



University of the
West of England

Highly sensitive particle based immunoassay

A platform system employing magnetic particle manipulation for improved immunoassay sensitivity

Background

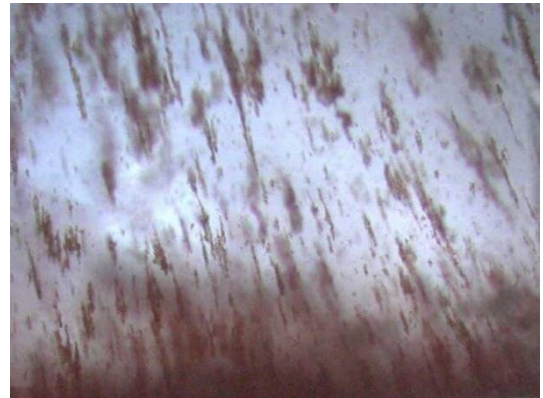
Immunoassays are a standard technique for detecting and/or quantifying an analyte of interest in a test sample. The analyte could be a marker for disease, a food pathogen, a chemical or biological threat or an environmental pollutant.

We have developed a system that combines microfluidics and magnetic particle based immunoassay capture and measurement technology. This new approach incorporates magnetic particle manipulation to enable maximised capture of the analyte(s) of interest. This allows detection of extremely low levels of analyte which is advantageous for numerous detection and diagnostic applications.

The system employs magnets to manipulate antibody coated magnetic particles within a fluid test sample. The magnetic particles can be controlled to form a 'sieve like' structure which serves to maximise the amount of analyte binding as the sample flows through the measurement chamber. The control magnets can then be used to pull the analyte-particle complexes to a measurement surface in order to determine the quantity of analyte.

Potential benefits and applications

- Enables detection of low levels of analyte
- Microfluidics design allows real time on-line monitoring of analyte of interest
- Suitable for applications in healthcare, bio-defence, food industry and environmental monitoring
- 'Chips' for different analytes could be produced to enabling multiple applications for the platform technology
- Potential to be configured for detection of multiple analytes
- Suitable for remote detection applications
- Use of magnetic particles as a label means that little or no sample preparation is required.



Analyte capture 'sieve' formed by magnetic particle manipulation

The Opportunity

University of the West of England, Bristol have filed a patent application (PCT/GB2008/000993) relating to this technology and is now seeking industrial collaborators for technology development and/or licensing.

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