Mengchu Wu – CEO, Health Genetech, Taiwan



By using AI, big data, and other technologies we can explore how to translate the findings of NGS into usable information and knowledge at a much faster pace than ever before

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Mengchu Wu, CEO of Health Genetech, introduces the innovative precision medicine company as it prepares to transition from a research-positioned provider to a healthcare partner. Wu goes on to offer her insights on the key market trends impacting the emerging field of precision medicine and shares her outlook on the future of genomic sequencing.

Can you please begin by introducing the story of Health Genetech and its corporate mission?

Health Genetech (HGT) was founded by professors and students from the National Chaotung University at a time when bioinformatics was not even recognized in Taiwan. Using their expertise in the field, their first direction for the company was into the genomics high throughput area. The original intention was to be a similar service to 23andMe by offering genetic testing for disease predisposition, heritage, etc. with a curated database dedicated to the Asian population. However, this model was difficult to promote to the general population at the time, so Genetech also provided research services just as NGS sequencing to academic institutes and biotech companies as well.

Although I have been with HGT for just over one year, the company itself is nearly ten years old – founded in 2010. As we approach our first decade anniversary, HGTis currently going through a corporation identity redesign process. We are rethinking our positioning, strategic direction, and

how we will present ourselves to the healthcare industry and society, which we will reveal at the upcoming HealthExpo conference. While we continue to offer genomic services for research purposes as part of our business, HGT's mission has become to keep people as healthy as possible through precision health management.

What is the unmet medical need the Health Genetech is aiming to fulfil?

Our genetic testing service is more tailored to the Chinese population. From the early days of HGT, we recognized the differences in this ethnic group, such as different genetic disposition factors. Recently, we developed a gene panel for sudden cardiac death (SCD) to identify germ-line mutations in patients and help deliver a more accurate diagnosis. This is an important tool for physicians as SCD can have similar symptoms to other cardiovascular conditions. But to identify "real" pathogenic mutations in the Asian population, there is a need for the Asian "normal background" database which currently still falls far behind the Caucasian ones.

Additionally, we have always been committed to staying up to date with the latest available technologies. A few years ago, we identified the limitations of traditional NGS technology and decided to introduce long-read sequencing technology to the Taiwan research community. As of last year, we became the first certified service provider of Oxford Nanopore Sequencing platform, which is a third-generation sequencing platform to complement NGS in various research fields as well as clinical applications.

While precision medicine is steadily gaining momentum around the world it is still very much an emerging field. What is your assessment of the current market conditions of applied genomic sequencing?

HGT and other precision medicine companies in Taiwan are currently facing regulatory challenges in Taiwan. There are no guidelines for promoting these services because the regulatory environment has not kept in pace with the development of genomic sequencing technology. Within the purpose of research, this is not an issue, but we face barriers for providing this service to patients in the healthcare setting.

In the US, the FDA has already approved several tests by 23andMe for the prediction of disease disposition, but Taiwan is still behind in this field. This makes it challenging for precision medicine companies like HGT to know where we can position our services, whether it be in the hospital

setting, directly to the consumer, or another channel. HGT developed its offering using very high standards and we want our services to be reviewed, but there is still no clear model which can be followed.

What is your assessment of the market potential and demand for sequencing products and services?

Before coming to HGT, I had been working in oncology research for over 20 years and developing NGS IVD products in this field. When we got a CE marking in 2015 there was a market potential. However, HGT's direction is to use NGS sequencing for precision prevention which is one aspect of precision medicine. Precision medicine is not only for the diagnosis and treatment of patients, but it can also be used for screening and health management before the disease even occurs – which can potentially be an even bigger market than just treatment alone.

Coming even before regulations are in place, to what extent does this give genomic companies like Health Genetech the opportunity to innovative freely and help shape the regulation, ultimately securing your space in the Taiwanese market?

Regulators must work alongside or even ahead of the development in emerging fields. This is a key factor in facilitating the translation of innovation into commercial value. If this is not the case, companies will seek opportunities elsewhere, and the market will lose out. Taiwan is already a small market and it cannot afford to lose out on advanced technologies because of a gap in the regulatory framework. For example, we are currently looking into other international accreditations which may be more expensive but will ultimately aid in our development rather than investing in Taiwan as our fist market entry.

Considering that these services currently must be paid out of pocket by patients, who will be the payer of precision medicine in the long run?

Each country and healthcare system has its own unique model. For example, the way precision medicine is managed in the US will be very different than in Asia, and even within Asia Taiwan and China are very different markets. Although the National Health Insurance Program (NHI) has been in place for over 20 years, people are starting to understand that sometimes paying out of pocket

is necessary to have access to higher-level services – the mentality of total reimbursement is shifting. Consumers in the Taiwan market are getting used to the idea that the government can only support universal coverage for basic care, so we do feel that there is room for growth in this market even if HGT's services are self-paid. In a long run, when the price can be further lowered with the technology development and more real-world evidence shows the benefits, I believe both the private insurance and the government will play more roles as the payer.

When it comes to precision medicine, how challenging is it to motivate not only patients but traditional healthcare professionals to adopt Genetech's genetic profiling solutions?

This is a major challenge we face in the development of the company. It is even difficult to get cancer patients onboard with precision medicine, let alone healthy individuals. This is why communication is a key factor for HGT. The value of precision prevention comes from proactive use. For example, cancer which is detected early enough in stage one or two can be completely cured whereas later stage cancers can only be treated. This is a major point when it comes to the quality of life for patients.

In Taiwan, some physicians are fully embracing the concept while others are just beginning to learn about it. We have to be able to educate doctors and help them understand the benefits of precision medicine because they are working with patients at the frontlines. As a researcher, we must translate the genetic information we have into knowledge and deliver it to the doctor in a way that can be understood and utilized. Otherwise, the widespread application of precision medicine will be impossible to achieve.

Although we can fully sequence the human genome, there is still a lot that we do not fully understand. By using AI, big data, and other technologies we can explore how to translate the findings of NGS into usable information and knowledge at a much faster pace than ever before. NGS has generated more information in ten years than we ever thought possible, but the technology is still limited. For example, because of evolution more than half of the human genome is repetitive elements which cannot be analyzed with the short read of traditional NGS. Therefore, there is still a large amount of information going un-touched which is part of the answers to genetic disease susceptibility. This is what separates HGT from the rest – our third-generation sequencing service can help investigators tackle the re-sequencing challenge and uncover more data. HGT is the first and only certified service provider in Taiwan utilizing Oxford Nanopore sequencing technology platform.

What are your strategic priorities for the upcoming five years?

With our tenth anniversary, we will now focus on expanding our services outside of just research to the healthcare market. This being said, research will always be an important part of our business as it keeps us close to the most advanced technology and the leading experts in precision medicine. From these conversations with KOLs and top researchers, we will be able to identify the unmet needs while translating this research in a way which can be impactful to society.

As a CEO with a background in science, how do you go about finding the harmony between a business and scientific mindset?

Becoming a CEO from CTO, I now have to see HGT and our technology from a bigger view. When developing products, I must keep its market potential and value in mind rather than just seeing the science behind it. Furthermore, as a CEO I am very committed to the talent development of my team. I have quite an international background from my career experience which I feel is very important. In Taiwan in general, there is a big need for the internationalization of our talents. I feel that having the opportunity to go to other markets is important in becoming a global player and this is an experience I want to give to my staff. Particularly in medical devices, which is still a relatively new field for Taiwan, especially in high-value products.

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