

'DNA testing is in its infancy in India'

Giving a peek into the state-of-the-art molecular diagnostics centre, *GenePath Dx* Founder **Dr Nikhil Phadke**, tells **Tania Roy** how the lab is designing tests from scratch which are more affordable and tailored to the Indian population

Ask Dr Nikhil Phadke, Founder and Chief Scientific Officer of *GenePath Dx*, a one-of-a-kind, next generation diagnostics company in Pune, what his greatest challenge is and he promptly replies, "Right now, one of our biggest hurdles is raising awareness about DNA and RNA-based tests. In the West, the value of genetic testing has been established across the spectrum of medical conditions — be it oncology, endocrinology, haematology, organ transplantation, or pre-natal disorders. This awareness is just emerging in India."

A niche lab

GenePath Dx is not a lab where you can walk in and go for a medical check-up. It is a niche lab, working mostly with doctors and hospitals. "We have built a rapport with doctors and have MOUs with several hospitals in the city and working with hospitals in other parts of the country as well. We also have several active in-

ternational collaborations," says Phadke, who is a PhD in Molecular Biology, from the University of Michigan at Ann Arbor, with more than 15 years experience in molecular diagnostics.

Prior to *GenePath Dx*, he was a core team member at *Handylab*, a successful molecular diagnostics start-up in Michigan, USA. In 2008, he started the lab in Pune to bring state-of-the-art in vitro diagnostic tools to the Indian medical community.

Phadke works with an interdisciplinary team including Dr Kavita Khatod (medical molecular biologist and genetic counsellor in training), Dr Ketki Kelkar (MD and head, pathology), Dr Anuradha Khadilkar (paediatrician), and Nikesh Shah (Chief Operating Officer). All members are highly experienced and many of them have been trained internationally. They also work closely with leading medical professionals like paediatric endocrinologist Dr Vaman Khadilkar, nephrologist Dr Valentine Lobo and haematologist Dr Vijay Ra-

manan.

We catch up with the team at their laboratory above Phadke Hospital on JM Road to learn more about this unconventional lab. "A unique feature of our lab is how quickly our technology and methods allow us to complete a diagnosis. A lot of investigations often take days or weeks to be completed; our tests make it possible within a few hours. Importantly, we design our own tests from scratch, rather than use commercial kits, so they are more affordable and can be tailored to the Indian population. These include tests for emerging and neglected conditions. Rather than force solutions on doctors and patients, we respond to their specific needs. We don't incentivise testing unless it offers a clear benefit to the patient. Our focus is only on tests that have clear medical value. We do not offer lifestyle-related services such as genetic tests for diet and exercise selection."



Pics: Mukkund Bhute

BRINGING DOWN THE COST

Neonatal diabetes test costs more than Rs 1 lakh in the UK but *GenePath Dx* is trying to bring it down using Next Generation Sequencing (NGS).

The costs will reduce further as the volume of tests increase. "To make the tests more affordable is a big challenge but we are trying to work it out," says Phadke.

Right now, the lab offers more than 40 distinct genetic tests, most of which have been developed in-house. "In the future, we plan to develop test kits that other labs can use and we will continue to develop tests for rare disorders," adds Shah.

TESTS THAT GENEPATH DX OFFERS:

- Detection of inherited medical conditions, including cancers.
- Rapid diagnosis of infectious diseases.
- Determination of the right drugs and dosage.
- Monitoring the course of a disease.
- Detection of neonatal diseases like neonatal diabetes or rapid resolution of ambiguous genitalia in newborns.
- Prenatal detection of debilitating conditions like Down Syndrome, muscular dystrophy and congenital adrenal hyperplasia, using minimally-invasive techniques.

DNA TESTING: A RAPIDLY EXPANDING FIELD

Medical DNA testing is in its infancy in India. Even many healthcare professionals and doctors are not aware of the benefits of molecular diagnostics. Molecular testing helps us determine which sub-type of a cancer a patient has and hence which drug the patient will best respond to.

Kelkar says, "For example, we currently offer a series of tests to determine the sub-type of leukemia a patient has, and whether they will respond favourably to the drug Imatinib." Molecular testing can also be used to change the course of treatment for some diseases or to confirm the diagnosis of puzzling conditions.

Phadke says, "We are developing a genetic test for neonatal diabetes which can help determine whether the baby can be switched from insulin injections to an oral drug. Recently in response to a doctor's specific request, we were able to develop a test for a rare genetic condition called progeria, where no test existed before." Also, getting test results within four to six hours, when conventional lab tests could take a week, can be crucial in time-sensitive cases.



PRECISION TESTING: Dr Phadke working at his lab on JM Road



THE EXPERTS: (From left) Dr Nikhil Phadke, Dr Kavita Khatod, Dr Ketki Kelkar and Nikesh Shah

GENETIC COUNSELLING

The lab is adding genetic counselling to its portfolio of services. Soon, Khatod will be completing her training in genetic counselling. She will offer patients pre-and post-testing counselling. "I will advise them on whether they need to undergo a DNA test. I will also help them understand and cope with the results which may include information on the inheritance of their illness and recurrence risks," says Khatod, who is Director, Lab Operations.

For more information, log onto: <http://www.genepathdx.com/index.php>