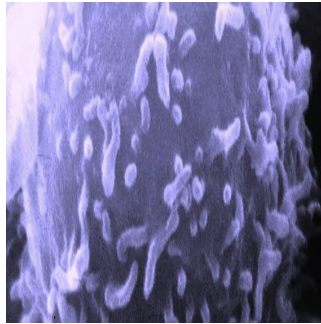

Innovative Health Screening Technology Launched by Surrey Team



A University of Surrey research team has developed an innovative device that can differentiate between normal and unhealthy cells.

The team, led by Michael Hughes, Professor of Biomedical Engineering, has developed a device that analyses the electrical properties of cells - with hopes that it will enable the early detection of oral cancer and other medical conditions. The device is commercially available through its distributor Labtech, having been formally launched recently at the AES Electrophoresis Society.

The instrument - called the 3DEP - is the result of over a decade's research by Professor Hughes and his colleagues Dr Kai Hoettges and Dr Fatima Labeed of the Department of Mechanical Engineering Sciences.

The device works on the principle that when cells transition from a healthy to a diseased state, there is a change in their electrical properties. Using a technique known as dielectrophoresis (DEP), cells are scanned by the 3DEP to determine their electrical properties and differentiate between normal and cancerous ones. In addition to the reader, the team has developed an inexpensive chip (costing about £5), which contains the cells and is inserted into the reader.

Applications of the 3DEP instrument are diverse, ranging from the detection of oral cancer to stem cell research and drug screening.

Explaining his motivation for developing the 3DEP, Professor Hughes said: "Platform technology is an overused phrase, but it means that this device can enable a wide range of important research.

"We are currently involved in clinical trials to use the device to detect oral cancer in conjunction with the Eastman Dental Institute, the Royal Marsden and Bradford Royal Infirmary. Oral cancer is the sixth most common cancer worldwide; it is the most common cancer in India. Yet there is no cheap diagnostic approach to catch oral cancer at an early stage. With the 3DEP we are now making real progress.

"We are also working with colleagues at the University of California to identify stem cells that can be used to repair damage in the brain. This research may help researchers find solutions to chronic neurological conditions such as Alzheimer's disease, Parkinson's disease and spinal cord injury. We are also working locally with collaborators in the University of Surrey's Faculty of Health and Medical Sciences to study muscle and nerve electrophysiology and red blood cell chronobiology."

Source: [University of Surrey](#)

Image credit: Wikipedia

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