Singapore scientists license lab-in-a-cartridge

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Rapid, easy and affordable tests for cancer and avian flu and other infectious diseases move a step closer to patients as DYAMED Biotech Pte Ltd licenses a unique all-in-one automated diagnostic system called MicroKit from Singapore's Institute of Bioengineering and Nanotechnology (IBN).

Dyamed will set up a spin-off company to develop and produce a range of new diagnostic products as part of its agreement with Exploit Technologies Pte Ltd (ETPL), the commercialization arm of Singapore's A*STAR (Agency for Science, Technology and Research).

IBN is one of the research institutes under A*STAR.

Dyamed, established by Theodore and Rose Tan in 1998 to distribute quality medical diagnostic devices in Asia Pacific, will spin off SG Molecular Diagnostics to develop a range of diagnostic devices based on the MicroKit.

The company expects to roll out a molecular diagnostic real-time PCR platform called "MicroKit AIO" as its first product for the global market by 2010.

Theodore Tan, Dyamed's Managing Director, said, "We are deeply privileged to license this exciting technology which has the potential to make the mass diagnosis of a whole host of diseases faster, better and cheaper. With the MicroKit platform, we hope to make the diagnosis of infectious diseases and cancer more timely and widespread, thus giving

patients a much higher chance of combating their afflictions."

Cancer patients are among those who stand to benefit from the MicroKit's sensitive and accurate diagnostic capabilities, which enable early-stage disease detection from raw biological samples.

IBN Executive Director Jackie Y. Ying, who led the scientific team that developed the MicroKit, added, "Early detection of diseases such as cancer or avian flu is critical to enhancing a patient's chances of survival. The treatment of diseases at the early stages is usually more effective and has a greater potential for improving the long-term health of the patient.

"Our portable and automated MicroKit is also easy to operate and may be used by non-clinical personnel for mass health screenings at strategic locations, such as airports, to contain epidemics of infectious diseases like H5N1 avian flu," added Ying, who along with IBN scientists Guolin Xu, James Hsieh and Daniel Lee developed the MicroKit.

IBN's device is able to handle a wide variety of samples, including tissues and body fluids, and can perform automated gene extraction in just six minutes and gene detection within an hour, enabling substantial cost and timesavings.

Disease detection with IBN's MicroKit is much faster than conventional laboratory testing that requires 1 to 24 hours to complete.

Another key feature of IBN's MicroKit is that all the molecular diagnostics processes are carried out in a self-contained, compact cartridge that is preloaded with reagents, instead of complex, time-consuming and labor-intensive laboratory processes.

The disposable self-contained cartridge for individual biosample analysis

avoids costly laboratory inaccuracies caused by cross-contamination and human error.

Ying added, "By partnering with Dyamed, we hope to provide wider access to affordable, accurate and effective tests for early diagnosis for cancer patients, as well as infectious disease screening."

Clinical trials are currently being conducted for the prototype MicroKit device.

ETPL Chairman Boon Swan Foo said, "The signing of this license agreement bears good testimony to the excellent market potential of A*STAR's technologies. Exploit Technologies has recognized MicroKit's potential at an early stage. We are happy to see the fruits of our incubation efforts in the form of a platform technology, upon which Dyamed can develop a range of profitable diagnostic devices. I would also like to congratulate Dyamed for its foresight and business acumen to spin off SG Molecular Diagnostics despite the bleak economic outlook. The ability to spot market opportunities and the courage to launch a new business in the midst of the current world economic turmoil is definitely a display of great technopreneurship, which, incidentally, is not lacking in Singaporeans. We will continue to engage Singapore companies like Dyamed to help give birth to more Singapore blockbusters."

Source: Agency for Science, Technology and Research (A*STAR), Singapore