

## An App Store FOR GENOMIC INFORMATION

► *Justin Kao, Senior VP of Corporate Development, Operations, and Strategy at Helix, talks about his company's plans to build the infrastructure that gives consumers power and control over their genetic information.*



Imagine a time when consumers can access details and specific insights into their own DNA via apps on a smartphone and tablet. That time is now. A new company, Helix, formed in August by Illumina, Warburg Pincus, and Sutter Hill Ventures, aims to empower consumers to discover insights into their own genome through an ecosystem of content partners. The company's initial funding is in excess of \$100 million.

When the service launches in mid-2016, Helix will provide affordable genetic sequencing and database services for consumer samples, as well as an infrastructure and system of consumer applications to access the data.

"Helix is focused on revolutionizing genomics by digitizing the genome," says Justin Kao, senior VP of corporate development, operations, and strategy at Helix. "We think genomics has huge potential and we aim to unlock that potential for individuals to explore insights into their own DNA. But to do that, we need to be able to make available a tremendous amount of data for a consumer-friendly price."

He says the company is an open platform that aims to unleash the creativity and the world of developers, providing an infrastructure for companies and software developers who want to reach consumers through mobile or Web-based applications.

"There will come a time in our life when every single person is going to benefit from having his or her DNA sequence readily available," Mr. Kao says. "We are at an inflection point right now in terms of the power and the amount of knowledge found in genetics. As more and more people are sequenced, including entire families, this will further accelerate the knowledge and power consumers have."

Whether for health, self-discovery, or education, a person's DNA will be important in the future, he says, and Helix aims to build the infrastructure and foundation for that future.

Helix or a Helix partner will provide — for an undisclosed cost — a test kit to consumers, who will be able to send their saliva back to Helix for sequencing. Helix is establishing a sequencing lab



Justin Kao

that is CLIA-certified. Mr. Kao says Helix is planning to work with its partners to provide an end-to-end solution, including sample collection, and there will be multiple ways that consumers can sign up, including through partners or through Helix.

Once a consumer's genome is sequenced, Helix will store the data, including what the company is calling "exome plus." The exome consists of the coding portions of genes, not the entire genome.

"We will store the sequence securely and privately and act as a steward for the consumer," Mr. Kao says. "The individual will have his or her data stored in the cloud with Helix. But that individual still has granular control over the data. No one can access their data unless the consumer consents."

Helix leaders say consumers want genetic information made available, but this service is often inaccessible or costly. Through Helix, consumers will be able to manage their data and explore an open marketplace of on-demand applications, provided by Helix's partners, to gain additional insights into the genomic data that has already been acquired.

Mr. Kao says partners will provide applications offered through the company's platform. Helix's first two partners are the Center for Individualized Medicine at Mayo Clinic and LabCorp. Mayo Clinic is collaborating with Helix to develop applications initially focused on consumer education and health-related questions. LabCorp will develop and offer innovative analysis and interpretation services, initially focused on medically actionable genetic conditions, to consumers through Helix's platform. Helix expects that other partners will

### The DTC Genetic Testing Market

Advancements in genetics, coupled with reduced costs of screening the human DNA, has led to the rapid uptake of genetic test kits for a wide range of lifestyle factors and diseases. The global direct-to-consumer genetic testing market is projected to reach \$233.7 million by 2018, according to a 2012 report from Global Industry Analysts.

The prominence of DTC genetic testing highlights changes that public health and healthcare have undergone in recent years. These include an increasing number of individuals taking personal responsibility of their health, growing demand for health information among individuals, and evolution of a global online healthcare industry.


Some view the growth of DTC genetic testing as part of the trend toward online medicine and personalized healthcare. However, on the downside, this raises concerns over growing empowerment and control among individuals regarding their health. Inappropriate referrals and misleading claims often result in creating confusion among individuals and result in added strain on healthcare costs owing to people seeking unnecessary medical interventions. In case the privacy of results is not appropriately maintained, it could result in discrimination and stigmatization.

Source: Global Industry Analysts

develop applications focused on areas such as genealogy, fitness or wellness, and inherited traits to enable insights related to an individual's genetics.

"We hope that every time that the scientific community makes a new discovery, we can make that insight readily available and accessible to the consumer through an application provided by one of our partners," Mr. Kao says. "This is a disruptive idea."

Helix enables its partners to develop and deliver genomic products without developing their own assay, laboratory, or database infrastructure.

"By digitizing genomics, we are enabling our partners to bypass the need to hire their own scientists," Mr. Kao says. "Instead, our partners can access a software platform and develop products for software costs and on software timelines." 

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