In focus: TACTICS (quantitative bioimaging analysis software)

In recent years live cell imaging has become a key methodology in cell biology studies. One of the problems associated with live cell microscopy is the large amount of data that is generated. Manual scanning of this data is time consuming, and in some cases the results can suffer from a subjective user bias. The manual analysis can be especially complex when highly dynamic non-adherent cells are being studied. In order to overcome this problem, we are currently developing software for automated analysis of cellular function in non-adherent cells.

TACTICS is bioimaging software developed by researchers at the Peter MacCallum Cancer Centre, in collaboration with Swinburne University of Technology. This software is a customised, MATLAB-based Toolbox for image analysis that enables high throughput conversion of characteristics such as cell migration, velocity/direction, cell polarisation, pedigree characteristics and fluorescent intensity into flow cytometric-like dot plots. Importantly, the dots on the scatter plots are directly linked to the image sequences, allowing investigation of individual cell events. This approach allows for rapid assessment of relationships between different parameters. Direct access to images and movies allows for quality control of the analytical approach.

TACTICS has already been applied to understand the dynamics of T-cell behaviour and we believe that it will have broader applications for the research and drug development community.

Cellular imaging can be used in all stages of target-based drug discovery that involve the study of cells, including target discovery, drug screening in cell-based assays, early safety evaluation, mode-of-action studies and in vivo studies to monitor cell fate.

Key publications


Intellectual property
The software source codes and underlying algorithms are based on vast informatics databases and know-how arising from years of research and are difficult to reproduce.

Partnership opportunity
The research group are seeking partners to assist in the development of a marketable software package. This product would be initially aimed at the readily identifiable research-tool market, where there is a clear and significant unmet need. This may be followed by a focus on the drug development and diagnostics markets.

For further information on this opportunity, contact:
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