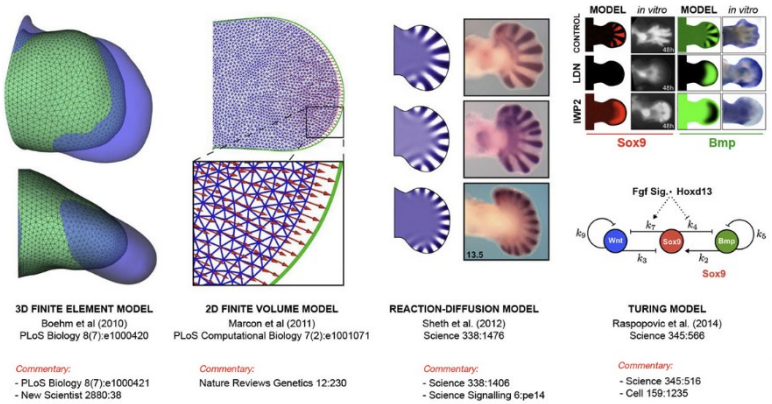
3D cell positioning by optical labelling

Challenge

- The spatiotemporal distribution of cells in a tissue has become important in diagnostics and precision medicine by promising to facilitate clinical practice.
- This trend led to the development and improvement of various spatial omics technologies including spatial-transcriptomics, -proteomics, -metabolomics, -genomics and -epigenomics.
- Despite their potential, transcriptomic technologies have limiting factors such as only 2-dimensional (2D) resolution, poor capture depth and often the requirement for deconvolution.
- Our 3D cell positioning technology overcomes these limitations. It has been successfully employed in transcriptomics and is potentially applicable to any type of omics.

Technology

- Creation of coordinate system to trace back the original position of a cell in a tissue by fluorescent labelling.
- Labelling prior to dissociation of the tissue sample.
- Full 3-dimensional (3D) reconstruction of the tissue after single cell analysis.



Advantages:

- ➢ Revolutionary: Genuine 3D omics approach, avoiding the need to reconstruct 3D tissues with multiple 2D slices, which is expensive, time-consuming and error-prone.
- ➢ When used for transcriptomics, the depth and coverage could potentially approach what is achieved with scRNASeq
- ➢ No deconvolution required.

Commercial Opportunity

The proof of principle shown for spatial transcriptomics by RNASeq and multiplex qRTPCR.

We offer collaboration, co-development and licensing opportunities as well as a technology evaluation program.

Intellectual Property

A priority patent application has been filed in 2022.

Further Reading

Sharpe Group
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Internal EMBLEM Reference

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