

Swinburne Knowledge Commercialisation Opportunity



Automated Live Cell Imaging – Image Cytometrics Pty Ltd

Background

Imaging has become a key tool in a wide range of fields, particularly in biological studies. Current studies on cells rely heavily on microscopy providing many practical applications such as drug screening, IVF and medical diagnostics.

Imaging in cell microscopy, however, generates large amounts of data to be processed, significantly complicating quantification and objective analysis.

Currently, experts must scan large numbers of microscope images to identify and quantify information that might be relevant to the study, such as changes in cell shape or changes in protein distribution within the cells. This type of analysis is extremely labour intensive, time consuming and the results can be affected by the human expert subjectivity.

Intellectual Property

A multidisciplinary collaboration involving researchers from Swinburne University of Technology, the Peter MacCallum Cancer Institute, and the Technion (Haifa, Israel), has produced a set of machine vision and learning algorithms designed for the analysis of high throughput microscope screens. The key features are:

- machine vision and learning which facilitates tracking of multiple single (live) cells over extended periods of time
- provision of a robust framework to physically measure such phenomena as morphology or phenotype, eliminating much of the human subjectivity.

These algorithms enable:

- automation of high throughput microscope screens
- quantification of results
- significantly reduced analysis time
- analysis that is not possible with current systems
- novel applications.

Further, the ability to track live cells enables the:

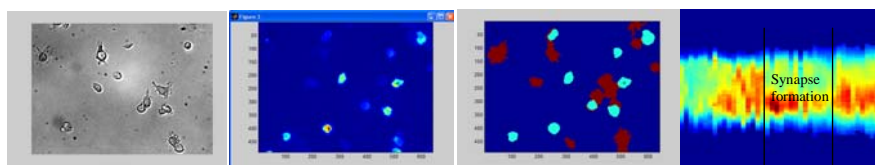
- computer to identify when a cell divides/changes in cell function
- analysis of protein trafficking within dividing/non-dividing cells
- ability to identify daughter cells through multiple generations.

Market

With an estimated 10,000 universities and research institutes worldwide involved in biomedical research, the research community will be the initial target market. Future sales could target drug development and biotechnology companies, and the diagnostics industry.

Opportunity

A company, Image Cytometrics Pty Ltd, has been formed and we are currently looking for partners and investors with whom to develop new commercially viable applications for our unique technology. A patent is pending on the intellectual property developed in the work.



Images generated using Image Cytometrics demonstrating segmentation, isolation, tracking and visualization of a single T-cell forming an immunological synapse with a dendritic cell.

Further information

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