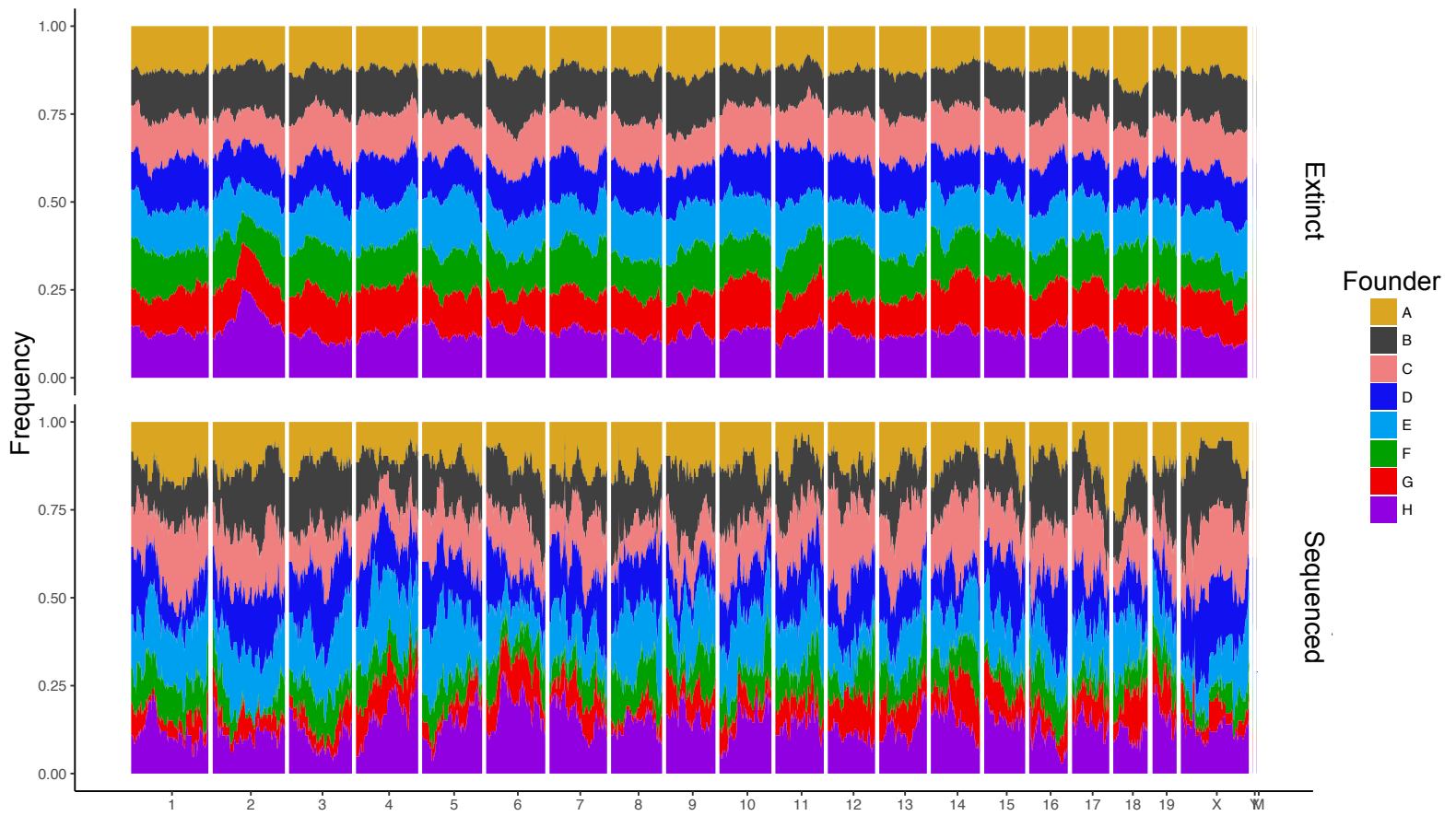
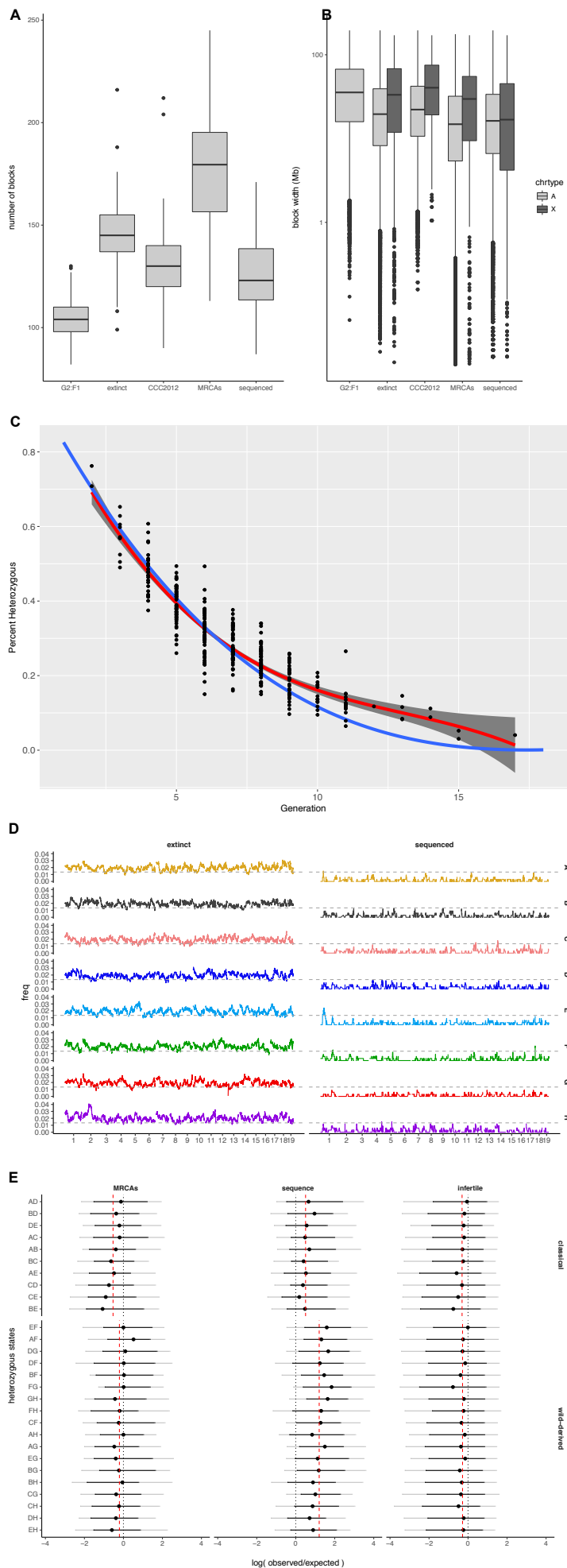


**Supplemental figure 1.** CC breeding nomenclatures. Funnel: the generations from the initiation of mating of the G0 through inbreeding. Line: funnels only in the inbreeding stage between the G2:F1 and the point they became more than 90% homozygous. Strain: a “fully” inbred line as well as the final CC product.



**Supplemental figure 2. Founder allele frequency distributions in CC populations.** The colors represent the eight founder strains: A/J, yellow; C57BL/6J, gray; 129S1/SvImJ, pink; NOD/ShiLtJ, dark blue; NZO/H1LtJ, light blue; CAST/EiJ, green; PWK/PhJ, red; and WSB/EiJ, purple. A) Founder allele frequency in CC extinct funnels. B) Founder allele frequency in CC living funnels



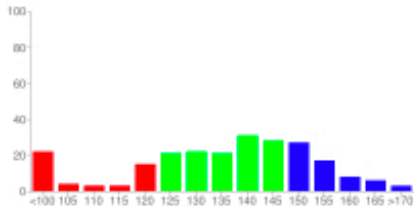
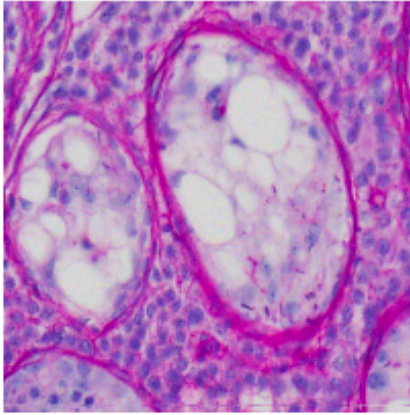
**Supplemental figure 3.** A) The number and haplotype blocks across CC cohorts. B) The length of haplotype blocks across CC cohorts. C) Heterozygosity per generation in CC extinct lines. The blue line represents predicted heterozygosity from a simulated model and the red line represents the observed fit line. Gray shading represents a 95% CI for the observed fit line. D) Genome wide distribution of heterozygosity of the CC extinct and CC sequenced populations. E) Pairwise founder contributions to heterozygosity across CC cohorts.



T\_OR1246m92\_A\_20X.tif: Loaded (8663, 10250)

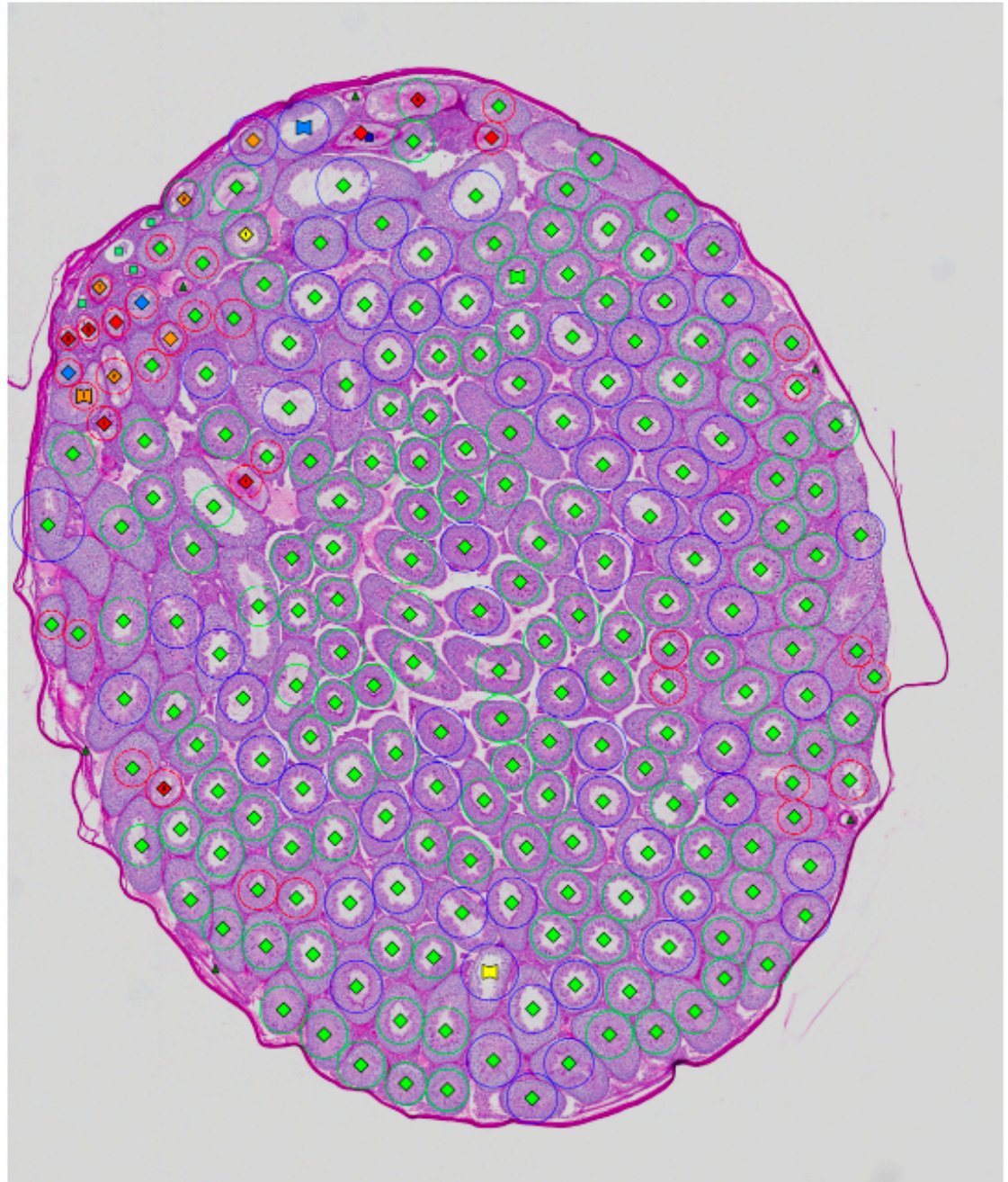
**Instructions:** A left-button click is used to add a new mark based on the current mode. A right-button click selects the closest existing mark, and a right-button drag selects all the marks in the rectangular. Press and hold "shift" to reduce magnification.

Retrieved Centers

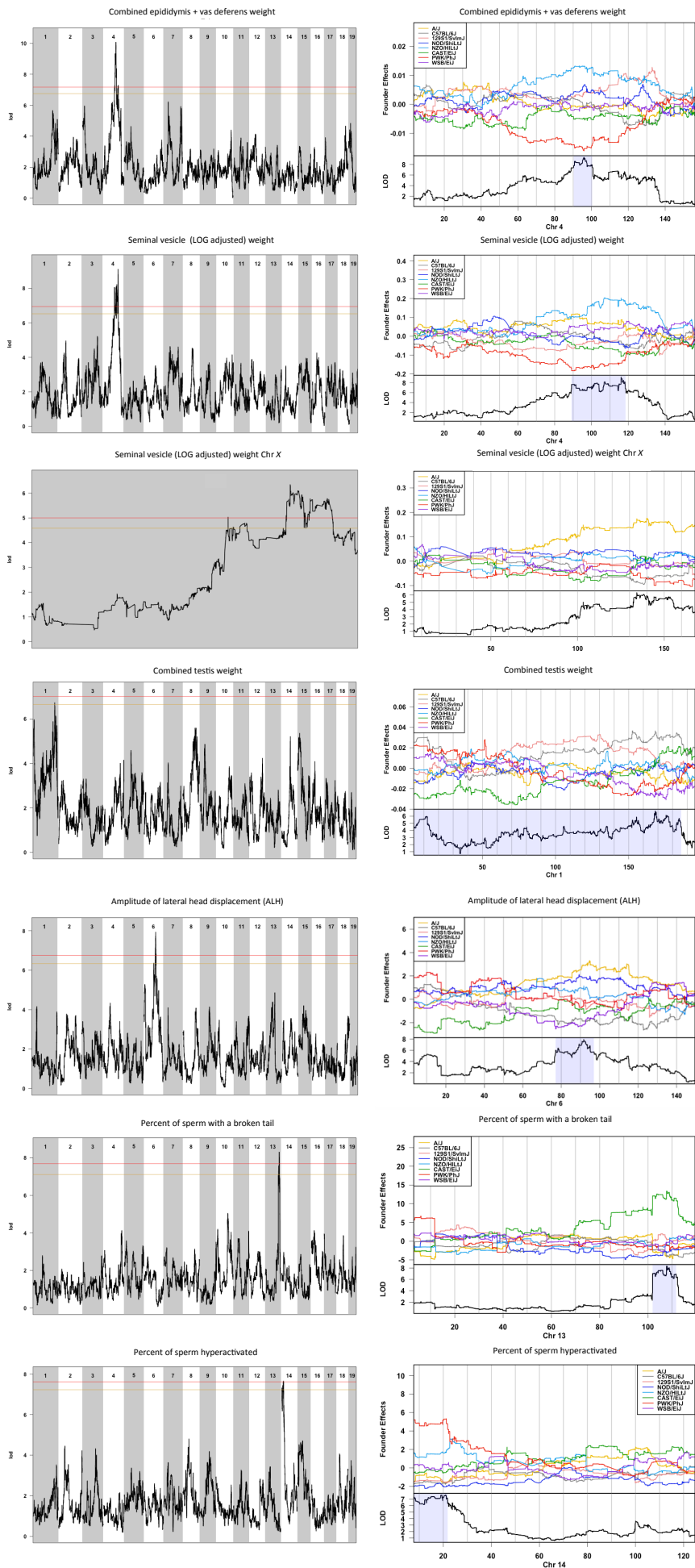


Display Radii

Glyph	Description
×	Unclassified
◆	No germ cell loss
◆	Loss of elongated spermatids
◆	Loss of elongated and round spermatids
◆	Loss of elongating spermatids, round spermatids and earlier germ cells (spermatocytes and/or spermatogonia)
◆	Sertoli cell only
◆	No germ cell loss , Abnormal germ cells
◆	Loss of elongated spermatids , Abnormal germ cells
◆	Loss of elongated and round spermatids , Abnormal germ cells
◆	Loss of elongating spermatids, round spermatids and earlier germ cells (spermatocytes and/or spermatogonia) , Abnormal germ cells
◆	No germ cell loss , Few vacuoles
◆	Loss of elongated spermatids , Few vacuoles
◆	Loss of elongated and round spermatids , Few vacuoles
◆	Loss of elongating spermatids, round spermatids and earlier germ cells (spermatocytes and/or spermatogonia) , Few vacuoles
◆	Sertoli cell only , Few vacuoles
◆	No germ cell loss , Abnormal germ cells, Few vacuoles



**Supplemental figure 5.** A screen capture of the image analysis tool for testis histology annotation. A composite image from male OR1246m92 on the right, with glyphs indicating histological features.



**Supplemental figure 5. QTLs of reproductive traits in CC extinct lines.** Chromosomes are ordered across the x-axis with chromosome number labeled at the top. Y-axis is the LOD value. Autosomes and X chromosome were analyzed separately. Red line indicated a genome wide LOD significance threshold at  $P = 0.05$ , the gold line indicates a genome wide LOD significance threshold at  $P = 0.10$ . Light purple boxes indicated the 95% CI for QTL.



**Supplemental figure 7.** Genome wide genetic diversity for the six CC strains that have a PWK allele on chromosome 2.