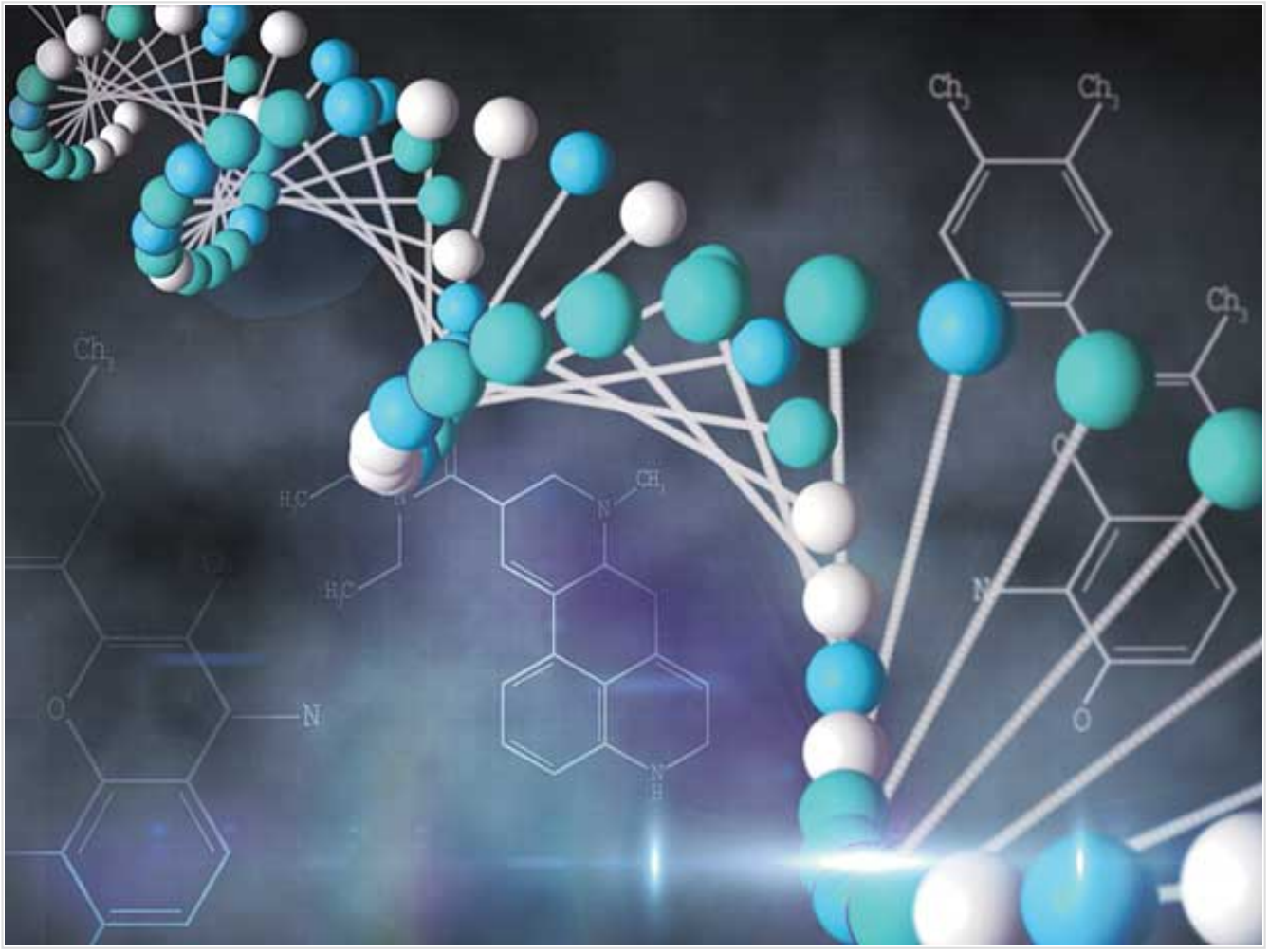
Business Standard

Genetic testing gets affordable with customised offerings from start-ups

Genetic testing is emerging as the next big segment in medical diagnostics

Raghu Krishnan | Bengaluru May 09, 2016 Last Updated at 00:56 IST



Rohan Kamat is betting on his start-up to tap into the growing market for genetic testing in India. Viravecs Labs LLP, Kamat's Bengaluru-based start-up incubated at the Centre for Cellular and Molecular Platforms (C-Camp), is building an array of cell lines with an aim of drastically reducing cost of genetic testing.

Genetic testing is emerging as the next big segment in medical diagnostics. Start-ups such as MapmyGenome, Datar Genetics, MedGenome Labs and Strand Life Sciences, a decade-old firm founded by former Indian Institute of Science (IISc) professors, offer services - sequencing the genes of individuals and finding diseases they are genetically prone to.

The cost of sequencing a human genome, over 3.2 billion base pairs, has dropped faster than Moore's law, from $100 million when first done by Craig Venter in 2001, to around $1,000 in 2015, according to the US-based National Genome Research Institute. In India, it costs between Rs 5,000 and Rs

50,000 to find out disease markers an individual could be prone to.

Indian labs have built customised tests to identify diseases that individuals could be prone to and alter their lifestyle; help women in planning pregnancy, pre-natal tests to identify if the baby is prone to diseases like Down Syndrome, etc. There are no reliable estimates on market size of genetic tests in India.

"When we know that our genes are prone for some diseases, we can proactively take preventive measures," says Anu Acharya, founder of MapmyGenome, a three-year old Hyderabad-based genomic start-up backed by Google India's Rajan Anandan.

India is at the cusp of a revolution in medical diagnostics. When it comes to embracing genetic testing to forecast and treat some of the most complex diseases, including cancer, India is only a few years behind some of the most developed countries.

The Indian population is also prone to specific diseases such as Thalassemia, an inherited blood disorder in which the body makes an abnormal form of haemoglobin. Indians are also genetically prone to heart diseases or Retinitis Pigmentosa, a genetic disorder that can affect the retina's ability to respond to light, leading to partial blindness.

"We can identify, based on the mutation (in the gene), whether the disease is severe or not," says V L Ramprasad, chief operating officer, MedGenome. But the biggest impact the world has seen is in cancer treatment.

Indian labs sequence 152 genes by testing a cancer tumour, identify drugs that could be most effective, helping oncologists improve the rate of recovery. In the case of lung cancer, gene testing helps in identifying the right treatment.

Bengaluru-based Strand offers such customised service in the US. And, MedGenome has had patients who recovered from lung cancer, through such treatment.

Kumar Prabhash, an oncologist and president at Tata Memorial Hospital, has published a paper in scientific journal PLOS ONE on how targeted therapy, following gene testing, has helped in treatment of lung cancer patients. He says gene testing has become a vital part of choosing the right treatment for lung cancer. "As far as the availability of tests goes, I think most of the metros they have it. In Tier-II and Tier-III cities, access and cost is still a problem," Prabhash says.

Pharma companies also accept that genetic testing helps in targeted therapies. "For targeted therapies, genetic testing and profiling is an important component for giving the right treatment at the right time," says Bhavesh Kotak, V-P - medical and regulatory affairs, AstraZeneca. "The presence or absence of certain mutations can predict the patients who can benefit from certain drugs and those who may not respond."

There are efforts by several labs to reach out directly to consumers like Noida-based Datar Genetics, which has set up units in 110 towns across the country.

"The proportion of patients receiving these tests remains small but data point at enumerating benefits of such tests. With higher adoption of such tests into the treatment pathways by clinicians, this number will significantly rise," says Vineet Datta, executive director, Datar Genetics.

ECONOMICS OF GENOMICS

- Cost of human genome sequencing drops to $1,000 from $100 million in 2001
- Genetic testing has helped in faster treatment of lung cancer, other diseases

- Labs offer genetic testing to identify diseases individuals are prone to
- Several start-ups offer services, lowering costs further
- Genetic testing still an urban phenomenon, smaller towns yet to catch up

Sources: National Human Genome Research Institute, USA; BS Research Bureau