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Personal genomics to empower India

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Personal genomics has the potential to revolutionize prognosis and treatment of diseases.

Availability of a technology that can screen genetic information of a person and inform which diseases he or she may be susceptible to can go a long way to help doctors suggest lifestyle changes and preventative steps to a person. Moreover, if information on a person's DNA is available, it can help decide which medicines to prescribe and avoid medicines that may have side-affects on the particular patient.

Xcode Life Sciences brings this concept of personalized healthcare technology to India. Dr Saleem Mohammad, who started the company in December 2010, aimed to start such a personal genomics company in India.

The X in Xcode stands for the chromosome (representative of the helix shape of the DNA). The word 'code' comes from 'genetic code'. "The idea of this technology was incubated while pursuing my PhD. It was during this time that Dr James

Watson's genome was sequenced and made publicly available in 2007. Then, I had this epiphany. Here was an opportunity for an Indian genome project that could catapult India into cutting-edge delivery of personalized nutrition and medicine," says Dr Saleem Mohammad, recalling the beginning of Xcode Life Sciences. "We are beginning to see a similar trend in India with the rise of personal genomics companies. However, they are yet to hit on a successful strategy to take their services profitably to the market. We feel our innovation in technology, along with our strategy in marketing and pricing, will aid in the advent of personal genomics in India."

The company has been offering genomic services and mobile-based educational programs. Currently, genetic data is primarily used for cancer diagnostics to confirm the presence or absence of mutations in India. But the use of genetics for prognosis of early possible risk of other common or rare disorders is almost absent. The company's solution include empowering the people of India with the knowledge about their genes, discovering novel genetic markers to strengthen predictive capabilities, aiding drug companies to design effective drugs based on genetic variance, and enhancing genome-specific data in India.

Xcode Life Sciences also offers mobile-based educational programs. Delivery of the company's solution include continuous engagement with customers over a variety of platforms, including voice and text-based suggestions through the mobile platform, with the help of physicians and dieticians on panel. The company also plans to test its customers for food intolerance and allergies to customize their diet further.

The InDNA technology that the company has come up with is something unique for India. In the first phase of the execution plan, the company proposes to provide services for lifestyle-related diseases, such as coronary, diabetes and obesity. The InDNA kit is expected to hit the market by May this year.

The test can be ordered online through the website and a saliva kit, which is non-invasive and safe, will be shipped to the customer for collecting sample. DNA extracted from saliva is used to determine allelic information of an individual using optimized high-throughput genotyping techniques that are commercially available. Genomic data available through genotyping will then be used to screen for Single Nucleotide Polymorphisms (SNPs) that are associated with diseases. After screening the genetic information, the company will provide recommendations to individuals that are at a higher risk of a certain disease.

The price for diabetes, obesity and cardiovascular services is approximately $140 (Rs 6,999) each. There is also a combined value pack for approximately $200 (Rs 9999).

The company has been incubated at Vellore Institute of Technology (VIT) University in Vellore, Tamil Nadu, a state in the southern part of India. "VIT has great mentoring support, easy access to young and enthusiastic minds, involvement and support of faculty members and access to government funding and other seed funding sources," says Dr Saleem Mohammad. The company has a grant from the Ministry of Micro, Small and Medium Enterprises, Government of India, and funding through angel investors, apart from money from the founder.

The company's long-term strategy is to move in two stages, from exome testing to complete gene sequencing, which again contributes heavily to the planned future research aiding prevention and controlling of diseases prevalent in India. "We expect that costs will continue to reduce and we should be in a position to have enough specimens of saliva in hand to be able to execute in stages over the years. Simultaneously, we would reward our customers for providing additional "survey" information and uploading of clinical data, that would enhance the value of our database for research, scientific and pharmaceutical companies," concludes Dr Saleem Mohammad.