**Supplemental Figure 1:** A) Tumor size in the nulliparous (nullip) and <2 years postpartum (PP) groups. B) Reproductive category and biologic subtype of the clinical cohort used to analyze lymphatic vessel density and lymphatic invasion in postpartum cases. C) Analysis of LVD in normal tissues from women <1 year postpartum on the same section as tumor versus no tumor compared to overall average for all postpartum cases analyzed. D) Pearson analysis reveals no correlation between proximity to tumor and LVD in postpartum cases, r=0.01296, p=0.69.
Supplemental Figure 2: A) Lyve-1+ vessels/mm² in mammary tissues from C57/Bl6 mice that were nulliparous (N), pregnant (Pg), Lac (lactating), undergoing involution (InvD1-2, InvD3-4, & InvD6-8), or fully regressed (3 wk regr). B) Lyve-1+ vessels/mm² in mammary tissues from ICR-SCID mice that were nulliparous, or undergoing involution (InvD2 and InvD4), or >4 weeks regressed. C) # lyve-1+ single cells/mm² in rat mammary tissues from nulliparous (N), lactating (Lac), undergoing early involution (InvD2 and InvD4), or fully regressed (R). C) % lyve-1+ vessels containing cells or cellular debris in rat mammary tissues. For each panel all data points, as well as Average and SEM, are depicted.
Supplemental Figure 3: A) Lyve-1 stained section from a postpartum group animal depicting Lyve-1+ vessel structures (arrows). B) Lyve-1 stained section from a postpartum group animal depicting lymphatic invasion by tumor cells (arrow). For all images T=tumor and PT=peritumor. C) Tumor size at 2, 3, 4, and 5 weeks post-injection when 66cl4 cells are injected into nulliparous or involution day 1 BALB-C dams. D) Tumor size matched group utilized for analysis of # lung clonogenic colonies per animal. E) Average lung micromet size by H&E analysis. F) Average number of lung micromets/animal by H&E analysis.
Supplemental Figure 4: A) Average number of lymphatic endothelial cells (LECs) migrated to the bottom of a transwell filter toward nulliparous (N) or involution (Inv) tumor cell populations, two-tailed t-test, **p<0.01. B) Representative image of tube formation assay performed in the presence of nulliparous (Nullip) or postpartum (Inv) group tumor cell conditioned media. Scalebar=100mm. C) Image of tube formation assay stained for VE-cadherin. Scalebar=20mm. D) # cells per field in images taken from proliferation assays in the presence of tumor cell conditioned media. E) Western blot densitometry for COX-2 expression in lysates from nulliparous and involution group tumor cell populations. **p<0.01. t-test.
Supplemental Figure 5: A) Size matched group for analysis of lymphatic vessel density and invasion associated with shGFP and shCOX-2 MCF10DCIS tumors. B) Average tumor volume for postpartum animals injected with shGFP or shCOX-2 cells during involution. C) Pearson correlation analysis of tumor size and LVD, r=0.4579, n.s. p>0.05. D) H&E stained SCID mouse mammary tissues from Inv4 and 7 week regressed +/- CXB. E) # cleaved caspase 3 positive (CC3+) cells/mm2 in SCID mouse mammary tissues at involution day 4. F) GFP stained tumor cells in mouse lung section (top) and H&E stained section from a postpartum group animal depicting LVI (arrow).