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Laila Ali after winning her fight against Shelley Burton at Madison Square Garden in New York



TAJ IN DOHA P-7

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Angelina Jolie with her daughter Zahara near the Gateway of India in Mumbai



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IISc scientists develop tech for early diagnosis

FROM KALYAN RAY
DH News Service

INDORE: Two Bangalore-based physicists have come out with a new technology for detecting a large number of diseases at a very early stage, when the disease burden is quite low.

Dr Ajay Sood and his colleague, Ajay Negi, from the physics department at the Indian Institute of Science have used

tiny electrical pulses to improve the effectiveness of the classical antigen-antibody diagnostics, used for diagnosing most of the diseases, by more than 100 times. The technology, scientists say, has the potential to transform the diagnostic industry as it would be possible to detect diseases on the first or second day itself.

The team is now not only holding discussions with the industry over technology transfer, but has

also applied for patent protection through the Patent Cooperation Treaty of the World Intellectual Property Organisation.

When disease-causing microbes like virus, bacteria or protozoa infect the body, the body produces antibodies to fight these germs. For detecting causative agents in the pathology



Ajay Sood

laboratory, another set of specific chemicals, including proteins like antigens, is used.

The outcome of an antigen-antibody reaction can be seen as a colour change or agglutination under a microscope to confirm the diagnostics. For instance, in the case of tuberculosis (TB), the diagnostic tool consists of an

antigen that binds only to antibodies produced by TB bacteria and not to thousands of other antibodies circulating in the blood. Most of the common diagnostics used antigen-antibody reactions.

The scientists have improved the efficiency of this technique by more than 100 times. It is possible to diagnose accurately even if the concentration of the antibodies are too low in the samples.

"We have demonstrated the

methodology. The efficacy improves at least by a factor of 100 and diseases can be detected on the second day itself," Dr Sood told *Deccan Herald* here on the sidelines of the Indian Academy of Sciences annual meeting at the Devi Ahilya Vishwavidyalaya on Sunday. This new technology, he added, was also successfully tested on a typhoid-detection

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Diagnostic technique

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kit designed by the Defence Research and Development Establishment, Gwalior. It relies on applying low voltage electric charges below a certain threshold limit to the sample solution so that antigens and antibodies can come together for the required reaction. But if the voltage is too high, the antibodies will club together and destroy the reaction. "More work is required as we have evaluate the possibilities of false positive and false negative results. A prototype also needs to be developed and calibrated for various disease so that one instrument can be used for detecting a lot of diseases," Sood said.