SickKids®

# Joint Seminar

## Developmental and Stem Cell Biology Program
## Cell Biology Program
## Division of Gastroenterology, Hepatology & Nutrition


# Dr. Nicholas Barker

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# A tale of two tissues: Lgr5$^{+}$ stem cells in the stomach and uterus


We have identified Lgr5 as a facultative component of the Wnt receptor complex selectively expressed on various homeostatic stem cell populations. Employing new, non-variegated Lgr5-2A-CreERT2/EGFP/DTR mouse models we now identify a subset of Lgr5-expressing chief cells responsible for epithelial repair and cancer initiation in the corpus stomach following parietal cell atrophy. We additionally characterize the transcriptomes Lgr5$^{+}$ stem cells in mouse intestine, colon and stomach, revealing new gastric stem cell-specific markers that can be used to isolate human gastric stem cells for regenerative medicine applications and for use in selectively targeting cancer-causing mutations to the Lgr5$^{+}$ stem cell compartment in mice as a means of evaluating their contribution to gastric cancer initiation and progression. Finally, we identify neonatal Lgr5$^{+}$ cells in the mouse uterus as Wnt-dependent stem cells responsible for epithelial gland development. Adjacent Lgr5$^{-}$ epithelial cells within the neonatal glands function as essential niche components to support the function of Lgr5$^{+}$ stem cells *ex-vivo.*


Wednesday | April 3 | 2019 | 12 pm

**Daniels Hollywood Theatre**
**(1246 Black Wing)**

Hosts: Drs. Tae-Hee Kim & Robert Bandsma