

Japan declares five-year plan to double genome research funds

[TOKYO] The Japanese government is to step up support for its genomics industry, including a five-year plan to double spending on genome-related research and a plan to decode 30 per cent of human gene sequences by 2001.

The strategy was announced on 13 July by five science-related ministries (see *Nature* 400, 305; 1999). It will focus on analysing the human genome and creating a database of single-nucleotide polymorphisms (SNPs) in the Japanese population, which may lead to new drugs and diagnostic techniques.

The government also plans to create national centres for genomics research by 2001, and has pledged to expand its support for venture businesses. The latter will come through a scheme similar to the US programme Small Business Innovation Research, which funds small businesses carrying out innovative research with commercial potential.

The plan is in line with the government's 10-year programme for producing a 25-fold expansion in Japan's biotechnology market (see *Nature* 397, 554; 1999). That programme is aimed to create a market worth ¥25 trillion (US\$213 billion) and to help create 1,000 start-up companies by 2010.

The move also reflects a feeling among Japanese researchers and industry that Japan's biotechnology research, particularly its genome projects, is lagging severely behind those in the West (see *Nature* 399, 96; 1999).

For example, Japan's contribution to the Human Genome Project accounts for just 8 per cent of the total effort, and, according to the Ministry of International Trade and Industry (MITI), Japan's annual genomics spending is ¥560 billion, less than a quarter of that of the United States.

The government plans to inject ¥2 trillion over the next five years, bringing spending on genomics to at least 0.2 per cent of the country's gross domestic product.

Ministries involved include the Science and Technology Agency, MITI, the Ministry of Education, Science, Sports and Culture, the Ministry of Health and Welfare, and the Ministry of Agriculture, Forestry and Fisheries. The ministries will seek appropriations in this year's second supplementary budget, to be compiled in the autumn.

Japan's partners in the Human Genome Project are accelerating their sequencing effort in an attempt to sequence 10 per cent of the human genome in a 'working draft' by 2001. Japan is increasing its effort to develop technologies in functional genomics, particularly through the use of full-



Population genetics? Japan plans a database of the nation's single-nucleotide polymorphisms.

length human complementary DNA.

According to MITI, which oversees Japan's cDNA project (see *Nature* 398, 644; 1999), the aim is to have sequenced 30,000 cDNA clones by 2001. This would account for a third of expressed human genes. The project is led by Tokyo University's Institute of Medical Sciences and Japanese companies, with the goal of creating a central

repository of cDNA clones for medical and research applications.

These data will be used for the SNP programme, which aims to map 100,000–150,000 SNPs within two years. SNPs in coding sequences will be studied, as these are thought to be more likely to have functional significance than random SNPs.

The SNP programme would become the first genome project to be carried out on an interministerial level. In the past, such efforts have been criticized as being badly organized, with ministries carrying out individual genome projects.

The Science and Technology Council, Japan's principal science policy-making body, is calling for the creation of three national research centres focusing on applied genomics research, stem-cell research and plant genome research.

Although the government's biotechnology strategy promises some support for agrobiotechnology, the goal of sequencing the rice genome by 2008 remains unchanged.

"The Rice Genome Sequencing Project is pretty low on the priority list under the government's new biotechnology strategy," says an official from the agriculture ministry, which leads the project.

Asako Saegusa

UK ignored BSE vaccine advice, inquiry told

[LONDON] Warnings from scientists in the late 1980s that vaccines might transmit bovine spongiform encephalopathy (BSE) to humans were not passed on by the UK government or its safety committees, despite assurances to the contrary.

The news was revealed in evidence to the inquiry into Britain's outbreak of BSE, or 'mad cow disease'. The inquiry has been hearing from the scientists who first advised the government on the implications of the outbreak.

A working party headed by Sir Richard Southwood, former professor of zoology at the University of Oxford, faced questions about its approach to risk evaluation, management and communication.

Members of the working party said they did not act under government instructions and that their report had not been delayed to avoid embarrassment. The group sought to be "fiercely independent", said Southwood.

But he admitted that it had been cautious over the wording of its advice on the safety of vaccines, concerned that the public might boycott vaccination programmes.

The working party communicated its

concerns to the Committee for the Safety of Medicines and the Department of Health. But the committee seems to have disregarded the advice, and the department failed to pass warnings to pharmaceutical companies.

In contrast, the committee and government officials seem to have been reassured by the working party's use of the word 'remote' to describe the likely transmission of BSE to humans. But Southwood said this had not been intended by the authors.

The working party also pointed out that it considered the potential for transmission of BSE sufficiently serious to write to the Ministry of Agriculture, Fisheries and Food with interim advice after its initial meeting.

In a written statement to the inquiry, working party member Sir Anthony Epstein emphasized that "the existing basic scientific information was patchy", adding that "the sudden unexpected emergence of BSE, at a time when work in the field was minimal and experts few, provides a grim warning of the dangers of letting many aspects of basic science wither for lack of funds".

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