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# Sca-1$^{pos}$ Cells in the Mouse Mammary Gland Represent an Enriched Progenitor Cell Population

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## Abstract

Mammary epithelium can functionally regenerate upon transplantation. This renewal capacity has been classically ascribed to the function of a multipotent mammary gland stem cell population, which has been hypothesized to be a primary target in the etiology of breast cancer. Several complementary approaches were employed in this study to identify and enrich mammary epithelial cells that retain stem cell characteristics. Using long-term BrdU labeling, a population of label retaining cells (LRCs) that lack expression of differentiation markers has been identified. LRCs isolated from mammary primary cultures were enriched for stem cell antigen-1 (Sca-1) and Hoechst dye-effluxing “side population” properties. Sca-1$^{pos}$ cells in the mammary gland were localized to the luminal epithelia by using Sca-1$^{+/GFP}$ mice, were progesterone receptor-negative, and did not bind peanut lectin. Finally, the Sca-1$^{pos}$ population is enriched for functional stem/progenitor cells, as demonstrated by its increased regenerative potential compared with Sca-1$^{neg}$ cells when transplanted into the cleared mammary fat pads of host mice.

## Keywords

mammary; stem cells; BrdU; Sca-1; label retention; progesterone receptor



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