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Precision Medicineâ??s Next Decade Will Be Defined by Multi-Omics and AI

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ACT Genomics Co-founder and CEO Dr. Hua Chien Chen explains how genomic profiling, AI and Asiaâ??s diverse clinical data could converge to make precision oncology more predictive, accessible and personalised by 2030.

As BioSpectrum Asia reports on the ground from BIO Asia–Taiwan 2026, being held from July 15–19 in Taipei, Taiwan, one message is becoming increasingly clear: Asia's next healthcare leap will depend not simply on generating more scientific innovation, but on translating it into clinical impact at scale.

Few areas illustrate that challenge more clearly than precision oncology. Despite significant advances in genomic testing, access, reimbursement, clinical infrastructure and the availability of population-specific data continue to determine how quickly these technologies reach patients.

In an exclusive conversation with BioSpectrum Asia during BIO Asia–Taiwan 2026, Dr. Hua Chien Chen, Co-founder and Chief Executive Officer of ACT Genomics Co., Ltd., shares his vision for the next era of precision medicine in Asia. Drawing on more than two decades of experience spanning cancer biology, genomics and drug discovery, Dr. Chen discusses the journey from genomic profiling towards multi-omics, the growing role of artificial intelligence in clinical decision-making, and why greater collaboration across Asia could unlock the region's vast potential in biomarker discovery and personalised cancer care.

For ACT Genomics, which became the first company outside the United States to receive FDA clearance for an NGS-based comprehensive tumour profiling assay, the ambition now extends well beyond genomic testing. Dr. Chen believes the convergence of genomics, proteomics, liquid biopsy and AI could fundamentally reshape cancer care—moving precision medicine from treating advanced disease towards a more predictive, preventive and personalised healthcare model by 2030.

Precision oncology adoption varies significantly across healthcare systems in Asia. In your view, what barriers still need to be addressed to make genomic testing a routine component of cancer care across the region?

In my view, precision oncology has made significant progress across Asia, but several key barriers still need to be addressed before genomic testing becomes a routine part of cancer care.

The first challenge is patient access. In many countries, genomic testing is not yet widely reimbursed, making affordability a major consideration. Access to advanced sequencing laboratories and molecular diagnostic services also varies considerably, particularly outside major metropolitan areas.

Second, we need to continue building clinical capabilities. Precision medicine is evolving rapidly, and clinicians need ongoing education to keep pace with new biomarkers, testing guidelines, and targeted therapies. At the same time, multidisciplinary support—including molecular pathologists, bioinformaticians, and Molecular Tumor Boards—is essential to help translate complex genomic data into meaningful treatment decisions. Genomic testing should also be integrated more seamlessly into routine clinical workflows with standardized testing pathways, timely turnaround times, and clear clinical reporting.

Another important area is strengthening the evidence and policy environment. While the clinical value of genomic testing has been well demonstrated globally, more real-world evidence from Asian populations is needed to support reimbursement decisions and broader clinical adoption. Harmonized regulatory frameworks and improved access to targeted therapies will also help maximize the clinical value of precision medicine.

Ultimately, precision oncology is about more than adopting new technologies. It requires collaboration across healthcare systems, clinicians, researchers, industry, and policymakers to build an ecosystem where genomic insights can be translated into better patient care. At ACT Genomics, we are committed to supporting this transformation through high-quality genomic testing, scientific collaboration, physician education, and continued innovation to help make precision medicine more accessible across Asia.

ACT Genomics became the first company outside the United States to receive FDA clearance for an NGS-based comprehensive tumor profiling assay. How has this milestone influenced your global strategy and strengthened confidence among healthcare providers and industry partners?

Receiving FDA clearance for our NGS-based comprehensive tumor profiling assay was a defining milestone for ACT Genomics. Beyond the regulatory achievement itself, it demonstrated that our technology, laboratory operations, and quality management system meet one of the world's most rigorous standards for analytical and clinical performance. For us, it was a strong validation of the quality and reliability that we strive to deliver every day.

This milestone has significantly strengthened confidence among healthcare providers. Physicians need to trust that genomic test results are accurate, reproducible, and clinically actionable because these results directly influence treatment decisions. FDA clearance provides an additional level of assurance, giving oncologists and pathologists greater confidence in incorporating comprehensive genomic profiling into routine clinical practice.

From a business perspective, FDA clearance has also supported our international growth strategy. It has enabled more meaningful discussions with healthcare institutions, regulatory authorities, and industry partners across different markets. For pharmaceutical companies, an FDA-cleared platform represents a trusted partner for precision oncology programs, translational research, biomarker development, and clinical trials, creating new opportunities for collaboration.

Equally important, the experience gained throughout the FDA review process has strengthened our capabilities in regulatory science and quality management. It provides a solid foundation as we continue pursuing market access and regulatory recognition in additional regions.

More importantly, this achievement reflects our long-term vision. While ACT Genomics was founded in Asia, our ambition has always been to deliver globally recognized precision medicine solutions. The FDA clearance has elevated our position from a regional genomic testing provider to a trusted global precision oncology partner. It reinforces our commitment to bringing high-quality molecular diagnostics, scientific expertise, and innovative technologies to clinicians, researchers, and ultimately patients across Asia and around the world.

Beyond genomics, ACT Genomics is expanding into proteogenomics and other advanced molecular approaches. How do you see multi-omics technologies reshaping precision medicine and cancer care over the next decade?

I believe the future of precision medicine lies in multi-omics, where we move beyond understanding what could happen based on a patient's genetic makeup to understanding what is happening in the disease at a given moment. While genomics identifies the genetic alterations that drive cancer, proteomics provides a real-time view of how those genes are expressed and functioning, offering a more comprehensive picture of tumor biology.

Over the next decade, integrating genomics with proteomics and other molecular technologies will enable more accurate patient stratification, improve prediction of treatment response, and uncover new therapeutic targets that genomics alone may not reveal. Rather than relying on a single biomarker, clinicians will be able to make decisions based on a comprehensive molecular profile unique to each patient.

I also see multi-omics playing an increasingly important role beyond treatment selection. It has the potential to improve early cancer detection, enable real-time monitoring of treatment response and disease recurrence, and support preventive healthcare by identifying individuals at higher risk before disease develops.

Artificial intelligence will be another key enabler, helping integrate these complex datasets into clinically actionable insights. Ultimately, I believe multi-omics will transform healthcare from a reactive model to a more predictive, preventive, and personalized approach. At ACT Genomics, we are investing in these technologies because we believe they represent the next generation of precision medicine and will help deliver better outcomes for patients worldwide.

Artificial intelligence is becoming increasingly important in genomic interpretation and clinical decision-making. How is ACT Genomics integrating AI into its platforms, and what impact do you expect AI to have on precision oncology workflows?

Artificial intelligence is becoming an essential enabler of precision oncology, not by replacing clinical expertise, but by augmenting it. At ACT Genomics, we see AI as a powerful tool to help translate increasingly complex molecular data into timely, accurate, and clinically actionable insights for physicians.

Today, AI is helping accelerate genomic data interpretation by rapidly analyzing large volumes of sequencing data and supporting variant classification. By integrating information from scientific literature, clinical guidelines, genomic databases, and emerging real-world evidence, AI enables our molecular scientists to interpret variants more efficiently while maintaining rigorous scientific oversight. We are also leveraging AI to streamline parts of the clinical reporting workflow, helping deliver concise and actionable reports with faster turnaround times.

Looking ahead, AI will play an even greater role as precision medicine evolves beyond genomics. As we integrate genomic, proteomic, transcriptomic, and clinical data, AI will be critical for identifying meaningful biological patterns that would be difficult to recognize through conventional analysis alone. This will support more comprehensive molecular profiling, improve treatment selection, and provide stronger evidence for multidisciplinary Molecular Tumor Board discussions.

Equally important, AI can improve workflow efficiency and consistency by automating repetitive analytical tasks, allowing our scientists and clinicians to focus on complex case interpretation and patient care. Standardized AI-assisted processes also help ensure consistent, high-quality interpretation across laboratories and healthcare systems.

Ultimately, I believe AI will democratize access to precision oncology expertise. By making sophisticated genomic interpretation more scalable and accessible, AI has the potential to extend high-quality precision medicine beyond major academic medical centers to hospitals and community healthcare settings across Asia. At ACT Genomics, we are committed to combining AI with scientific expertise and clinical judgment to empower physicians with better insights and improve outcomes for cancer patients.

Asia generates vast amounts of genomic and clinical data across diverse patient populations. How can greater regional collaboration accelerate biomarker discovery, therapeutic development, and broader adoption of precision medicine?

Asia represents one of the world's most diverse populations, and this diversity is a tremendous opportunity for advancing precision medicine. I believe greater regional collaboration is essential to unlocking the full potential of genomic and clinical data and translating it into better patient care.

By bringing together genomic and clinical data from multiple countries, we can build larger and more representative datasets that better reflect Asian populations. This will enable researchers to identify population-specific biomarkers, validate emerging biomarkers more rapidly, and generate stronger real-world evidence to demonstrate the clinical utility and cost-effectiveness of precision medicine in routine practice.

Regional collaboration will also accelerate innovation in artificial intelligence. Diverse datasets are critical for developing robust AI models that can accurately interpret molecular data and support clinical decision-making across different ethnic populations and healthcare systems.

Beyond research, collaboration can help harmonize genomic testing standards, variant interpretation, quality assurance, and clinical reporting across the region. Establishing common frameworks will improve consistency, facilitate regulatory and reimbursement decisions, and increase confidence in precision medicine among healthcare providers and policymakers.

Equally important is the opportunity to strengthen regional expertise. By connecting hospitals, laboratories, academic institutions, industry partners, and governments, we can promote knowledge sharing, professional training, and collaborative clinical research that benefits patients throughout Asia.

At ACT Genomics, we believe the future of precision oncology depends not only on technological innovation but also on strong partnerships. By working together across the region, we can build an integrated Asian precision medicine ecosystem that accelerates biomarker discovery, therapeutic development, and broader adoption of precision medicine, ultimately improving outcomes for cancer patients across Asia.

Looking ahead to 2030, what is your vision for precision medicine in Asia, and what role do you expect ACT Genomics to play in advancing that future?

By 2030, I believe precision medicine will become the standard of care across Asia, with genomic and molecular profiling integrated into every stage of the patient journey—from early detection and diagnosis to treatment selection, disease monitoring, and long-term health management. Precision medicine will evolve beyond treating advanced disease to predicting risk, enabling earlier intervention, and supporting more proactive, personalized healthcare.

At the same time, clinical decision-making will increasingly be driven by multi-omics technologies that integrate genomics, proteomics, transcriptomics, and other molecular data to provide a more complete understanding of each patient's disease. Combined with advances in liquid biopsy and artificial intelligence, physicians will be able to detect cancer earlier, monitor treatment response in real time, and make faster, more informed clinical decisions. I also expect precision medicine to become more accessible through regional healthcare networks, supported by Asian-specific genomic evidence and collaborative data ecosystems.

ACT Genomics is committed to playing a leading role in shaping this future. We see ourselves not simply as a genomic testing provider, but as a precision oncology partner that helps bridge scientific innovation with clinical practice. We will continue to invest in next-generation technologies, including multi-omics, liquid biopsy, and AI-driven analytics, to deliver more comprehensive and actionable molecular insights.

Equally important, we will continue collaborating with healthcare providers, researchers, pharmaceutical companies, and governments to build a stronger precision medicine ecosystem across Asia. Ultimately, our vision is simple: to ensure that every patient receives the right treatment, at the right time, based on their unique molecular profile. By translating scientific discoveries into real-world clinical impact, we hope to improve outcomes for patients and help shape the future of precision medicine across the region.