

# Genes and cancer therapy

Experts are looking to genetics for diagnosis of cancer

**W**hat happens to cancer patients when medicines stop working because their bodies have developed resistance, making the expensive cancer therapy ineffective? Should they give up and wait for the inevitable? Have all the avenues for such patients closed? Drug makers, researchers and oncologists are increasingly looking towards genetics and its applications in diagnosis, studying the genomic sequence of cancer causing genes and coming up with personalised and targeted therapies for cancer patients, as possible answers to such tough questions.

## Lung cancer

Take for instance lung cancer patients, who often develop resistance to the ailment and need tissue biopsy to ascertain the spread of cancer. The doctors need to find the reason or the gene that has mutated and causes body to develop resistance to drugs. Once this mutated gene is identified, the doctors can start a fresh protocol for treatment of lung cancer, targeted specifically at the mutation. Lungs are delicate and in general taking a tissue sample for biopsy is complicated and needs an expert hand. Due to exposure to chemo and radiation therapy, it's difficult to convince lung cancer patients for another tissue biopsy.

## Liquid biopsies

"Recently, we came up

## Revolutionary treatment

Cancers that can be targeted through genetics

- Breast
- Colorectal
- Gastrointestinal stromal tumor
- Kidney
- Lung
- Melanoma
- Multiple myeloma
- Some types of leukaemia and lymphoma
- Some types of childhood cancers



## Liquid biopsies

- It is a non-invasive blood test that can provide information about the patient's cancer
- Simple blood draw is enough and no need to collect tissue
- Blood samples can be taken repeatedly, compared to tissues
- Liquid biopsies are still under research
- Major challenge is to ensure results are accurate
- Currently, tissue biopsies continue to remain gold standard

with liquid biopsy, which enables us to identify the mutated cancerous gene only through a simple blood test. Imagine this kind of technique to be used in other cancers. I am definite that we are moving in that direction," says CEO, MedGenome, Girish Mehta. Normal biopsies are based on the principle of collecting tissues from the cancerous organs and then subjecting it to a series of tests to ascertain the correct cancerous target. Such biopsies, however, are uncomfortable, painful and risky for patients, apart from being expensive. "Liquid biopsies are the future be-

cause a sample of blood is enough to look for cancer cells in tumour that are circulating in the blood. Liquid biopsies have the potential to detect for pieces of DNA from the tumour cells in the blood at a very early stage of onset of cancers," says Mehta. Thanks to such tests, it is now possible to identify the genomic make-up of tumour through a simple blood test. "Apart from mapping the genome of the tumour, such biopsies enable us to come-up with personalised and targeted treatment for the patients. It has opened up new avenues for diagnostic treatment," he says.

— M Sai Gopal