

CSCB Seminar Series

Measuring and analyzing multimodal single-cell chromatin states

Date: 18 May 2023 (Thursday)**Time:** 12:00pm – 1:00pm**Format:** In-person

Amphitheatre, Level 2

Duke-NUS Medical School

Abstract:

Technological breakthroughs have seen the development of new methods capable of measuring aspects of chromatin state with single-cell resolution. These new approaches hold promise for improving our understanding of DNA regulatory elements and their cell-type-specific activities. However, the development of these new experimental methods also raises new analytical challenges. Many of the existing single-cell analysis toolkits were developed with gene expression data in mind, making the analysis of other types of data challenging within these frameworks. Furthermore, chromatin states are defined by combinations of epigenomic marks at a given locus. It is therefore essential to measure not just one chromatin mark, but multiple marks simultaneously in single cells to understand how these combinations affect the function of regulatory elements. To address these outstanding problems in the field, we have developed the Signac toolkit for the analysis of single-cell chromatin data, and developed nanobody-tethered transposition followed by sequencing (NTT-seq), a new single-cell assay capable of measuring up to three different chromatin marks simultaneously.

Speaker:**Dr. Tim Stuart**

Senior Research Scientist

Genome Institute of Singapore

Agency for Science, Technology and Research (A*STAR)

Tim Stuart is a Senior Research Scientist at the Genome Institute of Singapore, where he applies single-cell and computational methods to improve our understanding of noncoding DNA. Tim completed his B.Sc. and Ph.D. in Biochemistry at the University of Western Australia with Prof. Ryan Lister, where he studied DNA methylation and transposons. Tim completed a postdoc at the New York Genome Center with Dr. Rahul Satija where he developed new methods for single-cell data integration and analysis.

Host:**Dr. Ong Sin Tiong**

Associate Professor

Programme in Cancer & Stem Cell Biology

Duke-NUS Medical School

No registration is required.**All are welcome.**Any enquiries, please contact Bel
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