STARTUP INDIA

From software to genomes — MedGenome's journey in making genomics research mainstream in India

SINDHU KASHYAP, 15 MARCH 2017

Bengaluru-based MedGenome focuses on genomics research and helps diagnose various diseases and disorders.

"I am not one of the regular 20-year-old startup founders. The grey in my hair doesn't give me that luxury. Nor am I from the healthcare or the biology background," says Sam Santhosh, Founder and Chairman, MedGenome, from his lab in Electronic City, Bengaluru. A leading provider of genomics research services globally, MedGenome has been in operation for over three years now.

A pioneer in genomics technologies, MedGenome has over a hundred genetic tests for ailments like cancer, metabolic diseases, neurological disorders, prenatal disorders, and eye diseases. In 2015, MedGenome had raised Series B funding of $20 million led by Sequoia Capital. The company had also launched Natera's PanoramaTM, a non-invasive prenatal test (NIPT) that year, adding to their plethora of medical tests.

The MedGenome lab.

Working in a new space

This March, the team also launched Oncotrack, a liquid biopsy-based non-invasive screening test that is believed to be able to change the way physicians in India identify genetic alterations and interpret, assess, and treat various forms of cancer. Sam mentions that with Oncotrack, the management of cancer will undergo a massive transformation.

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MedGenome is Sam's second innings. Prior to this, he had started up in the software industry in the US. For the last 25 years, he has been in San Francisco, five of which have been spent shuttling between India and the US.

During 2008-2009, genome sequencing was beginning to catch on in the US. Says Sam,

> **"I could draw parallels in the fields of genomics to the computing industry. I felt that it was time for a revolution in the genomics field."**

With the belief that genomics could have more of an impact than computing, Sam initially thought of starting a company which was similar to what 23andMe did in the US or what Mapmygenome does here in India.

Starting from Cochin

"But when I made the business plan, I didn't see the model fly that well, and also felt that there wasn't any real value given to the consumer," says Sam. Science, he adds, hasn't progressed much to give that many details to the consumer.

Believing, nevertheless, that the field was ripe for testing, he started out with Science of the Genome, a general sequencing lab in Cochin. By 2011, the team had started developing tests targeted at specific diseases and disorders.

By 2013, Sam felt that the time was ripe to start MedGenome in its current form. Today, MedGenome provides doctor-prescribed genetic diagnostic tests for patients done by clinicians. Apart from this, the team also believes that the data regarding the Indian population is a great source of genomics research. This allows them to understand the history and pattern of a disease, which gives enough data for research.

The MedGenome lab today offers a string of end-to-end diagnostics solutions. Clinical research focused on population-specific variants drive genomics insights into underlying genetic reasons for disease conditions. Says Sam,

> **"India suffers the largest burden of inherited diseases with about 5-6 percent of the children born affected. Further, the adoption of Western lifestyles has largely increased the occurrence of diabetes, cancer, and cardiovascular diseases."**

Focusing on genomic research

He adds that their genome sequencing capabilities and powerful interpretation provide actionable insights to clinicians, allowing them to adopt precision medicine in their practice. At the same time, the team's research solutions have enabled them to develop deep insights into diseases at the genetic and molecular levels.

While the space is cutting edge, new technologies keep moving, and data generated is

extremely large in quantities, making data analysis a big challenge. "Technology, equipment, and the reagents — everything needs to come from the US and you need to set up a huge lab facility with great computer systems and algorithms that can process intensive data," says Sam.

While this may have come as an easy break for Sam, what with his software stint cancelling out the fact that he was an outsider to the field of biology, India, in general, hasn't been a part of genomics research, which makes baseline data to fall back on hard to find.

Sam adds that in the case of many diseases, research needs to be done from scratch.

While setting up a lab facility takes six to eight months, getting the resources, putting processes and data infrastructure in place, and analysis pipeline with validations takes a few years. Thanks to Sam's earlier stint in the IT industry, he had the resources to set up the lab.

"We are creating the road for genetic testing in India. There aren't many people who have stepped into the space. The market is huge and big enough to support a large number of players. In fact, more people are needed to develop the market," says Santhosh.

Biotechnology, genetics, etc. are not areas about which one hears a lot in the startup space. Be it Kiran Mazumdar Shaw's work or a one-off biotech company getting funded, the news pieces are few and far between. The other genetics startup that has received funding is MapMyGenome, by Rajan Anandan.

About the $20 million that has been pumped into MedGenome, Abhay Pandey, Managing Director, Sequoia Capital, says the influx of next-generation sequencing and high-throughput data is changing the landscape of computational biology. This has resulted in the need for more robust infrastructure, tools, and techniques for genomic analysis.

He believes MedGenome has firmly established itself as a global market leader in genomics-based diagnostics and research from India.

Website

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ABOUT THE AUTHOR

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