perception of research.^{6,7} Indeed, research in many fields has become a more important societal and political issue than many researchers realise. The times of the isolated lone researcher toiling away in his or her laboratory and stumbling across the breakthrough finding are over. Research is collaborative and research is global.

Additionally, the research environment has become very competitive with, on the one hand, decreased funding because of the economic situation in some countries, and, on the other hand, sudden influx of money into some parts of Asia with the expectation of quick successes in institutions that have expanded rapidly and are struggling to implement policies and educate their staff. False incentives are rife, especially in some Asian countries where authors of publications

in high-profile journals might be rewarded with large financial incentives, which can amount to more than an annual salary for doctors, linked to impact-factor points. The notion of the collective honour of an institution makes it difficult to talk openly about cases of misconduct. In his opening address, Ng Eng Hen, the Minister for Education in Singapore, acknowledged that attention to research integrity is vital to maintain trust and minimise risk, especially in countries such as Singapore where economic development depends on science and innovation as an export commodity and a large percentage of gross domestic product is invested into research and development.

How integrity can be addressed at a global level in diverse scholarly fields and with many different stakeholders involved is a difficult question. Nick Steneck, a consultant to the US Office of Research Integrity and co-chair of the conference, together with Tony Meyer, from the European Science Foundation (ESF), summarised the overall dilemma well: "Research is global, integrity is local". Four key areas were identified for discussion at the conference on international collaboration and guidelines: national and international policies; codes of conduct; training and education to promote research integrity; and guidelines for authors and editors.

To coincide with the conference, the ESF Member Organisation Forum has released a report, *Fostering Research Integrity in Europe*, for discussion.⁸ The Committee on Publication Ethics,⁹ a key partner to the conference organisers and part of the planning committee, led the last workshop and will issue guidelines for authors and editors on responsible publication of research agreed during and after the conference in the next month or so. The conference has taken the first important step to go beyond discussion between speakers and participants by drafting an overarching landmark document on research integrity, which will highlight the global fundamental principles and responsibilities that researchers and those involved in research should adhere to. This document will be known as the Singapore Statement and is expected to be released next month. It will cover such areas as honesty and accountability and will call on institutions



to provide environments that encourage research integrity through education and clear policies.

Guidelines and such statements are an important fundament on which further discussions should be based about how to best implement such principles and guidance locally. Strong attention to research integrity by all involved, but in particular by research leaders, is crucial to advance the human quest for knowledge and make this knowledge a true, reliable, and trusted outcome of research.

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I am Vice-Chair of the Committee on Publication Ethics.

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