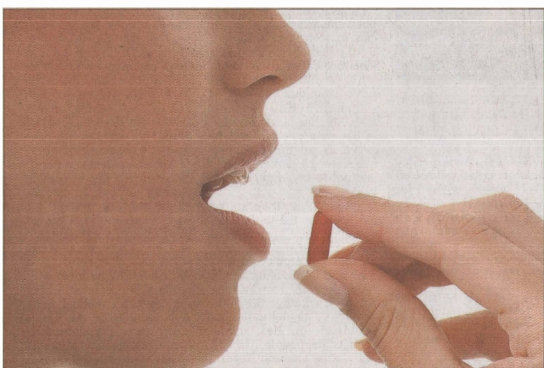


High-tech bench partners

Partner-swapping is common among A*Star's 2,300 research engineers and scientists. Such trysts, sometimes with multiple partners in various disciplines, have spawned over 160 projects. Chang Ai-Lien looks at some of them.



PHOTOS: ISTOCKPHOTO

Pill Camera

» **What:** An intelligent capsule which can move on its own within the body. It sends video footage and images wirelessly, allowing doctors to do immediate diagnosis. It can also follow instructions on where to collect tissue samples for biopsy, or deliver

drugs to specific areas.

» **Who:** Over 30 researchers from the Institute of Microelectronics (IME), Institute for Infocomm Research (I2R), Data Storage Institute (DSI) and Nanyang Technological University (NTU), together with doctors, are working on the project, which started this month.



Loo-Doc

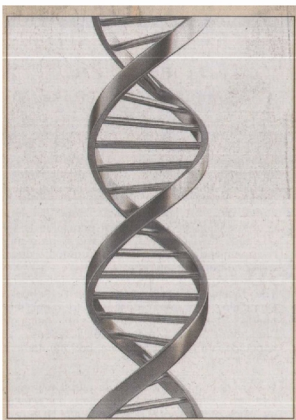
» **What:** This home-based diagnosis system detects or tracks illnesses such as diabetes, based on chemicals like proteins or glucose in the urine. When a patient uses the toilet, samples are collected and analysed automatically, and results are sent wirelessly to the doctor. A working prototype is expected by April next year.

» **Who:** Five researchers from I2R, NTU, the Institute of Molecular and Cell Biology (IMCB), and the Institute of Materials Research and Engineering (IMRE).

Genome sequencing

» **What:** With a copy of a patient's genome – the chemical letters that spell out what makes each person unique – a doctor could look at which illnesses an individual is prone to, and design the best treatments or medical plans specifically for him. Such technology is already available, but the stumbling block is cost. Researchers here have joined an international race: to be able to sequence a human genome for less than US\$1,000, within a week. This would make genome mapping affordable for the masses.

» **Who:** Helmed by two A*Star heavyweights: Genome Institute of Singapore chief Edison Liu, and IME head Kwong Dim-Lee. Nine people are on the team, which also includes researchers from SIMTech – the Singapore Institute of Manufacturing Technology.



Clean energy



PHOTO: ROLLS-ROYCE

» **What:** Fuel cell technologies offer some of the cleanest and most efficient potential energy sources, by converting the chemical energy of a type of fuel (typically hydrogen) into electricity. Researchers here are working in diverse areas ranging from catalysis and electrochemistry, to the design and manufacturing of fuel cell systems.

» **Who:** A*Star's fuel cell programme brings together an international team of over 20 researchers from Institute of Chemical and Engineering Sciences (ICES), Institute of High Performance Computing (IHPC), IMRE and (SIMTech). Industry partner Rolls-Royce Fuel Cell Systems is working with the research institutes on technology development.