

## **Development of a microfluidic approach for highly sensitive detection of disease state**

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This project is to develop a microfluidic system capable of quantitative detection of target biomarkers at a sensitivity significantly greater than standard ELISA methods. This platform will be developed using a microfluidic technology and the project will demonstrate the utility of its enhanced sensitivity in the area of cancer medicine. Early cancer diagnosis is recognized as a key strategy for improving patient outcomes, however currently available biomarkers are not sufficiently specific to be employed in this context. Measurement of biomarkers following radical surgery is routinely undertaken in surveillance protocols. We hypothesise that early detection of very small, consistent rises in biomarker levels post surgery may predict disease relapse much earlier than can be achieved using currently available assays, allowing opportunities for better risk stratification, early intervention and an improvement in patient outcomes. The PhD candidate will design and fabricate a microfluidic device to quantify the target biomarkers using an optical measurement.