

## CHEN ZHU INTERVIEW

## China's Modern Medical Minister

BEIJING—China's minister of health, Chen Zhu, has an enormous responsibility: to improve medical care for 1.3 billion people in a rapidly developing country. Now he is busier than ever. A reshuffle this month put Chen's ministry in charge of the State Food and Drug Administration, whose previous chief was found guilty last year of taking bribes—a crime for which he was executed.

If Chen is feeling pressure to clean up China's scandal-ridden food and drug industries, he doesn't show it. Perhaps that's because the hematologist, who earned a Ph.D. in Paris, is not your typical bureaucrat. For starters, he's one of only two Chinese ministers (the other being science minister Wang Gan) who are not members of the Communist Party. And Chen is keeping a hand in research, with a paper about a traditional Chinese medicine (TCM) preparation for acute promyelocytic leukemia that appeared online earlier this month in the *Proceedings of the National Academy of Sciences*.

Investigating this form of leukemia is how Chen made his scientific name in the 1990s, when he led a team that unraveled the molecular mechanism of arsenic-based TCM therapy for the disease. His honors include membership in both the Chinese Academy of Sciences and the U.S. National Academy of Sciences.



*"There is a need for a specialized funding channel for medical research. This idea has gotten the support of the top-level policymakers."* —CHEN ZHU

Chen took a break from the annual sessions of the National People's Congress and the National Committee of the Chinese People's Political Consultative Conference to discuss the tension between Western medicine and TCM, a plan to strengthen medical research, and the more open research atmosphere in China since the SARS outbreak in 2003.

—RICHARD STONE

**Q: You have many challenges providing adequate health care in a country so large and diverse and with a growing gap between rich and poor. How can science help?**

**Z.C.:** Even if you have a health care system that covers everyone, if you don't have the right strategy, the system will be difficult to sustain because of an aging population and chronic diseases. What's happening in the developed world today is China's tomorrow.

We need to focus on disease prevention. To be effective, we need more epidemiological studies. On one hand, we need to strengthen the community medical health care system, and on the other hand, we need to strengthen the science of prevention and early intervention.

China's health care policy has three pillars: One is prevention, the second is taking the countryside as the emphasis, and the third is an equal position for Western medicine and traditional Chinese medicine.

**Q: How can the belief system of TCM be reconciled with the Western approach to medicine?**

**Z.C.:** First of all, you need to have proven clinical efficacy. And you need good models at the organism level, at the cellular level, and at the molecular level. To establish clinical efficacy, I encourage my colleagues in

## ACADEMIC RESEARCH

## Saudi Start-Up Hopes Grants Will Buy Time

Universities often throw money at top scientists they want to hire. But an unusual graduate university rising in the Saudi Arabian desert (*Science*, 8 June 2007, p. 1409) has come up with a new twist on that formula: Let the scientists remain where they are but ask them to share their expertise and contacts to help the school launch its own research programs.

Backed by a \$10 billion endowment, officials at the King Abdullah University of Science and Technology (KAUST) this month awarded 12 researchers up to \$10 million each over 5 years for research at their home institutions (kaust.edu.sa). The scientists are free to use the money as they see fit, with no immediate returns to KAUST. The one string is that the awardees will spend a minimum of 3 weeks a year talking shop at KAUST, which will open in September 2009 at a site bordering the Red Sea.

The announcement comes on the heels of deals struck with three U.S. universities and a British institution, worth \$25 million over 5 years, to help KAUST develop its curricula, recruit faculty, and establish its research agenda. Those agreements involve individual departments at Stanford University, the University of Texas, and the University of California, Berkeley, as well as Imperial College London. This month, KAUST also announced it had hired Fawwaz Ulaby, an electrical engineer and former administrator at the University of Michigan, Ann Arbor, as provost.

Half the awards in the Global Research Partnership (GRP) initiative announced last week will go to U.S. scientists, with the rest sprinkled around the globe. The 11 men and one woman range in age from their early 30s to their 60s and work in one or more of four broad areas—energy and the

environment, materials science and engineering, biosciences, and computational sciences—important to Saudi Arabia's development. "It will have a huge impact on my research," says synthetic organic chemist Brian Stoltz, 37, who was recently appointed to a chaired professorship at the California Institute of Technology in Pasadena. The \$10 million award, he says, "is probably three to five times what I get now for my lab." Stoltz says he's intrigued by KAUST's attempt to "start from scratch and build a high-quality university."

The winners were drawn from a pool of 60 schools invited by KAUST to apply, divided equally among North and South America, Europe and Asia, and the rest of the world. A blue-ribbon panel led by Frank Press, former president of the U.S. National Academy of Sciences, ranked the proposals and forwarded its recommendations to KAUST, which made the final selection.

Some of the grantees hope to spend more than the required 3 weeks a year at KAUST,

TCM to organize multicenter studies. I tell them, this is not Western practice; this is universal practice!

I oppose the idea that TCM is something sacred, something you cannot dissect.

**Q: Some TCM practitioners argue that you just have to trust that it works.**

**Z.C.:** If it works, there must be some material basis, there must be mechanisms.

**Q: Is there truth to the rumor that you hope to create a Chinese version of the U.S. National Institutes of Health (NIH)?**

**Z.C.:** This is one of my dreams. Maybe something similar but not identical to NIH. The world has different models. NIH is a very successful one.

We do think there is a need for a specialized funding channel for medical research. This idea has gotten the support of the top-level policymakers. The Ministry of Science and Technology agrees, and the Ministry of Finance agrees. We are now preparing an interdepartmental council.

A consortium of research institutions will form an intramural program. We have the Chinese Academy of Medical Sciences, the Chinese Academy of Traditional Chinese Medicine, and some institutes of the Chinese Academy of Sciences. And we have the Chinese Academy of Military Sciences, which is of excellent performance in emerging infectious diseases. They played a major role in

SARS. We also need to provide more support to the extramural teams, basically the universities, hospitals, medical centers. Further, we need to support risk-taking projects.

**Q: Will there be additional funding?**

**Z.C.:** Hopefully! We have a mutual understanding with the Ministry of Science that we will not take a piece of their cake. But hopefully the Finance Ministry can support us by adding some more resources.

**Q: How will the interdepartmental council work?**

**Z.C.:** We have some preliminary ideas. To encourage fair play, we cannot say that all the teams at these institutions should be supported. We need to select centers of excellence. The extramural program will be mainly based on a call for proposals to university research teams and medical centers. But we must have guidelines. My idea is a combination of bottom-up and top-down approaches. For a country like China, we need sometimes the top-down approach, particularly for issues like food safety and emerging infectious diseases.

**Q: Have concerns about food safety been resolved to your satisfaction?**

**Z.C.:** Not yet. The overall level has been increased, I have to say. We have evidence that food-borne disease has declined over the past several months. Now we need a long-term mechanism. And we need a quicker

response. Capacity building for detection and information gathering and dissemination, an early warning system—all these things are very important. The future council will be dealing with these issues, and we need to mobilize investigators. So sometimes we need the top-down approach.

**Q: What lessons have been learned since the SARS outbreak?**

**Z.C.:** In the health care system, we need a concept and structure for crisis management. This is the lesson we learned. Of course, at large, we need to balance economic growth with social development. Our leaders' outlook of scientific development was initiated just after SARS. So in one sense, SARS incubated this concept.

**Q: During the SARS outbreak, government officials pressured researchers not to report data. Is the atmosphere better now?**

**Z.C.:** Transparency is really the key issue. I get a daily report on infectious diseases and public health emergencies nationwide through an Internet-based reporting system. We get reports directly from regional centers for disease control. They don't need to get approval from local authorities.

We now have the biggest Internet-based disease-reporting system in the world. We are extending it to other areas, to cover chronic illnesses. We need transparent policies and open reporting of major diseases.

whereas others say a heavy workload will make it difficult to do more than the minimum. Although details of the interactions have yet to be worked out, several investigators mentioned the possibility of two-way exchanges between KAUST faculty and students and members of their labs in addition to guest lectures, workshops, and symposia.

Despite the generous funding and minimal requirements, only 38 of the 60 institutions took up KAUST's offer, and only two-thirds of those submitted the maximum of two proposals per school.

Physical chemist Bengt Nordén, 63, of Chalmers University of Technology in Göteborg, Sweden, says university officials debated whether to participate at all before submitting his winning proposal for \$10 million. "The laws and culture of Saudi Arabia are somewhat controversial, and it was not



**Mixing oil and money.** Sweden's Bengt Nordén and Italy's Anna Tramontano are part of the first class of KAUST grantees.

obvious that we should say yes," he explains. "But after reading about their commitment to Western standards of academic freedom, including treating men and women equally, we decided that even if we don't agree with every government policy, it is better to communicate than to not communicate."

Anna Tramontano, a 50-year-old computational biologist at the University of Rome, "La Sapienza," who will receive \$5 million, says she had "no concerns about participating, because science shouldn't consider anything else" besides the quality of the research to be carried out. Although she sees her selection as "a signal" that the Saudi government respects the contributions of women, what really excites her is the opportunity to apply vastly increased computing power to comparative analyses of the multiple human genomes that will soon be available. "I never thought my proposal would be chosen, but it was fun to think about what I could do. And now I have the chance."

In the coming weeks, KAUST will announce the winners of two other competitions, for large university-based research centers and for postdoctoral fellowships. Officials expect to make at least two additional rounds of GRP grants, although the pool of eligible universities may vary.

—JEFFREY MERVIS