



Cell sorting device using real-time imaging

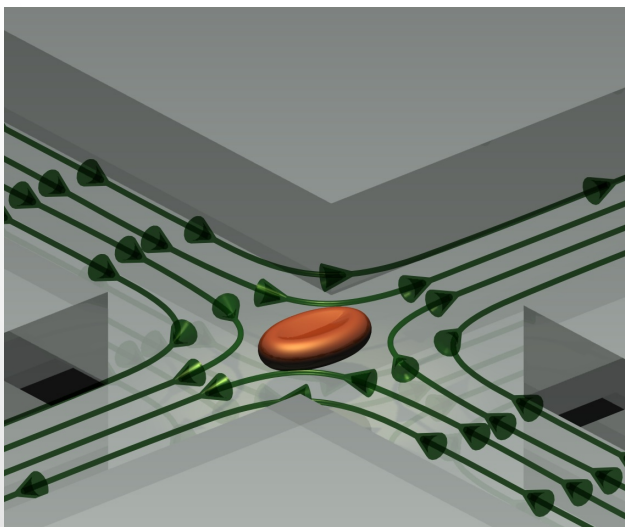
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Department: Division of Biological Engineering

Pre-requisites to do this project: You must currently be in your penultimate year (2011)

This project is open to: All students from the Faculty of Engineering who have a keen interest in biological systems and students studying a **Biomedical Science** degree.



Rendering of a red blood cell in a prototype, real time, cell sorting device.
Image Courtesy: M. Curtis, LDI.

The Problem

To date inadequate attention has been paid to the relationship between RBC stiffness and disease severity, owing to the time consuming and non-standardised methodology used to assess RBC distensibility.

Currently, methods of cell rheology involve viewing individual cells under a microscope as they are manually tested (which is both slow and tedious), for physical properties such as elasticity and membrane toughness.

The Project

Your contribution will be to develop a device that has the unique capacity to rapidly, sensitively and accurately measure the mechanical properties of individual cells without physical contact. We will then use this device to detect and study diabetes and related diseases from tiny tissue or blood samples.

The applicant will possess a strong interest in **engineering design**, **opto-mechanical systems** and **biomedical imaging**. You will be required to work in a team of engineers and liaise with manufacturers.



A white blood cell is manually interrogated by a needle under microscope. Image courtesy: Clinica

Facilities

- LDI experimental facilities
- World-leading image analysis suite

This project is offered by the Division of Biological Engineering

For more information about the Laboratory for Dynamic Imaging, please visit: <http://www.mubeta.monash.edu/>

