competitiveness-innovation, and health will be the new drivers of research funding.

Some would like to recreate the excitement of the Apollo space program in the 1960s by picking a challenging technological target that could weld research with national priorities. Norman Augustine, former chair and CEO of Lockheed Martin, chaired the academies' panel, which considered a so-called National Energy Initiative. Likewise, lawmakers crafting the PACE act at one point toyed with targeting development in specific energy areas such as nuclear energy. But the "decision was to let that happen [naturally]," says PACE co-sponsor Senator Pete Domenici (R–NM).

That approach is fine with Augustine. A focus on energy "happens to coincide with physics, engineering, and math," he says. Both PACE and the academies report also call for a 10%-a-year boost in federal funding for basic research.

PACE would give DOE an increased role in encouraging college students to major in science and engineering and improving training for science and math teachers at all levels through new scholarships. It also calls on DOE's national laboratories to support summer internship programs for gifted students. Insiders say Raymond Orbach, head of DOE's Office of Science and a former university president, helped persuade lawmakers to give DOE a larger national role in science education.

One proposal in several of the bills is a new DOE research agency modeled on the Pentagon's Defense Advanced Research Projects Agency. Aimed at encouraging risky, high-payoff energy science, the new agency, dubbed ARPA-E, would recruit academic and industrial leaders for short periods to craft and manage innovative research initiatives. Nobelist Steve Chu, director of DOE's Lawrence Berkeley National Laboratory in California, says that such an agency would help "bridge the funding gap" that now exists between well-established yet risky science, such as fusion research, and basic work with hard-to-anticipate benefits, such as that in particle physics. ARPA-E is also part of a package of bills introduced in December by Representative Bart Gordon (D–TN), ranking Democrat on the House Science Committee, and a recent proposal by Senate Democrats. Although not mentioned by name, the approach is also endorsed in a December innovation bill introduced by Senators John Ensign (R–NV) and Joe Lieberman (D–CT).

These legislative proposals may reflect a convergence of thinking in Congress. But supporters will also need to convince spending panels. Advocates don't see that as an insurmountable obstacle. PACE co-sponsor Senator Lamar Alexander (R–TN), for example, calls PACE's multibillion-dollar cost "a small price for a high standard of living."

–ELI KINTISCH

SCIENTIFIC CONDUCT

Panel Discredits Findings of Tokyo University Team

TOKYO—A University of Tokyo chemist has been stripped of his teaching duties and his graduate students following an investigation unprecedented in Japanese academia. Last week, university officials announced that a group led by Kazunari Taira has been unable to reproduce findings from four key papers. Taira maintains he has done nothing wrong aside from failing to ensure that experimental data were properly recorded. The headline-grabbing case is likely to spur other institutions to establish procedures for handling misconduct allegations.

Case closed? A University of Tokyo panel has concluded that certain findings from chemist Kazunari Taira's team could not be substantiated.

An investigation began last spring after the RNA Society of Japan wrote to the university raising questions about 11 papers that appeared between 1998 and 2004 in *Nature*, *Nature Biotechnology*, the *Proceedings of the National Academy of Sciences*, and other journals. The society acted on reports from scientists in Japan and from overseas saying they could not replicate the group's results, sources say. Hiroaki Kawasaki, a research associate in Taira's lab, was first author on 10 of the 11 papers. Taira was corresponding author of nine papers; he and Kawasaki were co-authors of the other two.

A panel led by Yoichiro Matsumoto, a mechanical engineer in the Graduate School of Engineering, was formed to probe the RNA Society's concerns. In an interim report released last September, the committee announced that a number of specialists contacted by the panel claimed they were unable to reproduce Taira's results. The committee then selected four papers for a closer look and found that the group could not produce raw data or notebooks to support the findings (*Science*, 23 September 2005, p. 1973).

Taira insisted that he could repeat the experiments, so the committee asked him to do so. Kawasaki claimed to have replicated the findings in one of the papers, but the panel found that he had used materials different from those described in the original paper. Taira says more time is needed to work on the other experiments. However, at a 27 January media briefing, Matsumoto said bluntly, "At this time, there is no evidence the experiments can be repeated."

Junichi Hamada, a university vice president, said at the press briefing that both Taira and Kawasaki will now face a disciplinary committee and could be dismissed. In the meantime, the Graduate School of Engineering has relieved Taira of teaching duties and transferred his 25 graduate students to other teams. His own research has ground to a halt, and he says he will have to restart his career "from scratch."

"If I was just making up data, I wouldn't have had to work the 100 hours a week I was working," says Taira, whose recent studies involve RNA. But he concedes that his group is having trouble reproducing some results.

The investigation was the first ever by the University of Tokyo, widely considered to be Japan's most prestigious. The university is mulling the establishment of a permanent committee or office to address research misconduct, says panel chair Matsumoto.

Observers say they are pleased with the outcome. "The University of Tokyo should be highly praised for its handling of this investigation," says Norihiro Okada, a molecular biologist at the Tokyo Institute of Technology and one of the members of the RNA Society who urged an inquiry.

Okada and others believe that the case has focused attention on the need for more policing of misconduct. RIKEN, the nation's premier collection of basic research institutes, is ahead of the game. Its auditing and compliance office, created last April, now has the authority to investigate any hints of misconduct. Each RIKEN group must now make experimental records available for inspection for 5 years after publication, and the contributions and responsibilities of every author must be made clear. Office director Fumikazu Kabe says the policy might have to be modified for adoption by universities, "but it probably is something they could use as an example."

–DENNIS NORMILE

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