



PRAANHITA BIOTRONICS
Protecting Life



KID: 20220416

At the advent of COVID-19, there were no kits available that could test the Gold standard at a rapid pace. Seeing the need, Prof Singh groups at IITH developed a COVID-19 test kit, based on a nucleotide test, where the biosensors on the test kit are inherently field effect devices, comprising of conductive nanofibers and capture probes specific to SARS COV-II RNA, where the said capture probes are anchored on to the nanofibers, via chemisorption.

The test kit consists of three distinct sensors, which specifically hybridize to different regions of the target RNA, under favorable conditions, and the said hybridization results in amendments in the sensor response, which is recorded as an electrical signal, using a dedicated readout, and a smartphone-based application.

The electronic signals corresponding to the sensor responses, before and after their interaction with the test sample, serve as inputs to a decision-making Algorithm (which is included in the software application), which provides a qualitative assessment, and identifies the test samples as 'COVID-Negative' and 'COVID-Positive'. This test kit is fundamentally different from any existing devices in use. (The Gold standard test like RT-PCR required highly trained manpower, sophisticated instrumentation, and BSL2 facility for extraction and purification of RNA, etc).

In this device, we have immobilized a specific COVID-19 genomic sequence from the fairly conserved region of the virus and measured the change of electrical signal response before and after the exposure of the patient sample. Therefore, it does not require highly trained manpower, sophisticated instrumentation and a BSL2 facility.

Further, this platform has the ability to extend it for other diseases diagnosis at the point of the site. Which will play an important role in telemedicine.

The global point-of-care diagnostics market size was valued at USD 37.03 billion in 2021 and is expected to expand at a compound annual growth rate (CAGR) of 6.8% from 2022 to 2030.

“

प्राण = Praan = Life

हिता = Hita = Well-being

Protect Life with BioTronics

Seeing the rapid growth and need for such a device Prof Singh along with other co-founders Dr Ranjana Singh form Praanhita Biotronics.

Our Charter

- Exploit the electrical properties of bio-molecules including DNA, RNA, Antibodies & Proteins.
- Build low-cost biosensors with nanotechnology to measure small changes in electrical properties accurately.
- Combine the power of Electronics, Biosensors & AI into BioTronics to detect viruses and pathogens.
- Touch Billions of people's lives with accurate diagnostic kits to protect against and prevent spread of disease & illnesses.
- Play a vital role in the biotech process industry to accelerate vaccine and pharma production

“

Further, this platform has the ability to extend it for other disease diagnosis at point of site. Which will play important role for telemedicine.

[1] Dr Ranjana Singh

Co-founder & CEO, Praanhita Biotronics

[2] Prof Shiv Govind Singh

Founder & Director, Praanhita Biotronics
Professor, Department of Electrical Engineering, IIT Hyderabad
Incubated at FabCI, IITH