

► announced a rise in R&D tax credits (from 11% to 12%) in the budget.

The industrial strategy picks out specific areas on which to splash the cash. In particular, it identifies four ‘grand challenges’ in high-tech fields: artificial intelligence (AI) and big data; clean growth; the future of mobility; and meeting the needs of an ageing society. These areas will benefit from an additional £725 million over the next 4 years from the Industrial Strategy Challenge Fund (ISCF) — a cash pot that has allocated £1 billion since its launch last year. Meanwhile, £45 million will be spent to support more PhD students in AI and related

disciplines, increasing numbers by at least 200 places a year by 2020–21.

Other measures likely to directly affect academic scientists include a promised boost to a stream of funding that is allocated directly to universities, and spent at their discretion. This funding is crucial for blue-skies and basic research, but has remained largely unchanged since 2010. An unspecified fund is also promised to support multi- and interdisciplinary research: an idea proposed in a 2015 review by Nobel laureate Paul Nurse.

The strategy mentions a plethora of technology-based schemes, including unspecified

‘sector deals’ with industry to drive productivity in areas such as the life sciences. It is likely that the government will not have enough capacity to manage them all internally, says Kieron Flanagan, a science-policy researcher at the Alliance Manchester Business School, UK. Flanagan thinks this will ultimately put greater responsibility into the hands of UK Research and Innovation (UKRI), an organization that from 2018 will consolidate the activities of nine existing UK funding agencies. If the organization ends up steering the direction of more industrial R&D, “it makes UKRI a uniquely powerful beast”, he says. ■

HEALTH

China to ease regulations on traditional medicine

Scientists fear plans to abandon clinical trials of ancient remedies will put people at risk.

BY DAVID CYRANOSKI

Support for traditional medicine in China goes right to the top. President Xi Jinping has called this type of medicine a “gem” of the country’s scientific heritage, and promised to give alternative therapies and Western drugs equal government support. Now the country is taking dramatic steps to promote these cures even as researchers raise concerns about such treatments.

From early next year, traditional Chinese medicines (TCMs) may no longer be required to pass safety and efficacy trials in humans in China. Draft regulations announced in October by the China Food and Drug Administration (CFDA) mean traditional medicines can skip such costly and time-consuming trials as long as manufacturers prepare ingredients using essentially the same method as in classic Chinese formulations. The State Administration of Traditional Chinese Medicine and the CFDA will compose a list of the approved methods.

The Chinese government has been forcefully promoting TCMs as an alternative to expensive Western drugs. Doctors of Chinese medicine have welcomed the new policy, saying that it will make it easier for companies that produce such medicines to get drugs approved and make them available to patients. Lixing

“Few doctors would dare to publicly criticize traditional Chinese medicines.”

Lao, director of Hong Kong University’s School of Chinese Medicine, says that although traditional medicines will no longer need to go through clinical trials, the CFDA will still require remedies to undergo preclinical pharmacological testing and drug-toxicity studies in animals or cells to gain approval.

But scientists say that safety concerns continue to plague the industry, and that minimizing clinical-trial requirements could put more people at risk. On 23 September, the CFDA recalled batches of two injectable

TCMs after about ten people fell ill with fevers and chills.

Less than a month later, on 18 October, researchers in Singapore and Taiwan published a study in *Science Translational Medicine* linking liver cancer to aristolochic acid, an ingredient widely used in traditional remedies¹. Lead author Steven Rozen, a cancer-genomics researcher at Duke-NUS Medical School in Singapore, is convinced that aristolochic acid contributed to the mutations in the cancer cells, but says it’s harder to determine to what extent it caused the tumours.

Aristolochic acid has also been linked to cancers of the urinary tract and can cause fatal kidney damage^{2,3}. Rozen says that it is still in common use, despite warnings from the US Food and Drug Administration that it is associated with kidney disease. “It would be a good time to reassess regulations” of aristolochic acid, he says.

Lao sees people take remedies containing aristolochic acid every day, and says it should not cause problems if taken “moderately and



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Some formulations used in traditional Chinese medicines have been developed over thousands of years.

to treat diseases”, rather than as a regular supplement. He says more research is needed into how to ensure the safe use of the potentially toxic substance. Overall, Lao is not concerned about safety issues with traditional medicines because “unlike Western drug development, these herbal formulas have been used for hundreds and thousands of years”, he says.

But Li Qingchen, a paediatric surgeon at the Harbin Children’s Hospital and a well-known critic of TCMs, says the recent recalls of remedies show that current safety measures aren’t adequate. He says doctors need to inform the public about some of the dangers associated with traditional medicines, but that most are unwilling to speak out against them. “Few doctors would dare to publicly criticize TCMs,” he says. Li thinks that the government’s promotion of TCMs will make it harder for scientists to criticize the drugs “because the matter gets escalated to a political level and open discussions become restricted”.

CRITICISM MUTED

With strong government support for the alternative-medicines industry, Chinese censors have been quick to remove posts from the Internet that question the efficacy of TCMs. On 23 October, an article on a medical news site that called for closer attention to be paid to the risks of aristolochic acid was removed from social-media site WeChat. The story had been viewed more than 700,000 times in three days.

Debate over TCMs has been silenced before in China. Last year, a Beijing think tank — the Development Research Center of the State Council — proposed banning the practice of extracting Asiatic black bear bile, another common ingredient in TCMs. The think tank’s report questioned the remedy’s efficacy and suggested using synthetic alternatives. It was removed from the think tank’s website after the China Association of Traditional Chinese Medicine, which supports the

development of TCMs, called it biased and demanded an apology.

As well as reducing regulations for TCMs, the Chinese government has made it easier for someone to become a doctor of traditional medicine and for hospitals that use the approach to open. Since July 2017, students studying traditional medicine no longer need to pass the national medical exams based on Western medicine. Instead, traditional-medicine students can attend apprenticeship training and pass a skills test. And practitioners who want to open a clinic no longer need approval from the CFDA. They need only register with the agency.

The government’s ultimate goal is for all Chinese health-care institutions to provide a basic level of TCMs by 2020. A road map released in February 2016 by the State Council, China’s highest administrative body, plans to increase the number of TCM-licensed doctors to 4 per 10,000 people, an increase from fewer than 3 practitioners per 10,000 people. The government also wants to push TCMs’ share of pharmaceutical sales from 26% to 30% by the end of the decade. ■

1. Ng, A. W. T. *et al. Sci. Transl. Med.* **9**, eaan6446 (2017).
2. Vanherweghem, J.-L. *et al. Lancet* **341**, 387–391 (1993).
3. Lord, G. M. *et al. Lancet* **358**, 1515–1516 (2001).

CORRECTIONS

The News story ‘Hungary rewards success’ (*Nature* **551**, 425–426; 2017) understated the funding for the Hungarian Brain Research Programme. It received 18.5 billion forints, not 18.5 million. And the News story ‘Science scrambles after storm’ (*Nature* **551**, 282–283; 2017) erred in its description of karst. Karst is not a type of rock formation, but a variety of landscape formed by the erosion of rock.