



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY
Division of Life Science

LIFS Seminar

**Transcriptional and epigenetic states of oligodendrocyte lineage cells
in the central nervous system:
insights from single-cell RNA-Seq**

by

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Abstract

Oligodendrocytes are glial cells that mediate myelination of neurons, a process that allows efficient electrical impulse transmission in the central nervous system (CNS). An autoimmune response against myelin triggers demyelination in multiple sclerosis (MS). Oligodendrocyte precursor cells (OPCs) can initially differentiate and promote remyelination in MS, but this process eventually fails in progressive MS. In order to clearly define transcriptional states of OPCs and other oligodendrocyte lineage cells during development, we have performed single-cell and bulk RNA sequencing of cells of the oligodendrocyte lineage from mouse CNS during development and in adulthood. We identified several cell states/populations, representing unique stages during the process of differentiation, myelination and final stages of maturation (1). Our results also indicate that diverse embryonic progenitor cells of the oligodendrocyte lineage from different regions of the CNS converge into cell states compatible with differentiation at postnatal stages, while subsequent divergence of the mature terminal differentiated oligodendrocytes occurs in the juvenile/adult CNS, as the neuronal circuitry matures. Thus, our results indicate a previously unanticipated heterogeneity of the oligodendrocyte lineage during development.

Reference: (1) Marques et al., Science 2016

Date : 1 February 2018 (Thursday)

Time : 4 pm

Venue : Room 2304 (near Lifts 17/18)

(Host faculty: Dr. Danny Leung)

All are Welcome!