A*Star — for your eyes only

S’pore outfit ready to showcase drug-infused contact lenses and bird flu test kit

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IN AS little as six months, a made-in-Singapore detection kit for bird flu could be deployed to hospitals and airports to tackle the disease should a pandemic occur.

This portable kit — created by scientists at the Agency for Science, Technology and Research’s (A*Star) labs — has matchbox-sized chips that detect the disease in just one hour, compared with current procedures that take up to three hours.

Developed at a cost of $120,000, the diagnostic kit produces results comparable with industry standards, but at a much lower cost, said its developers from A*Star’s Institute of Bioengineering and Nanotechnology (IBN).

Said Professor Jackie Ying, Executive Director of IBN: “Users do not need special skills to operate the chip. Hence, it can be easily used by doctors and healthcare workers to detect diseases and viruses at convenient locations such as clinics and airports, instead of hospitals. Our biochip has great potential to be used in the management of pandemic and healthcare issues.”

SCIENTIFIC GEMS: Drug-infused contact lenses that release medication slowly.

To test its efficacy, the kit will undergo clinical trials at the National University Hospital. It can also be tweaked to analyse diseases such as Sars, dengue, and cancers by using blood, bodily fluids, or tissue samples.

This biotech innovation and 29 others were exhibited on Wednesday at IBN’s first technology showcase, which was a gathering of scientists and 60 representatives from potential investors.

The three-year-old IBN — the youngest institute at A*Star — does research in six areas, which include cell and tissue engineering, artificial organs and implants as well as novel ways to deliver drugs, proteins and genes. Some 40 per cent of its researchers are foreigners, while 38 per cent are locals. Singapore permanent residents make up the rest.

Said Prof Ying, “Some of our research cuts across fields. For example, tissue engineering requires imaging technologies, so we drive each field, allowing us to create more novel ideas for innovative research.”

Some of the ideas, such as contact lenses loaded with medicine, are not only garnering interest from the medical community, but from investors as well, she also said. The drug-infused contact lens, for instance, is an interesting way to deliver medicine to the eyes. They can be used to treat eye conditions such as glaucoma and are a leap from conventional eye drops, which offer only an initial burst of medication and have a poor five per cent absorption rate.

In comparison, these novel lenses — which could hit the shelves in two or three years’ time — are able to achieve sustained drug release and a 100 per cent absorption rate over eight hours, its inventors said. It can even be used to test the sugar levels of diabetic patients — if sugar levels are above normal, the lens will turn a different colour, indicating that it is time for an insulin jab.

“Spin-off companies can be formed to commercialise each of these applications. The technology can also be licensed to local and multinational companies for the development of novel contact lenses or eye products,” said Prof Ying.

The duo has invested some $2 million over the last year to boost research collaborations via their UK-Singapore Partners In Science programme. So far, they have awarded 50 grants. Also in the pipeline are 25 projects, most of which involve tapping into Singapore’s National Grid. The grid is a shared network of digital resources that can be used for education, research and commercial purposes. — CHANNEL NEWSASIA

CLINICAL WORK IN ASEAN VALUABLE

Singapore’s investments into biomedical facilities and talent may be commendable, but experts say it needs to tap into the fieldwork experience of its South-east Asian neighbours.

“Doctors need to see diseases regularly to improve their clinical knowledge. Singapore, with a limited population, can’t develop skills sufficiently in many diseases which may be relatively rare but may become important in the future,” said Jeremy Farrar, director of the Hospital for Tropical Diseases at the Oxford University Clinical Research Unit. He was speaking at the inaugural UK-Singapore Conference, a gathering of policymakers and experts.

A*Star is working together with the British High Commission in Singapore to encourage more such regional discourse.