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Lessons from a scandal

The Karolinska Institute has rightly tightened procedures in response to the controversy surrounding surgeon Paolo Macchiarini — but it should not do so to the detriment of its science.

The Nobel Foundation next month will announce who has won the 2016 Nobel Prize in Physiology or Medicine. The Karolinska Institute (KI) in Stockholm, one of Europe's most highly ranked research institutions, will have selected those winners, as it has each year since 1901. The KI's reputation for intellectual quality and integrity has been a beacon in the world of biomedicine. But this year, that reputation has been rocked by a scandal.

In 2010, the KI recruited Paolo Macchiarini, a charismatic thoracic surgeon who had performed the world's first tracheal transplant using a donated windpipe seeded with the patient's stem cells. At the KI, he wanted to pioneer similar transplants using synthetic windpipes. Things didn't go so well. In the next few years, various allegations of clinical and scientific misconduct were brought against him. Yet the KI continued to clear him and to extend his employment.

Outside the sober scientific environment, other sides of Macchiarini's character were coming to light. In January, *Vanity Fair* magazine published a story about a US television news producer who said that Macchiarini had promised to marry her in a ceremony overseen by the Pope. Yet the surgeon seemed to be married already. The story included claims, since verified, that he had embellished his CV. The controversy hit the headlines when Swedish Television aired a moving three-part documentary following Macchiarini's work at the Karolinska University Hospital and — when he was stopped from doing further transplants there in 2013 — at a university hospital in Russia. The images of a young Russian woman who had the operation, and subsequently died, burnt into the Swedish psyche. Her life had not been in immediate danger, which would have been the only justification for such experimental surgery.

Things finally happened. The KI declined to renew Macchiarini's contract, and Swedish police are investigating a possible case of involuntary manslaughter and grievous bodily harm. Key figures in the affair, including the KI vice-chancellor and the dean of research, resigned their posts. Another resigned from his post as secretary-general of the KI Nobel Committee. The KI and its hospital both commissioned reports from independent experts, who have now published their results. They paint a damning picture, saying that the KI recruited Macchiarini despite negative professional references. In the rush to recruit, and hold on to, a bold clinician who promised a groundbreaking therapy using fashionable techniques, the upper echelons of the KI blinded themselves to warning signs, cutting regulatory corners to make sure that nothing would block the appointment. The KI seemed similarly blind when it renewed Macchiarini's contracts in 2013 and 2015, and it failed to follow regulations on handling allegations of scientific misconduct. Both the KI and the hospital have accepted the findings in the reports. Macchiarini has declined to comment to *Nature*.

Some KI scientists put the behaviour of their senior management down to increased government pressure to translate research from the lab to the clinic as fast as possible. But as noted by Sten Heckscher, a

former president of Sweden's Supreme Administrative Court who led the investigation into the KI, most institutions don't respond to such pressures in this way.

Public trust in the KI has plummeted, according to the latest national opinion poll on Swedish universities, in which it fell from fourth in 2015

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to twelfth this year. Outside Sweden, at least in scientific circles, its wider reputation might well be saved by how it has handled the affair since February. It has adopted a tactic of complete openness: a timeline of relevant events is available in English and Swedish on the KI homepage, and is regularly updated. The KI's

earlier weak — now discredited — responses to allegations of misconduct are collected on the same dedicated page (go.nature.com/2cjunzr).

The KI and its university hospital have learnt from the affair and have already fine-tuned many of their procedures, including those for recruitment and handling whistle-blowers. Still, the KI should not tighten its procedures so much that it no longer feels comfortable taking justifiable scientific risks. The institute has gained its standing in large part through its willingness to be adventurous in research. Observing its exemplary approach to the scandal, the world of biomedicine might yet forgive the KI this one major slip. It will not forgive a slip into mediocrity. ■

Time machine

Science fiction fights the past as much as it faces the future.

Back in 1969, you could buy a stake in the future, even if it was only a plastic model kit of the Apollo Lunar Module. But the price was stuck in the past. The UK kit cost 5 shillings and 11 pence, in a pre-decimal system that dated back to the Middle Ages, with abbreviations that recalled the Roman occupation of Britain — the penny was abbreviated to 'd', standing for 'denarius'.

Such archaisms angered and frustrated Herbert George Wells (1866–1946), whose raillery against such relics is documented in Simon James's retrospective on page 162 as part of this week's science-fiction special issue. It is followed, on page 165, by Sidney Perkowitz's appreciation of *Star Trek*, the space-opera TV and movie franchise that has been visiting strange new worlds since 1966.

Britain changed to decimal coinage in 1971, but even countries that are long used to money in multiples of ten can't escape the history of their currency. The word 'dollar', for example, derives from 'thaler', a