

Homeless, but heading for success

It may be homeless, but Taiwan's National Health Research Institutes (NHRI) is having a profound effect on medical research on the island. In its seven-year existence it has encouraged networking among Taiwanese scientists and stimulated other government organizations to review the way they fund research.

The NHRI has its roots in a competitive extramural grant programme set up just over seven years ago to enhance the standards of medical research throughout Taiwan. The programme has achieved a modest scale of about NT\$300 million (US\$10 million) a year that belies the extent of its impact.

Cooperative movement

The NHRI has been active in networking with top medical organizations throughout Taiwan to help raise standards of research and clinical practice. It has clinical research wards with research beds and associated laboratories at Taipei Veteran General Hospital and the National Taiwan University Hospital. It has also started the Taiwan Cooperative Oncology Group, a multi-institutional network for cancer clinical trials in which the Institute of Biomedical Sciences and nine teaching hospitals throughout Taiwan are participating.

NHRI grants have set new standards in Taiwan. They are peer-reviewed internationally and have a high rejection rate of 70–80%. Around 40 grants are awarded annually, each worth US\$100,000–300,000 per year for up to five years.

By contrast, the National Science Council accepts over 70% of the roughly 15,000 grant applications it receives. As a result, it can only supply piecemeal, short-term awards that are about a tenth the size of an NHRI grant. The council has now introduced frontier research programme grants, to provide more substantial, long-term

support to outstanding work.

The most ambitious component of the NHRI is its intramural programme. This has grown to 460 personnel including affiliated institutions and has an annual budget of about US\$32 million. Yet the organization still does not have a place it can call home.

The lodger

Since 1995, the NHRI has been "temporarily" housed on three floors of the Institute of Biomedical Sciences at the Academia Sinica, where Cheng-wen Wu, NHRI president, used to be head. Many personnel are dispersed at six other locations.

Wu has inspected various plots of land for the NHRI over the past few years, but it was only early this year that he settled on a 32-hectare plot south of Taipei, near the Hsinchu Science-based Industrial Park. Wu hopes to move the NHRI there by 2003 and house up to 1,000 staff in three research buildings in the first phase of development.

Some top government advisors fear the location is too isolated, but others see potential for the NHRI to interact with universities in the Hsinchu area. In particular it could forge links with the National Tsinghua University, which has ambitions to strengthen its medical research but lacks a research hospital.

New directions

Wu has found directors for eight of the ten divisions planned for the NHRI: clinical research; biotechnology and pharmaceutical research; biostatistics; cancer research; molecular and genomic medicine; health policy research; environmental health and occupational disease; and biomedical engineering. But he is still searching for heads of gerontology, and mental health and drug abuse. Some government officials have criticized Wu for taking so long to fill these posts. Although Wu says he is determined to wait

until he can find good leaders.

But recruitment has become more difficult in recent years. Fewer students in Taiwan are going overseas to gain valuable experience in western research institutions and fewer ethnic Chinese scientists in the West want to take up jobs in Taiwan because of the political instability in relations with the Chinese mainland. "They were enthusiastic ten years ago about Taiwan, but now people are worrying about the continuous threat from China," says Wu.

Working together

Nevertheless, Wu has managed to recruit some top leaders, such as Ming-chu Hsu, a former research director of oncology at Hoffmann-La Roche, who now not only heads the Division of Biotechnology and Pharmaceutical Research but also leads a national programme for those disciplines.

She reports no difficulty in recruiting staff for her division, with applications from over 400 PhDs from the United States, Germany, Eastern Europe and China. But she agrees that the Taiwan still needs experienced leaders.

A key aim of the NHRI is to draw together the limited numbers of researchers in Taiwan, who tend to work in isolated groups. "There are only 3,000 to 4,000 biomedical researchers in the whole of Taiwan, which is about the same as in one large western pharmaceutical company," says

Wu. So it is essential for them to join forces if they are going to have an impact.

Hsu reports success on this front. In just one year, she has managed to bring together 40 synthetic chemistry and natural products laboratories throughout Taiwan to create a chemical library that will be crucial in the search for novel drugs. "It wasn't so difficult as some people suggest. We just had to go and talk to them and bring them together," she says.

Similarly, during an enterovirus pandemic that caused more than a million cases of hand, foot and mouth disease in Taiwan in 1998, the NHRI and three universities pulled together to form a core laboratory that isolated the virus responsible and developed a vaccine. The results were reported in the *New England Journal of Medicine* (341, 929–935; 1999).

But the road to success has not been easy for Wu. In one of his most exasperating experiences, he was sued after firing a staff member found to be lacking in a review. It took three years to settle the case in Taiwan, where such removal of an academic was unprecedented. Despite this, the NHRI is beginning to have a significant effect, and once it has a permanent home it will be ready to push medical research, clinical practice and pharmaceutical research to greater heights in Taiwan. **D.S.**

NHRI <http://www.nhri.org.tw>

Taiwan Cooperative Oncology Group <http://www.nhri.org.tw/cancer/en/ocog.htm>



Ming-chu Hsu: bringing researchers together for drug research.