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ASIA EDITION

Lucence advances Asian genomics with clinical-grade genome sequencing for Singaporeâ??s precision medicine programme

November 3, 2026 | News

Lucence brings together clinical genomics expertise with QIAGEN and Ultima Genomics, as Phase III expands to approximately 450,000 Singapore residents from 2027

LUCENCE

Lucence is bringing its clinical genomics expertise to Singapore's next phase of precision medicine, supporting a national effort to build deeper understanding of Asian genetic diversity and how it could shape more targeted approaches to health and disease.

Selected as one of two sequencing providers for SG-INSIGHT—a cohort under Phase III of Singapore's National Precision Medicine (NPM) programme—Lucence will support a phase involving approximately 450,000 residents, or nearly one in 10 Singapore residents. This marks a significant expansion in the scale and scope of Singapore's precision medicine effort.

Much of today's genomic knowledge has historically been developed from populations of predominantly European ancestry. Yet genetic differences across populations can influence disease risk and response to medicines, underscoring the importance of generating genomic evidence that better represents Asian populations.

Dr Tan Min-Han, Founding CEO of the Lucence Group, said: "Genetics is not one-size-fits-all. For precision medicine to work for people in Asia, we need evidence from Asian populations. Singapore offers a particularly valuable setting for this work. Our Chinese, Malay and Indian populations bring significant genetic diversity together within a single healthcare and research ecosystem, alongside longitudinal health information and established research infrastructure.

"The promise of genomics is that prevention can become much more personal. If we can better understand who may be pre-disposed to diseases such as cancer or cardiovascular and metabolic diseases, we can start thinking about prevention and healthcare in a much more individualised way."

Building Asian genomic capability at national scale

By studying genetic information alongside lifestyle and environmental factors in real-world clinical settings, the programme aims to deepen understanding of disease progression and treatment response, and build the evidence needed to support the safe and effective rollout of genetic screening within Singapore's public healthcare system.

Scale will be important to generating that evidence. Larger and more representative populations allow researchers to identify genetic associations that may be difficult to detect in smaller studies and build a more detailed picture of how genetic variation may influence health across different populations.

NPM Phase III builds on earlier phases that have progressively expanded Singapore's genomic knowledge. Phase I sequenced 10,000 Singaporeans across the Chinese, Malay and Indian populations, while Phase II expanded the programme to approximately 100,000 residents. Phase III will extend this further to approximately 450,000 residents.

Unlike Phase II, which focused on healthy individuals, Phase III will include patients across a wide spectrum of health conditions from Singapore's three healthcare clusters: NHG Health, National University Health System (NUHS) and SingHealth. Nearly one in 10 people receiving medical treatment and healthcare services may encounter the study through their routine care.

Bridging local expertise and global technology

Studying genomes at population scale can reveal patterns and associations that smaller studies may not capture. Delivering genomic information at this scale requires expertise across the entire sequencing workflow. To deliver SG-INSIGHT, Lucence is working with QIAGEN and Ultima Genomics.

The collaboration brings together complementary strengths across the sequencing workflow, combining QIAGEN's sample preparation technologies and Ultima Genomics' sequencing and bioinformatics capabilities.

Lucence will integrate these technologies within its clinical laboratory operations and oversee the end-to-end processes required to deliver the sequencing services. This includes providing the laboratory infrastructure, workflows and scientific personnel, as well as the regulatory and operational expertise required to generate the data in line with the programme's requirements.

Eric Goh, Head of Commercial Operations, Southeast Asia at QIAGEN, said: "We are thrilled to partner with Lucence and Ultima Genomics in supporting SG-INSIGHT, the flagship cohort for Phase III of Singapore's National Precision Medicine programme. Deploying our flagship QIAsprint Connect and QIAseq FX Library Kit in this national scale initiative highlights QIAGEN's commitment to providing reliable, automated and high-throughput sample to insight solutions that power next-generation population genomics."

Gilad Almogy, CEO of Ultima Genomics, said: "We are proud to support such an important national-scale clinical whole genome sequencing initiative and to partner with industry leaders Lucence and QIAGEN to enable clinical-grade, high-throughput germline whole genome sequencing. The selection of Ultima's sequencing technology reflects significant recent advancements to our platform, including the launch of our second-generation UG200 and Solaris 2.0 chemistry, which are expanding the potential for germline applications at scale.

"We look forward to partnering with Lucence and QIAGEN to support the PRECISE initiative. Looking ahead, Ultima continues to advance its sequencing and analysis capabilities to support clinical whole genome sequencing at population scale, including pangenome-aware analysis and paired-end sequencing, with both expected to be available by year-end 2026."

Translating genomic expertise into impact

Lucence brings a decade of genomic sequencing expertise to SG-INSIGHT. Over the years, it has applied these capabilities across precision medicine, with a strong track record in cancer genomics. The Group's proprietary next-generation sequencing technologies for genomic profiling are supported by its CLIA-licensed and CAP-accredited laboratory in Singapore.

Its proprietary AmpliMARK next-generation sequencing technology underpins its liquid biopsy capabilities, enabling the analysis of genetic information from circulating tumour DNA and RNA.

More recently, Lucence expanded into increasingly comprehensive approaches to genomic analysis. In March 2026, it embarked on a S$6 million research collaboration with A*STAR's Diagnostics Development Hub and the National Cancer Centre Singapore to develop a clinical-grade cancer profiling test using whole exome and whole transcriptome sequencing, together with artificial intelligence.

Dr Tan concluded: "My vision is for Singapore to help define the next generation of genomics, discovering how our differences influence cancer and diseases of ageing, and translating what we learn here into better precision health for Asia and the world."