P009 Label retaining stromal cells are involve in uterine remodeling after parturition

Mingzhu Cao, Rachel W.S. Chan and William S.B. Yeung
University of Hong Kong, Hong Kong SAR, China

Introduction: Mouse endometrium undergoes extensive postpartum remodeling. To accomplish the extensive cellular turnover processes, we hypothesize that the endometrial cells with quiescent properties (stem/progenitors) are involved in the regeneration of the tissue after parturition.
Methods: Prepubertal C57BL/6J female mice were labeled with BrdU, followed by a chase period of up to 11 weeks. Mice in the remodeling group were mated and sacrificed at gestational day (GD) 7, 14 and postpartum day (PPD) 1, 2, 7, 14, and 21. Age-matched virgin mice were used as control.
Results and Discussion: Endometrial label retaining stromal cells (LRSC) were identified after 7-week chased as there was similar percentage of BrdU+ stromal cells between virgin (1.2 $\pm$ 0.6%) and pregnant (GD7: 1.4 $\pm$ 0.4%, P = 0.76) mice. During gestation, quiescent LRSC are localized to the inter-implantation loci. Immediately after parturition BrdU-labeled epithelial cells were detected in the luminal epithelium. At PPD1, 43.9 $\pm$ 5.4% of the LRSC proliferated (BrdU+Ki-67+) and by PPD3 declined to 18.2 $\pm$ 0.8% (P > 0.05). Total and active β catenin were expressed in 34.5 $\pm$ 13.2% and 8.0 $\pm$ 4.6% of the proliferating LRSC at PPD1, respectively. After 11-week chased, only 0.41 $\pm$ 0.14% of LRSCs remained in the remodeling mice compared to 1.0 $\pm$ 0.4% in virgin mice (P > 0.05). LRSC were primarily observed beneath the luminal epithelium, adjacent to blood vessels and near endometrial-myometrial junction from mice which have undergone pregnancy. Our findings suggest that LRSC participate in the remodeling of the mouse endometrium and possibly involve the activation of the wnt/ β-catenin pathway.