3 of 4 grants to focus research on ageing

Fourth project awarded funding of up to $10m to work on hearts

By Liaw Wy-Cin

SOMETIMES a heart attack is just the beginning of a patient’s problems. Often, the organ is permanently damaged, leaving a patient bedridden or causing him to gasp for air after a simple walk in the park. But one day, doctors might be able to repair that damage by growing replacement heart cells with samples of a patient’s skin.

One team of scientists here has just been awarded up to $10 million to help make that ambitious goal a reality.

The team from the National Heart Centre will start by testing its techniques on animals, and hopes to create viable heart tissue for humans in about five years. Yesterday, three other groups of scientists were each also awarded research grants of up to $10 million – among the biggest in Singapore – for work related to ageing.

The grants, from the National Research Foundation (NRF), come as Singapore’s population is poised to become one of the oldest in the world; by 2020, one in four Singaporeans will be above the age of 65.

These four projects were selected from 48 contenders looking for grants from the NRF, which sets the national direction for research and development.

“We want to fund good R&D that will continue to help us understand the process of ageing and find ways that can allow all of us to live our lives more productively,” said Dr Francis Yoh, the chief executive of the NRF.

By 2020, the average life span will be extended to 97 for women and 92 for men, the NRF said.

All areas of science and technology were open to the grant call, including robotics and nutrition.

By chance, the four winners were from the biomedical sphere, said American professor James Foley, one of seven people who selected the winners.

Prof Foley said: “These four research proposals were selected because they were good ideas, their scientific methodologies were well thought out and they had the potential to make a lot of difference.”

This is the first time this grant has had a theme.

The four projects deal with failing hearts, muscle loss, stroke and neurodegenerative disorders that plague the elderly.

The grant is one of the NRF’s eight major programmes to push research and development here.

The organisation has been allocated $5 billion over five years. Set up in 2008, it has so far committed $4 billion.

The chairman of the Council for Third Age, which promotes active ageing, Mr Gerard Fook, said he was excited that Singapore had committed so much to scientific efforts that deal with ageing issues.

“Even with the best efforts, there will still be challenges that we will face physically. We hope that Singaporeans can live full lives.

“Socio-economic issues are just one aspect of ageing. They cannot exist on its own without science and technology,” he added.

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The teams and their winning ideas

Led by Dr Stephen Cohen, 52
- Head of the Temasek Life Sciences Laboratory and a biology professor at the National University of Singapore (NUS).
- The team is trying to programme skin cells into heart cells and transplant them into animals. If the process proves effective, it could be used to replace damaged heart cells in humans.

Led by Professor Peter Wong, 55
- Head of pharmacology at the Yong Loo Lin School of Medicine at NUS.
- The team will study the most common cause of stroke in Asians – the narrowing of blood vessels in the brain. Little is known about the narrowing process, because the bulk of research into stroke is done in the West, where the problem is much less common.

Led by Associate Professor Ravi Kambadur, 47
- School of Biological Sciences at the Nanyang Technological University.
- The team is trying to reprogramme skin cells and turn them into muscle cells, in a bid to combat frailty in the elderly. Between the ages of 50 and 80, most people lose about one-third of their muscle mass.

Led by Dr Winston Shim, 36
- National Heart Centre.
- The team is trying to take skin cells from heart patients, reprogramme them into heart cells and transplant them back into animals. If the process proves effective, it could be used to replace damaged heart cells in humans.

Who is getting money for their research

The National Research Foundation (NRF) was given a budget of $3 billion over five years when it was set up in 2006. Part of the Prime Minister’s Office, it was charged with setting the national direction for research and development.

It has so far handed out grants to a mix of private companies and universities and invested in infrastructure. This is where its money has gone so far:

- National Framework for Innovation and Enterprise: $360 million
- Campus for Research Excellence And Technological Enterprise (CREATE) Physical Campus: $360 million
- Campus for Research Excellence And Technological Enterprise (CREATE) Research Centres: $1 billion
- Competitive Research Programme Funding Scheme: $250 million
- NRF Research Fellowship: $160 million
- Research Centres of Excellence: $750 million (NRF provides $500 million while the Ministry of Education (MOE) provides $250 million)
- Environmental and water technologies (clean water) research: $330 million
- Environmental and water technologies (clean energy) research: $170 million
- Biomedical sciences translational and clinical research: $550 million

Total (excluding the MOE contribution): $4.18 billion