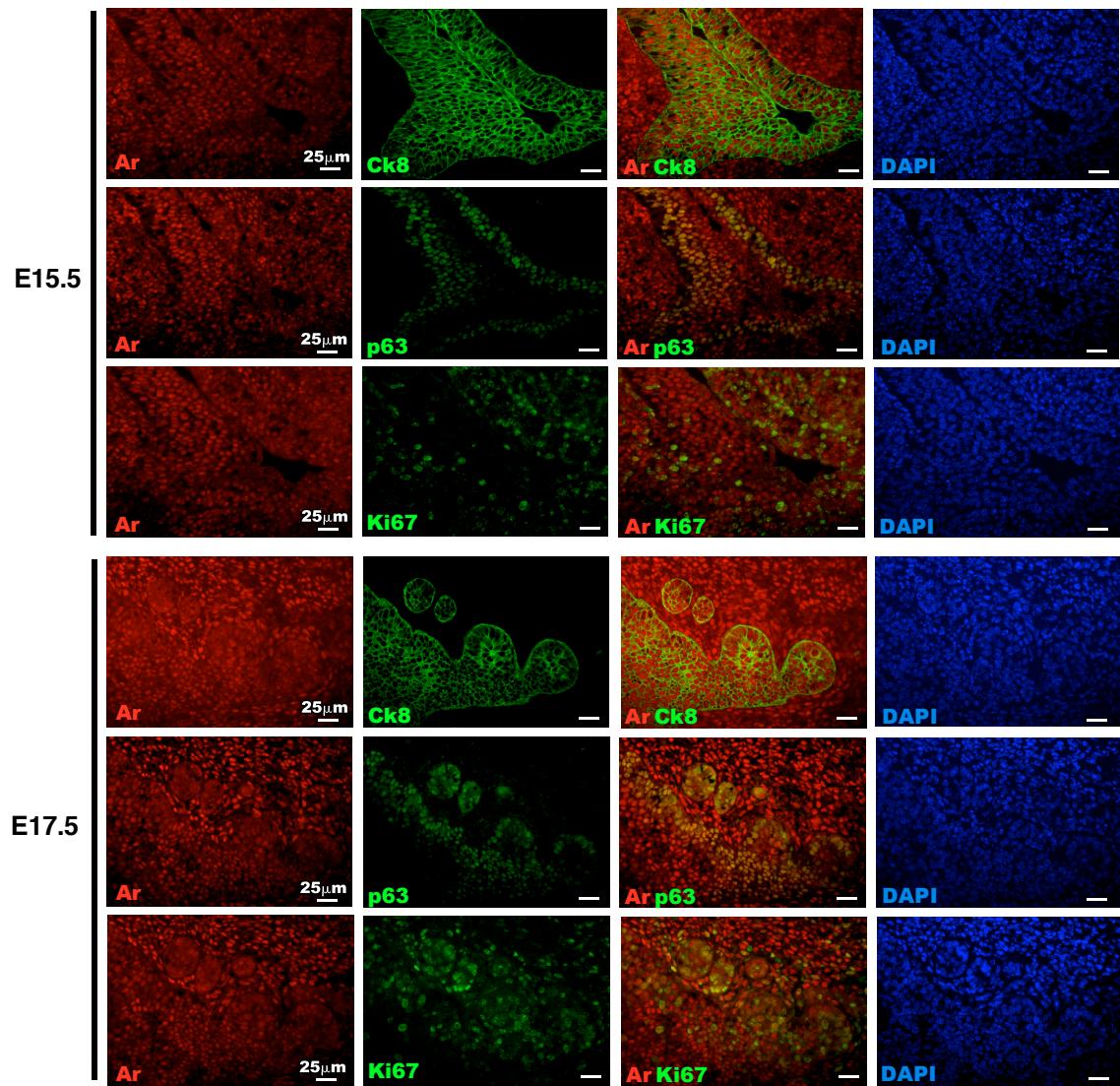
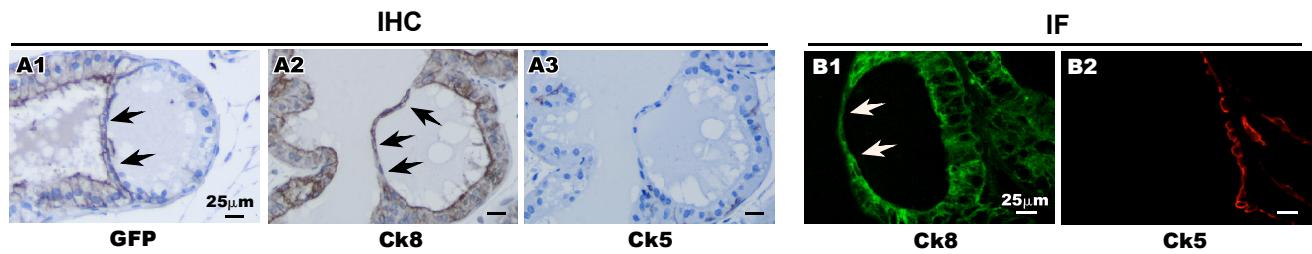


Supplemental Figure 1



Supplemental Figure 2



Supplemental Figure 3

Supplemental Table 1

| Supporting data for Figure 2 |             |             |                 |       |             |             |                 |
|------------------------------|-------------|-------------|-----------------|-------|-------------|-------------|-----------------|
| E15.5                        | GFP+ in UGE | GFP+ in UGM | GFP+UGE/GFP+UGM | E17.5 | GFP+ in UGE | GFP+ in UGM | GFP+UGE/GFP+UGM |
| #1                           | 29          | 72          | 40.3            | #1    | 231         | 396         | 58.3            |
| #2                           | 47          | 145         | 32.4            | #2    | 236         | 423         | 55.8            |
| #3                           | 47          | 109         | 43.1            | #3    | 309         | 421         | 73.4            |
| Total                        | 123         | 326         | 37.7            | Total | 776         | 1240        | 62.6            |
|                              | Mean        |             | 38.6            |       | Mean        |             | 62.5            |
|                              | SD          |             | 5.5             |       | SD          |             | 9.5             |

Supplemental Table 2

| Supporting data For Figure 3 I |              |             |            |                                 |              |             |            |      |
|--------------------------------|--------------|-------------|------------|---------------------------------|--------------|-------------|------------|------|
| R26RmTmG/+ Axin2CreERT2/+      | Ki67+ E-cad+ | Total E-cad | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | Ki67+ E-cad+ | Total E-cad | Percentage |      |
| #1                             |              | 122         | 826        | 14.8 #1                         |              | 36          | 756        | 4.8  |
| #2                             |              | 102         | 881        | 11.6 #2                         |              | 41          | 573        | 7.1  |
| #3                             |              | 130         | 748        | 17.4 #3                         |              | 20          | 669        | 2.9  |
|                                |              | Mean        | 14.6       |                                 |              | Mean        | 4.9        |      |
|                                |              | SD          | 2.9        |                                 |              | SD          | 2.1        |      |
| R26RmTmG/+ Axin2CreERT2/+      | Ar+ E-cad+   | Total E-cad | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | Ar+ E-cad+   | Total E-cad | Percentage |      |
| #1                             |              | 851         | 857        | 99.3 #1                         |              | 59          | 740        | 7.9  |
| #2                             |              | 890         | 903        | 98.6 #2                         |              | 74          | 625        | 11.8 |
| #3                             |              | 727         | 731        | 99.5 #3                         |              | 38          | 719        | 5.3  |
|                                |              | Mean        | 99.1       |                                 |              | Mean        | 8.3        |      |
|                                |              | SD          | 0.5        |                                 |              | SD          | 3.3        |      |

Supplemental Table 3

| Supporting data For Figure 4 D |   |   |                                    |
|--------------------------------|---|---|------------------------------------|
| R26RmTmG/+ Axin2CreERT2/+      | Ki67 + cell in 1000 Epithelial cells (M1) | Ki67 + cell in 1000 Epithelial cells (M2) | Ki67+ in 1000 Epithelial cells(M3) |
| #1                             | 52  | 36  | 50                                 |
| #2                             | 45  | 40  | 42                                 |
| #3                             | 47  | 33  | 34                                 |
| <b>Mean</b>                    | 48  | 36.3                                      | 42                                 |
| <b>SD</b>                      | 2.9                                       | 2.9                                       | 6.5                                |

| R26RmTmG/+ ARL/Y Axin2CreERT2/+ | Ki67 + cell in 1000 Epithelial cells (M1) | Ki67 + cell in 1000 Epithelial cells (M2) | Ki67+ in 1000 Epithelial cells(M3) |
|---------------------------------|---|---|------------------------------------|
| #1                              | 14  | 15  | 21                                 |
| #2                              | 21  | 18  | 20                                 |
| #3                              | 23  | 12  | 14                                 |
| <b>Mean</b>                     | 19.3                                      | 15  | 18.3                               |
| <b>SD</b>                       | 3.9                                       | 2.4                                       | 3.1                                |

Supplemental Table 4

| Supporting date For Figure 5 D |   |   |                                    |
|--------------------------------|---|---|------------------------------------|
| R26RmTmG/+ Axin2CreERT2/+      | Ki67 + cell in 1000 Epithelial cells (M1) | Ki67 + cell in 1000 Epithelial cells (M2) | Ki67+ in 1000 Epithelial cells(M3) |
| #1                             | 52  | 42  | 50                                 |
| #2                             | 56  | 37  | 46                                 |
| #3                             | 49  | 44  | 44                                 |
| <b>Mean</b>                    | 52.3                                      | 41  | 47                                 |
| <b>SD</b>                      | 2.9                                       | 2.9                                       | 2.5                                |

| R26RmTmG/+ ArL/Y Axin2CreERT2/+ | Ki67 + cell in 1000 Epithelial cells (M1) | Ki67 + cell in 1000 Epithelial cells (M2) | Ki67+ in 1000 Epithelial cells(M3) |
|---------------------------------|---|---|------------------------------------|
| #1                              | 33  | 18  | 29                                 |
| #2                              | 26  | 27  | 24                                 |
| #3                              | 29  | 15  | 23                                 |
| <b>Mean</b>                     | 29.3                                      | 20  | 25.3                               |
| <b>SD</b>                       | 2.9                                       | 5.1                                       | 2.6                                |

Supplemental Table 5

| Supporting data For Figure 5 F Before Regeneration |                           |            |             |            |                                 |            |             |            |
|--|---------------------------|------------|-------------|------------|---------------------------------|------------|-------------|------------|
| AP   | R26RmTmG/+ Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage |
| #1   |                           | 74         | 574         | 13.1 #1    |                                 | 65         | 558         | 11.7       |
| #2   |                           | 35         | 607         | 5.8 #2     |                                 | 18         | 543         | 3.3        |
| #3   |                           | 45         | 549         | 8.2 #3     |                                 | 29         | 571         | 5.1        |
|  |                           | Mean       | 9           |            |                                 | Mean       | 6.7         |            |
|  |                           | SD         | 3.7         |            |                                 | SD         | 4.4         |            |
| DLP  | R26RmTmG/+ Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage |
| #1   |                           | 56         | 507         | 11.2 #1    |                                 | 43         | 493         | 8.7        |
| #2   |                           | 29         | 551         | 5.3 #2     |                                 | 17         | 522         | 3.3        |
| #3   |                           | 32         | 486         | 6.7 #3     |                                 | 18         | 519         | 3.6        |
|  |                           | Mean       | 7.7         |            |                                 | Mean       | 5.2         |            |
|  |                           | SD         | 3.1         |            |                                 | SD         | 3           |            |
| VP   | R26RmTmG/+ Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage |
| #1   |                           | 48         | 511         | 9.5 #1     |                                 | 30         | 470         | 6.4        |
| #2   |                           | 15         | 483         | 3.2 #2     |                                 | 5          | 454         | 1.1        |
| #3   |                           | 22         | 479         | 4.7 #3     |                                 | 16         | 477         | 2.7        |
|  |                           | Mean       | 5.8         |            |                                 | Mean       | 3.4         |            |
|  |                           | SD         | 3.3         |            |                                 | SD         | 2.7         |            |
| Supporting data For Figure 5 F After Regeneration  |                           |            |             |            |                                 |            |             |            |
| AP   | R26RmTmG/+ Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage |
| #1   |                           | 1170       | 2408        | 48.6 #1    |                                 | 381        | 2270        | 16.8       |
| #2   |                           | 1975       | 2634        | 75 #2      |                                 | 572        | 2436        | 23.5       |
| #3   |                           | 1285       | 2536        | 50.7 #3    |                                 | 329        | 2098        | 15.7       |
|  |                           | Mean       | 58.1        |            |                                 | Mean       | 18.7        |            |
|  |                           | SD         | 14.7        |            |                                 | SD         | 4.2         |            |
| DLP  | R26RmTmG/+ Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage |
| #1   |                           | 1039       | 2083        | 49.9 #1    |                                 | 312        | 2095        | 14.9       |
| #2   |                           | 818        | 2217        | 36.9 #2    |                                 | 519        | 1974        | 26.3       |
| #3   |                           | 1016       | 2259        | 45 #3      |                                 | 342        | 1935        | 17.7       |
|  |                           | Mean       | 43.9        |            |                                 | Mean       | 19.6        |            |
|  |                           | SD         | 6.6         |            |                                 | SD         | 5.9         |            |
| VP   | R26RmTmG/+ Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage | R26RmTmG/+ ArL/Y Axin2CreERT2/+ | GFP+ cells | Total cells | Percentage |
| #1   |                           | 567        | 1978        | 28.7 #1    |                                 | 189        | 1807        | 10.5       |
| #2   |                           | 628        | 1969        | 31.9 #2    |                                 | 367        | 1942        | 18.9       |
| #3   |                           | 702        | 2013        | 34.9 #3    |                                 | 167        | 1883        | 8.9        |
|  |                           | Mean       | 31.8        |            |                                 | Mean       | 12.8        |            |
|  |                           | SD         | 3.1         |            |                                 | SD         | 5.4         |            |