Supplemental Materials

*Molecular Biology of the Cell*

Larose *et al.*
Figure S1: Evaluation of sample reproducibility across both genotypes and all time points analyzed. A) Heatmap of pairwise spearman rank correlation matrix among the 8 sample cluster centroids for each of the 7 cell-types. The bars on right and top demarcate either Cell type (i.e. spermatogonia, spermatocytes, interstitial progenitor, immature Leydig, adult Leydig, macrophage), genotype (SCARKO in light grey and Wild type dark grey), sample time point (samples are collected from a 21 day post partem unsynchronized testis or from 8, 13, and 16 days post RA injection (referred to as dpi)) . B) Contribution of each sample to merged dataset of 26,500 cells, visualized in UMAP space. The grey dots represent the merged dots. The colored circle represents the cells from a particular wild type or SCARKO dataset. dpi = days post RA injection. Note the 21 days post-partum (dpp) sample was collected from an unsynchronized testis.

Figure S2: Expression patterns of representative markers for the major clusters. Shown are the violin plots for each gene across the major cell types: Spermatogonia (SpG), Spermatocytes (SpC), Sertoli (Ser), Macrophages (Mac), Interstitial Progenitor (IP), Immature Leydig (IL), Mature Leydig (ML).

Table S1: Synchronization to enrich specific germ-cell types

Table S2A: The complete marker gene table for the 7 major cell type clusters

Table S2B: The average cluster centroid expression for all detected genes across the seven major clusters

Table S3: The Marker gene table for the 7 germ cell clusters regardless of genotype

Table S4: LR pathway analysis of germ cell differentially expressed genes.

Table S5: The Marker gene table for the 5 somatic cell clusters regardless of genotype
Figure S1

A

B

Table S1

| Time   | Genotype | Cell Type            |
|--------|----------|----------------------|
| 8dpi   | WT       | Spermatogonia        |
| 13dpi  | SCARKO   | Spermatocytes        |
| 16dpi  | WT       | Sertoli              |
| 22dpp  | SCARKO   | Interstitial Progenitor |
|        | WT       | Immature Leydig      |
|        | SCARKO   | Adult Leydig         |
|        | WT       | Macrophage           |

Rank Correlation
Figure S2

Spermatogonia (SpG)

- Stra8
- Dazl

Spermatocytes (SpC)

- Piwi1
- Spag6

Sertoli Cells (Ser)

- Rhox8
- Sox9
- Amhr2

Macrophage (Mac)

- Adger1
- Csf1r
- Cd68

Interstitial Progenitor (IP), Immature Leydig (IL), Adult Leydig (AL)

- Tcf21
- Nr2f2
- Pdgfra
- Col1A2
- Lhgr
- Star
- Cyp11A1

Figure S2