

Researchers develop DNA sensor for quick pathogen detection

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Scientists from CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) and National Centre for Disease Control (NCDC) Delhi have developed an ultrasensitive DNA sensor that can detect *S. pyogenes*, a bacterium which causes a wide range of diseases in about 30 minutes.

The DNA chip based sensor consists of a carbon electrode embedded with gold nanoparticles. By means of a bioinformatics study, the researchers were able to design probes which are specific for *S. pyogenes*.

The working electrode surface of the device is attached with several small-sized, single-stranded DNA probe specific to the pathogen. When patients' DNA, isolated from throat swabs, are placed on the surface, they bind to the complementary single-stranded DNA on the device and an electrochemical change is seen. This is measured using a differential pulse voltammetry.

Researchers are working on construction of different biosensors for different pathogens. Early and quick diagnosis can help in preventing the diseases and seek medical treatment at the early stage of infection.