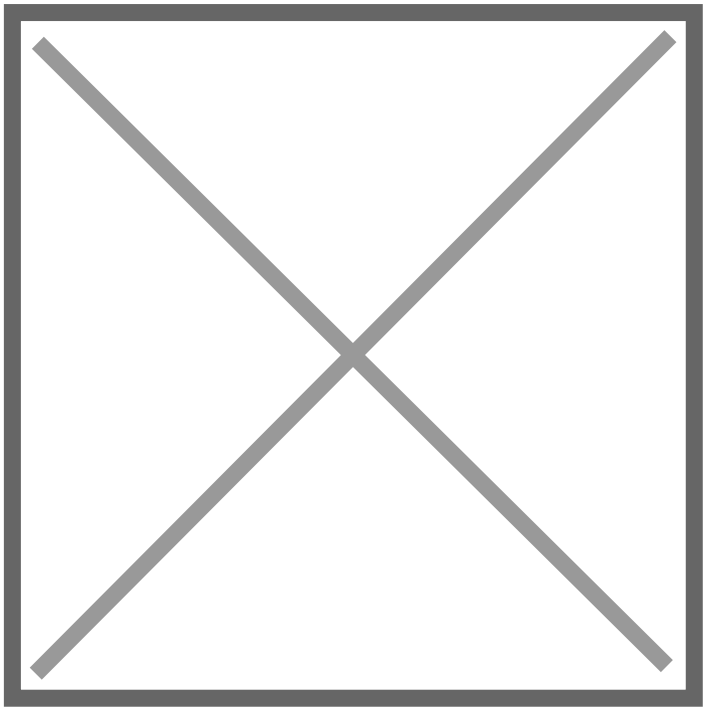
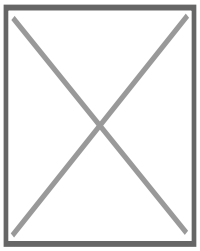
BioSpect
the business of Bi
24 years of leveraging the business of Bio
www.biospectrumindia.co

Personalized care in cancer

09 January 2012 | News





Dr Pradip Majumder
CSO, Mitra Biotech

Bangalore-based Mitra Biotech's aim is to be a friend to the lakhs of patients suffering from cancer, much like its name, by helping them receive treatment specific to their individual cancer type. Leading this operation is Dr Pradip Majumder, the chief scientific officer and one of the three co-founders of the company.

After his post graduation in pharmacy, he did his doctoral studies on transcriptional regulation of steroid receptors in prostrate cancers. During a brief stint at Tufts University, he was invited by a professor to join his lab at Harvard where he did his post-doctoral research. His experience at Harvard, where he continues to be an adjunct faculty member, helped him learn the intricacies of cancer biology and study its various disease models. He realized the urgent need for an accurate model to replicate a particular cancer, which could be used to predict the course of the cancer and the drugs to successfully eliminate it.

Slugcsofightingdisease
Oncomics, the proprietary platform technology for personalized medicine, was initially developed at Harvard and further honed in India. Ã¢â?¬Å?For example, in bacterial infections, we culture the bacteria and based on the growth pattern the doctor prescribes the necessary antibiotic. In cancer, such a mechanism is not there. From a genetic point-of-view, the same cancer in five different individuals will be different, and there are 50 different drug combinations for breast cancer alone. The selection of the drugs prescribed is random with the success rate of 20 percent in most cancers. A scientific tool was needed to tell which drug will work for which person. The concept was there, we developed the technology,Ã¢â?¬? he explains.

Their patented explant technology is used to culture an individual patient's tumor sample. Until now, during tumor culture, the serological or pathological conditions of the body were not fully considered. A particular microenvironment is required for the tumor cells to completely mimic the actual tumor cells in the body. The explant technology incorporates the necessary signaling pathways along with other necessary factors, such as ligands and paracrine factors, derived from the patient.

Ã¢â?¬Å?These things help us mimic the patient's body environment and culture tumor cells with drugs available for that type of cancer,Ã¢â?¬? says Dr Majumder. Ã¢â?¬Å?Simultaneously, we also carry out in vivo studies in mice, which are implanted with the patient's tumor cells. After the analysis of both of these procedures by the Oncomics platform, we can predict which drug will be most efficacious in treating that particular type of cancer.Ã¢â?¬?

He says that they found the results from the explant technology matched those of the in vivo studies. Ã¢â?¬Å?This proved that we could rely on the results from explant technology. Now, we can predict the best treatment option for a patient's cancer in ten days,Ã¢â?¬? he adds.

Dr Majumder and his team have validated this platform in over 400 patients clinically, with an accuracy of over 90 percent. Mitra Biotech is collaborating with HCG group of hospitals to provide this service to cancer patients. In addition to the tests mentioned, the tumor samples are also subjected to gene profiling and micro RNA analysis.

The generated data is being used for developing anti-cancer drugs. Ã¢â?¬Å?We are in collaboration with pharma companies for three anti-cancer molecules, and are trying to determine which drug molecules and specific combinations can be most effective. We are taking the drug from R&D phase to clinical trials,Ã¢â?¬? he says.

On future plans, he says that the focus is on different kinds of cancer. Ã¢â?¬Å?Cancer research in India presented a unique challenge because very little research has been done on the Indian population. We are focusing on solid cancers prevalent in India. We hope to screen 2,000 patients by 2014 in order to get FDA approvals,Ã¢â?¬? he elaborates.