

50] Identification of Endometrial Label-Retaining Cells in Postpartum Mice

MZ Cao, RWS Chan, WSB Yeung.

Stem Cell & Regenerative Medicine Consortium, Department of Obstetrics and Gynecology, University of Hong Kong.

A well known technique for understanding stem cell niche is label-retaining cell (LRC) approach. Using animal models, quiescent cells (a property of somatic stem cells) which retain the DNA synthesis label (bromodeoxyuridine, BrdU) for a long period of time has shown to contain adult stem cells¹⁻². In mice, endometrial epithelial and stromal cells undergo proliferation, differentiation and apoptosis. Endometrial LRCs have been identified from normal cycled mice³⁻⁴. However the presence of LRCs during extensive remodeling has not been investigated. In this study, endometrial epithelial and stromal LRCs during pregnancy and postpartum was examined.

Prepubertal day 19 female C57BL/6J mice were labeled with BrdU (50 µg/g of body weight) and allowed to growth without further invention. At 6-7 weeks old, BrdU-labeled mice were mated for pregnancy. Animals were scarified at the following time points: 3, 7, 14, 21 gestational days, and 3, 7, 14, 21 days after parturition. The uteri horns were collected and immunostained against anti-BrdU.

During pregnancy and postpartum period, the mouse endometrial epithelium and stroma compartments undergo extreme proliferation and differentiation. Our preliminarily data show that at postpartum day 7, endometrial epithelial LRCs were detected in luminal epithelium. At postpartum day 21, stromal LRCs were found in various regions: near luminal and glandular epithelium and some around blood vessels.

The present findings indicate that a small proportion of mouse endometrial epithelial and stromal cells retained BrdU labeling after extensive remodeling and these LRCs may contribute to the proliferation and regeneration of mouse endometrium.

References

1. Fuchs E, Tumber T, Guasch G. Socializing with the neighbors: stem cells and their niche. *Cell* 2004;116:769-78.
2. Tajbakhsh S, Rocheteau P, Le Roux I. Asymmetric cell divisions and asymmetric cell fates. *Annu Rev Cell Dev Biol* 2009;25:671-99.
3. Chan RW, Gargett CE. Identification of label-retaining cells in mouse endometrium. *Stem Cells* 2006;24:1529-38.
4. Cervello I, Martinez-Conejero JA, Horcajadas JA, et al. Identification, characterization and co-localization of label-retaining cell population in mouse endometrium with typical undifferentiated markers. *Hum Reprod* 2007;22:45-51.