UNIVERSITY OF BIRMINGHAM

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SNP Sensing Diagnostic

BaseSense - rapid and accurate quantification of single point variations within DNA/RNA samples

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IP Status

Patent application submitted

Seeking

Commercial partner, Licensing

About **University of Birmingham**

At the University of Birmingham our research leads to new inventions and fuels innovation and business growth.

Background

Currently, it is very difficult to get accurate data both rapidly and cost-effectively on the extent of a base change (e. g a mutation or single nucleotide polymorphism) within a sample of patient DNA. While there are technologies that can reveal information on the presence of the mutant cells, there is no established reliable inexpensive gold standard to quantify the ratio of healthy cells to mutant cells, which is crucial for cancer surveillance. Cheap and efficient techniques are sought after that can be used to monitor the success and efficiency of selected cancer therapy without relying on such procedures as full genetic sequencing or tomography.

Tech Overview

Researchers at the University of Birmingham have developed a novel probe system that can detect single point variations in target DNA/RNA, with the probe only lighting up when the exact sequence denoting mutant DNA/RNA is present. A crucial aspect of this technology is that the brightness of the signal depends on the amount of mutant DNA/RNA present in the sample, allowing the ratio of 'cancerous to healthy DNA' to be obtained via a simple reading from a fluorescence calibration curve, making the technology accessible and easy to use.

Benefits

Quantitative read-out of allelic ratio.

- Inexpensive: The assay can be easily fed into existing diagnostic testing frameworks – no need for additional specialist equipment (conventional PCR equipment only).
- Rapid testing: Sensing design involves only one probe, so there is no need for strict temperature windows. Testing can be done in 1 hour.
- Versatile: Technology can be adapted to sense any single point variation within a known DNA or RNA sequence.
- User friendly: Uses well-known techniques such as PCR amplification and fluorescence spectroscopy.

Applications

The technology has had positive feedback from clinicians/clinical researchers about applying this assay:

• As a Companion diagnostic for targeted drugs.

• For Cancer surveillance following treatment/chemotherapy/radiotherapy.

Opportunity

- Licensing
- Co-development

Patents

- WO2019043353A1