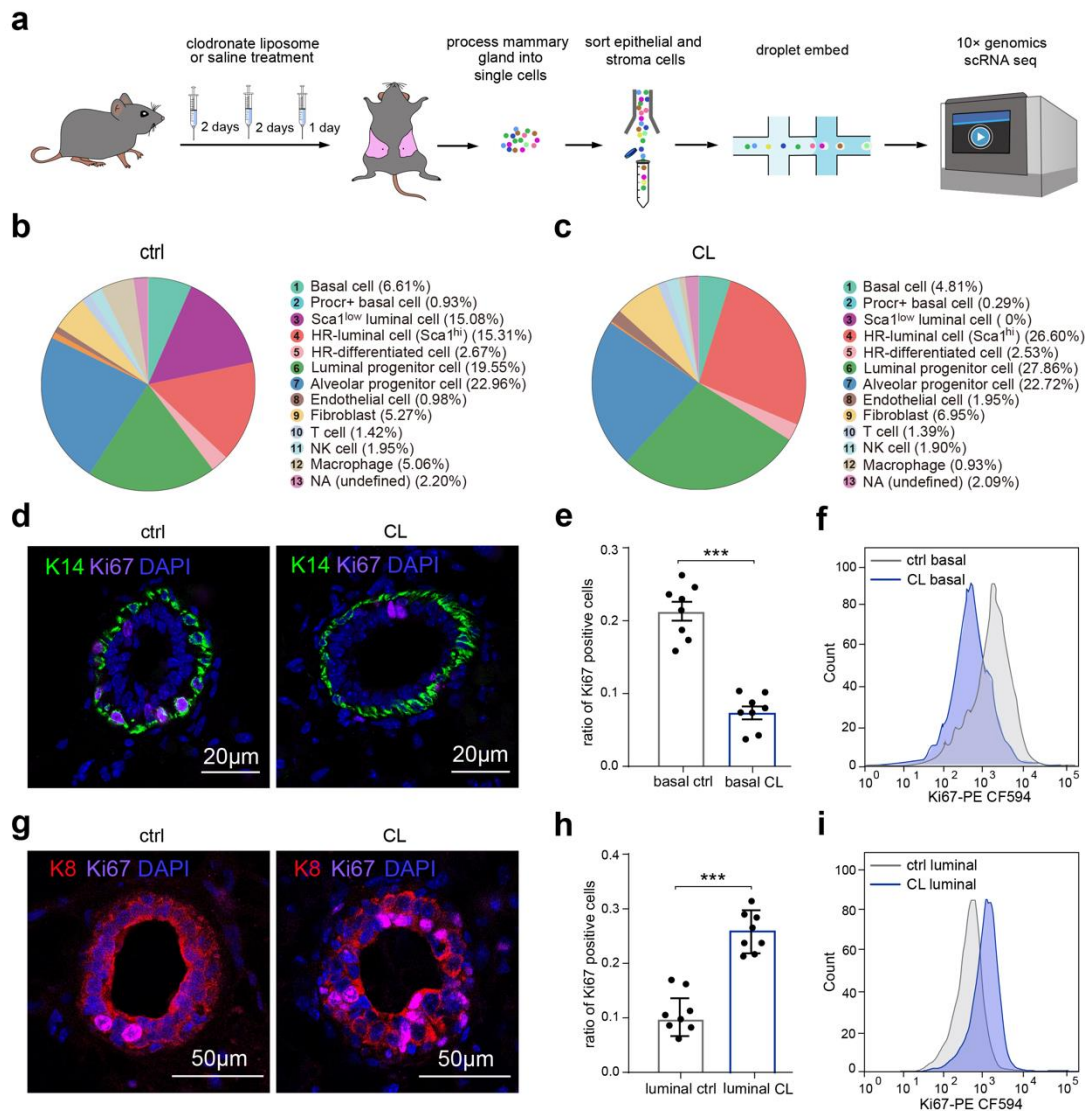
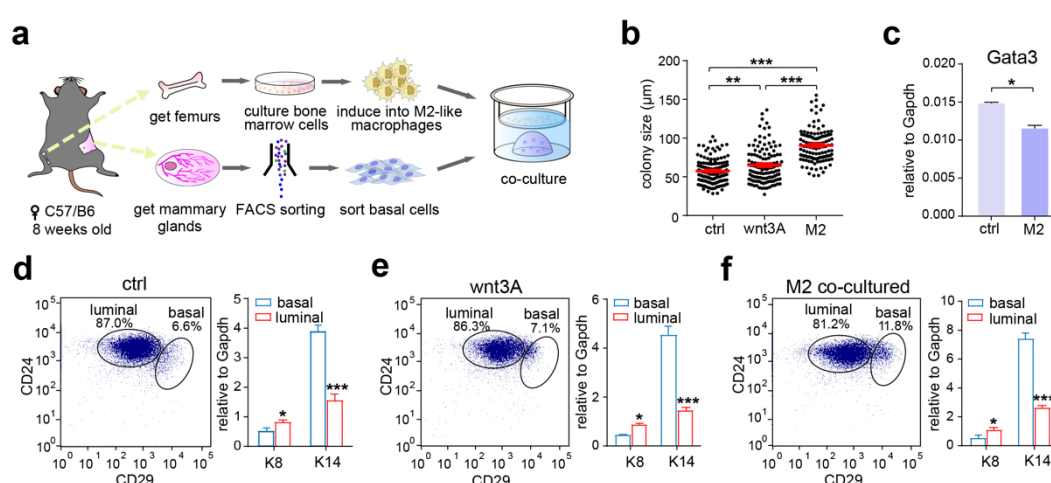




**Supplementary Fig. 1: Clodronate liposome (CL) administration inhibits the proliferation of basal cells while promotes the proliferation of luminal cells.** **a** Schematic illustration of intraperitoneal injection of clodronate liposome and single-cell RNA sequencing. **b** The pie chart shows the proportion of various cell clusters of the mammary glands from control mice. **c** The pie chart shows the proportion of various cell clusters of the mammary glands from CL treated mice. **d** Immunostaining of Ki67 and K14 in mouse mammary gland. Ctrl: control mice; CL: CL treated mice. **e** Statistics of the proportion of Ki67 positive cells in basal cells in (**d**), n=3 mice and 8 images. Data are presented

as mean  $\pm$  SEM. \*\*\*  $P \leq 0.001$ , unpaired t-test. **(f)** FACS analysis of Ki67 expression in basal cells. The results are representative of 3 independent experiments. **(g)** Immunostaining of Ki67 and K8 in mouse mammary gland. Ctrl: control mice; CL: CL treated mice. **(h)** Statistics of the proportion of Ki67 positive cells in luminal cells in **(g)**.  $n=3$  mice and 8 images. Data are presented as mean  $\pm$  SEM. \*\*\*  $P \leq 0.001$ , unpaired t-test. **(i)** FACS analysis of Ki67 expression in luminal cells. The results are representative of 3 independent experiments.



**Supplementary Fig. 2: Colony and organoid cell population analysis of cultured basal cells.** **a** Schematic illustration of the co-culture system of basal cells with bone marrow-derived macrophages (M2). **b** Quantification of the colony size of the basal derived colonies treated with Wnt3A or co-cultured with M2, compared with that of control.  $n=3$  replications, \*\*  $P \leq 0.01$ , \*\*\*  $P \leq 0.001$ , unpaired t-test. **c** qPCR analysis of *Gata3* expression in M2 co-cultured organoids compared with that of control,  $n=3$  replications, \*  $P \leq 0.05$ , unpaired t-test. **d-f** FACS analysis shows cell populations of digested colonies and organoids. qPCR analysis shows K14 and K5 expression of the colonies and organoids. Control basal cells (**d**); Wnt3A treated basal cells (**e**); M2 co-cultured basal cells (**f**). The results are representative of 3 independent experiments.  $n=3$  replications, \*  $P \leq 0.05$ , \*\*\*  $P \leq 0.001$ , unpaired t-test.

## Supplementary table 1

### Primers for qRT-PCR

|                 |                            |
|-----------------|----------------------------|
| <i>Bcl11b</i>   | F: CCCGACCCTGATCTACTCAC    |
|                 | R: GGAGGTGGACTGCTCTTGT     |
| <i>Gata3</i>    | F: CTCGGCCATTCGTACATGGAA   |
|                 | R: GGATACCTCTGCACCGTAGC    |
| <i>K14</i>      | F: AGCGGCAAGAGTGAGATTCT    |
|                 | R: CCTCCAGGTTATTCTCCAGGG   |
| <i>K8</i>       | F: TCCATCAGGGTGA CT CAGAAA |
|                 | R: CCAGCTTCAAGGGGCTCAA     |
| <i>Tnfrsf1b</i> | F: ACACCCTACAAACCGGAACC    |
|                 | R: AGCCTTCCTGTCATAGTATTCCT |
| <i>Mmp3</i>     | F: ACATGGAGACTTTGTCCCTTTTG |
|                 | R: TTGGCTGAGTGGTAGAGTCCC   |
| <i>Ccl2</i>     | F: TGCCCTAAGGTCTTCAGCAC    |
|                 | R: AAGGCATCACAGTCCGAGTC    |
| <i>Ccl7</i>     | F: GCTGCTTTCAGCATCCAAGTG   |
|                 | R: CCAGGGACACCGACTACTG     |
| <i>Cdk1</i>     | F: AGAAGGTACTTACGGTGTGGT   |
|                 | R: GAGAGATTTCCCGAATTGCAGT  |
| <i>Ccnb1</i>    | F: AAGGTGCCTGTGTGTGAACC    |
|                 | R: GTCAGCCCCATCATCTGCG     |
| <i>Cenpe</i>    | F: GAGCACCAAGAACTATTGACCG  |
|                 | R: CACGTTGACGCTCACTTGTCT   |
| <i>Ndc80</i>    | F: GCCTCTCTATGCAGGAGTTAAGG |
|                 | R: CGGTTTGTGTGTACTCAGCTT   |
| <i>Sgo1</i>     | F: ACGCGTAACGCAGAATTTCTG   |
|                 | R: AATTCATCTCGGCCACTCAGG   |
| <i>Sgo2a</i>    | F: ACCTGAATCCTGGTCTTCGC    |
|                 | R: AGGAGTGGCTACCGAGAAGG    |

## Supplementary table 2

### Antibodies for immunochemistry

| Antibodies         | Source                               | Identifier     | Dilution |
|--------------------|--------------------------------------|----------------|----------|
| Milk               | Nordic Immunological Laboratories    | Cat#RAM/MSP    | 1:400    |
| Krt14              | Wuhan Dia-an Biotechnology Co., Ltd. | Cat#C0740      | 1:200    |
| Krt8               | DSHB                                 | Cat#TROMA-I    | 1:1000   |
| Ki67               | BioLegend                            | Cat#151202     | 1:400    |
| $\alpha$ - tubulin | Proteintech                          | Cat#11224-1-AP | 1:200    |