



SANWA BIOTECH LIMITED

Bold Advances

WILLIAM YIM believes his company can be a driving force for change, challenging norms through solutions that save lives. Here is one among more to come.

Hong Kong Science Park houses many groundbreaking developments that go on to shape the future. Among these breakthroughs is the ALiA, a revolutionary portable rapid diagnostic platform created by noted inventor William Yim, Chairman of Sanwa BioTech Limited.

Yim founded the company in 2012, on the premise of finding solutions to time-critical medical situations. "Through connections in the high-tech sector of manufacturing and research & development, I've found many technologies that can be implemented for sound business," says Yim. "In my definition, a sound business means sustainability: large market demands and room for innovation. Biomedical sciences and healthcare, without a doubt, are areas I focus on because of their contribution to increasing the average human lifespan and fighting emerging disease outbreaks from animal viral transmissions.

"I came across a few good background IPs in Europe that could be used in one of my inventions in rapid influenza detection. We developed a solution: a point-of-care system utilizing one-time use microfluidic biomedical chips. In terms of market perspective, this is a sound business, while greatly promoting disease control."

The forefront

"According to WHO, we've had a new threatening disease every year in the last 30 years; 70 percent of them were spread by animals. A rapid detection point-of-care detection system, able to address different stages of disease outbreaks (including both animal and human disease detection), will be in high demand. Our solution consists of a microfluidic microchip, able to provide multiplex detection. This is economical and scalable, perfect for meeting market



**Sanwa BioTech Limited Chairman
William Yim.**

challenges and demands."

Sanwa BioTech's rapid detection system and kits might be developed for animal immunodiagnostics (for swine and avian influenza, porcine reproductive and respiratory syndrome (PRRS), bovine foot-and-mouth disease (FMD), classical swine fever (CSFV), companion animal diseases found in cats, dogs, etc.), as well as food safety tests (for allergens and melamine) and clinical detection (for infectious diseases like STDs, tropical diseases like dengue and Japanese encephalitis, and influenza).

Different techniques such as polymerase chain reaction (PCR), enzyme-linked immunosorbent assay (ELISA) or immunofluorescence assay are already being used for diagnostics but all these techniques involve lots of equipment, expert staff, at least two hours to work, and more reagents and samples. While other rapid in vitro diagnostic point-of-care devices have been developed, they are designed for different targets e.g. blood analytes and biomarkers for cancer. Their detection methods and sample requirements are also different.

In contrast, the ALiA (Array Based LED induced fluorescent ImmunoAssay platform) is all-inclusive, scalable, and

requires only basic training to use. It needs only a small volume of reagents and samples with minimal preparation. The device boasts high sensitivity for multiple targets, is portable, fast, accurate, and reliable.

"ALiA is a versatile diagnostic device in multiple fields including food safety and allergens diagnostics, livestock diagnostics and surveillance, companion diagnostics, and emergent diseases. This licensed lab-on-chip (LOC) platform with microfluidic IVD applications is specially designed for point of care health application (human-clinical diagnostics), cancer drug screening and diagnostics, and general healthcare. In term of functionality, it is able to detect direct or indirect infectious diseases rapidly, accurately and massively, especially for influenza A virus, subtypes H1N1, H3N2 and H7N9. Human lives can be saved, and massive animal culling can be avoided."

In with the new

Yim shares that existing, traditional practices in biomedical diagnosis, are commonly considered the 'best way' or 'good enough'. It takes much effort for new methods and innovations to be accepted or endorsed by the current medical sector, which is what he and his colleagues are precisely out to do.

"Our plan is to develop a total solution with the portable system together with a various types of disposable lab-on-chips. For each type of chip, a multiplex test panel will be developed according to different applications, and be made available at the choice of customers. This will require substantial effort on development. Right now we seek strategic partners and investors in order to accomplish business expansion and save lives." ■

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