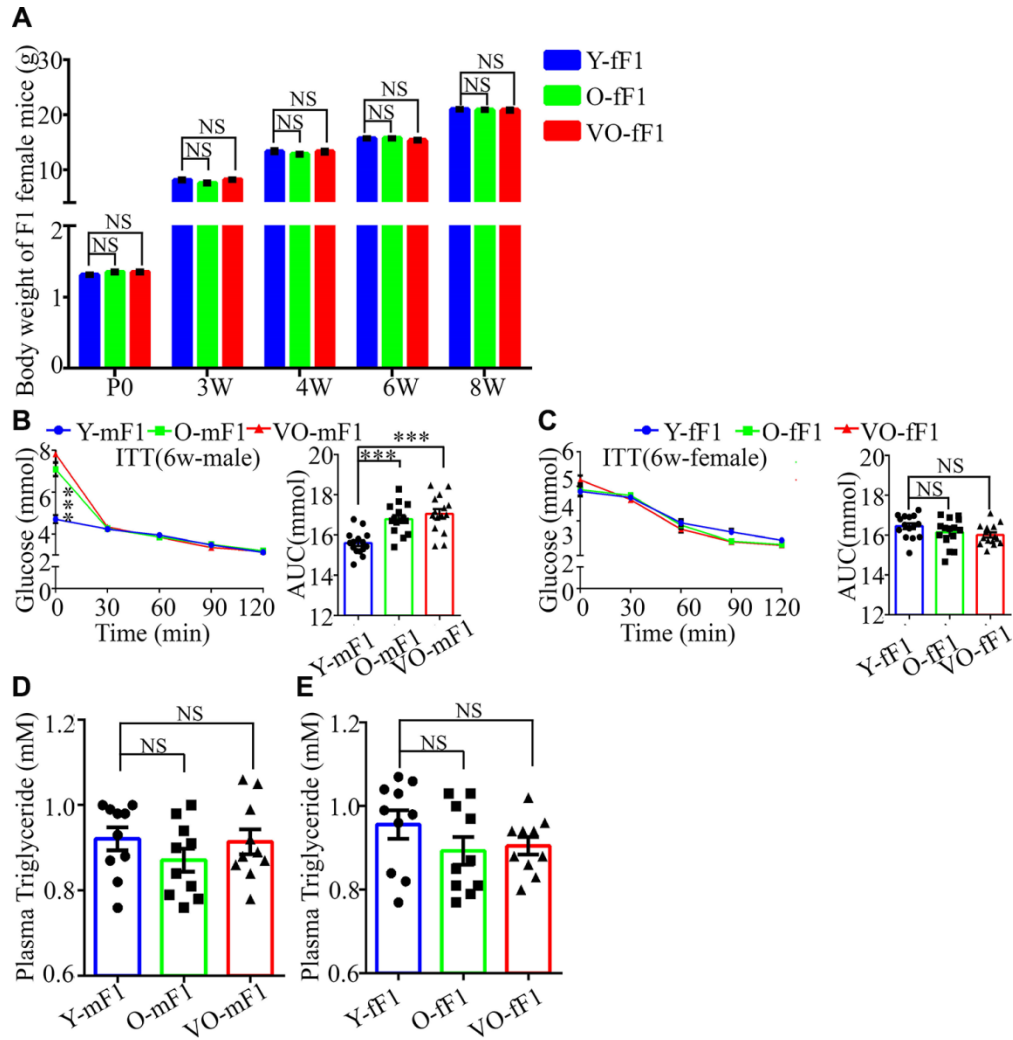
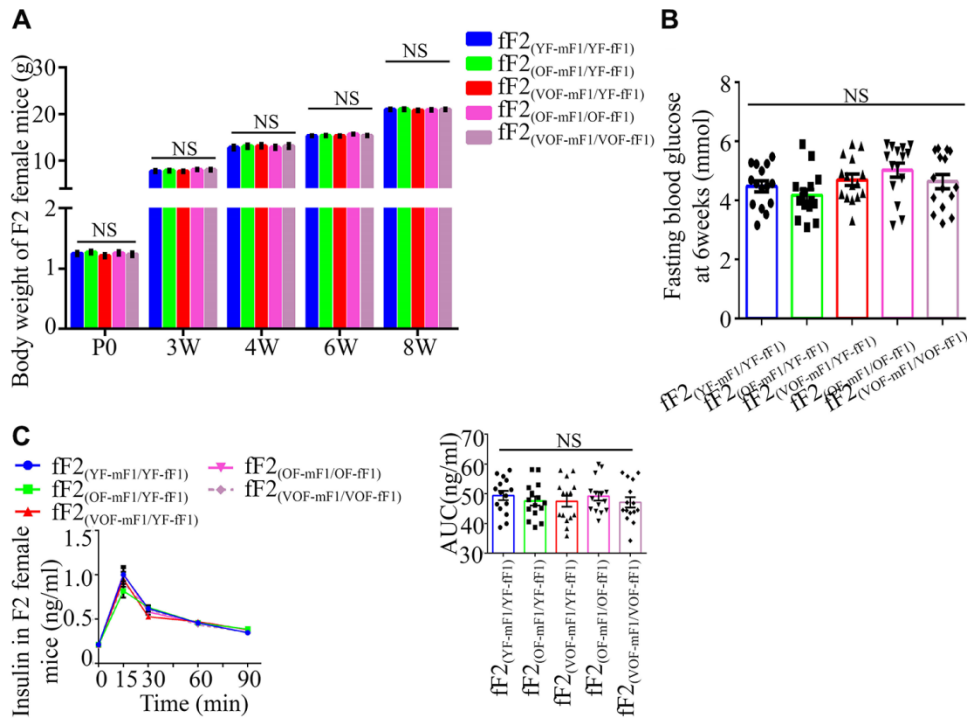


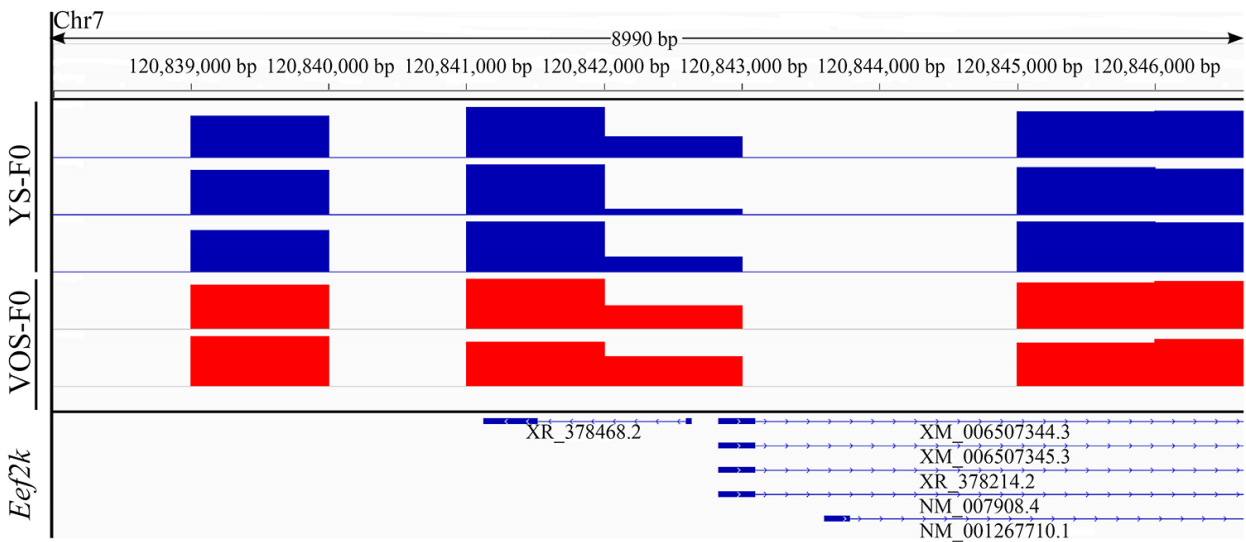
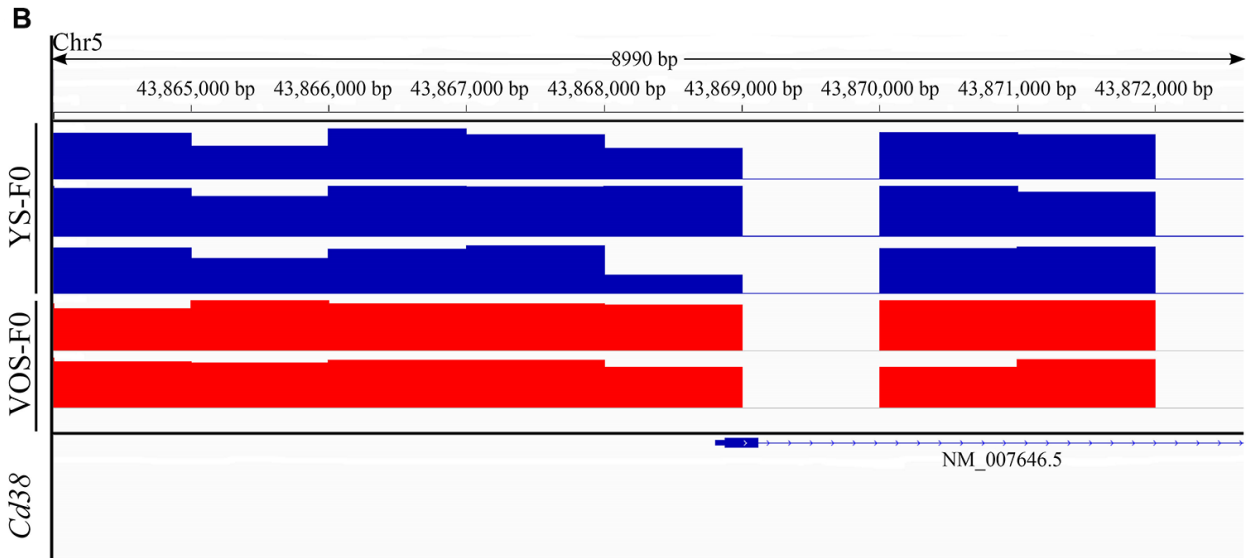
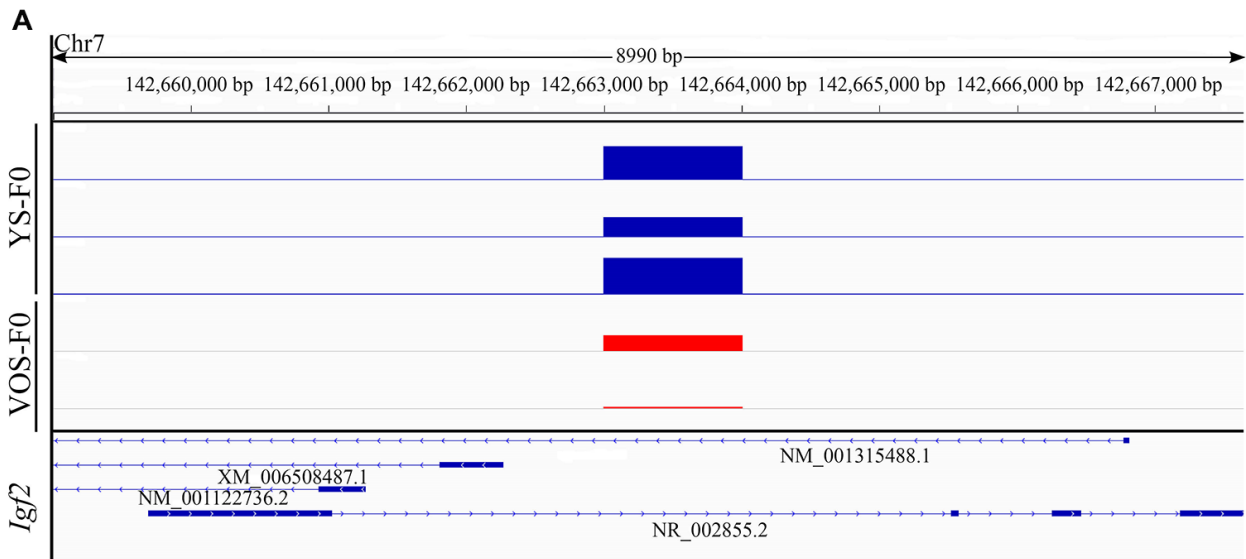
SUPPLEMENTARY FIGURES

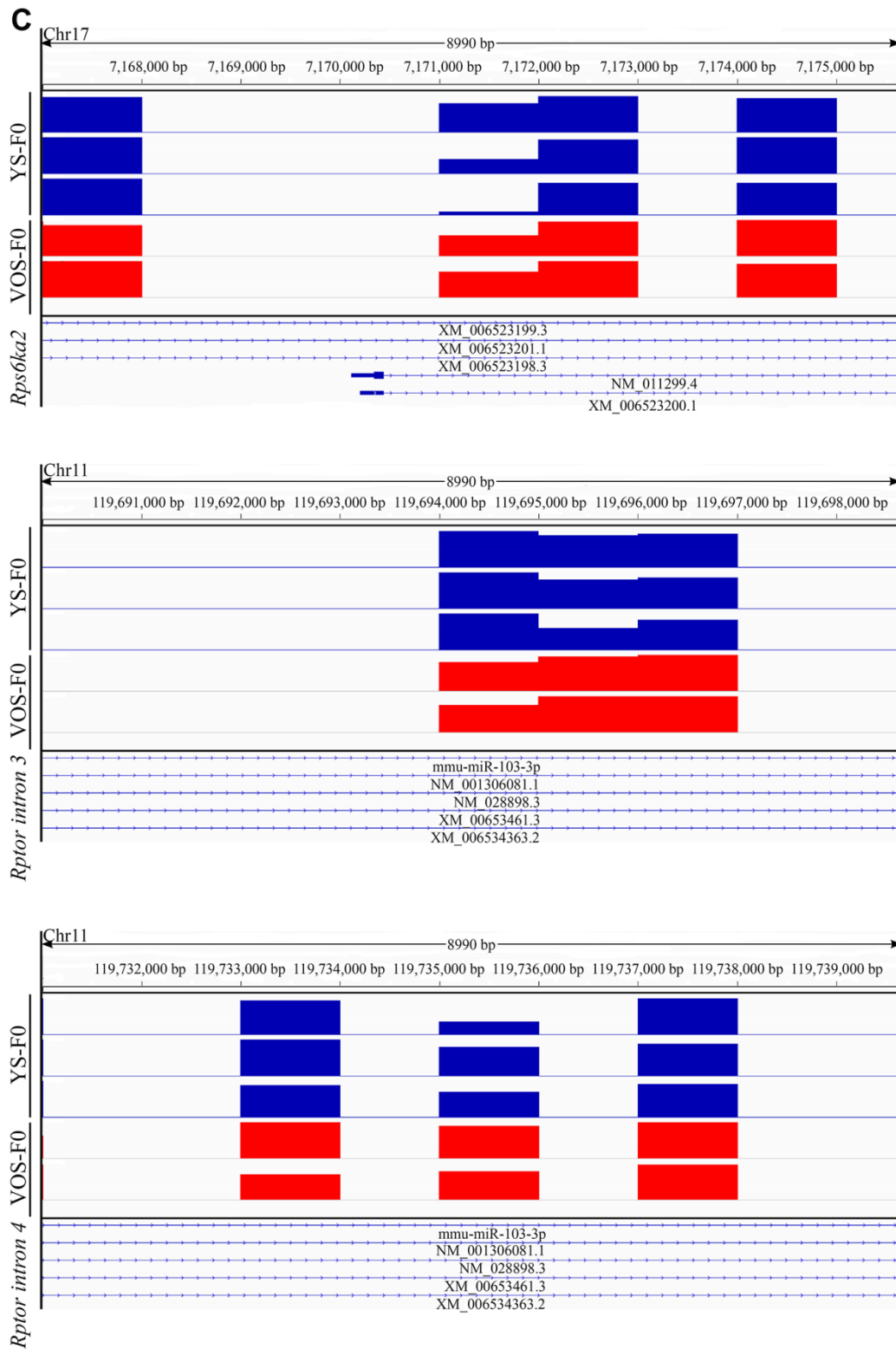


**Supplementary Figure 1. The body weight, insulin tolerance test and plasma triglyceride concentrations in OF-F1 and VOF-F1 male and female offspring.** (A) The body weight trajectories in female F1 offspring (n=30 female offspring for each group,  $\geq 5$  litter size/group). (B and C) Blood glucose during an insulin tolerance test (ITT) and AUC results at 6 weeks. (n=15/each sexual offspring,  $\geq 5$  litter size/group). (D and E) Plasma triglyceride concentrations in F1 male (D) and female (E) offspring at 15 weeks. Data are presented as the mean  $\pm$  s.e.m. NS,  $P \geq 0.05$ , (linear regression analysis for ITT assay and one-way ANOVA for other results).



**Supplementary Figure 2. The body weight and plasma insulin concentrations in F2 progeny.** (A) the body weight trajectories in female F2 progeny. (n=30 female offspring for each group,  $\geq 5$  litter size/group). (B) Fasting blood glucose. (n=15 female offspring for each group,  $\geq 5$  litter size/group) (C) Plasma insulin concentration in glucose-stimulated conditions. (n=15/female offspring for each group,  $\geq 5$  litter size/group). fF2 was referred as to the female progeny from F1 mice, respectively. Data are presented as the mean  $\pm$  s.e.m. NS,  $P \geq 0.05$  versus control (one-way ANOVA ).





**Supplementary Figure 3. The Genome Browser tracks of exemplar DMR of *Igf2* (NM\_001315488.1), *Cd38* (NM\_007646.5), *Eef2k* (NM\_007908.4), *Rps6ka2* (NM\_011299.4) and *Rptor* (NM\_00130681.1) genes. (A) The Integrative Genomics Viewer (IGV) of the DMR on *Igf2* promoter region. (B) The IGV of the DMR on *Cd38* and *Eef2k* promoter regions, which are involved in Oxytocin signaling pathway. (C) The IGV of the DMR of *Rps6ka2* promoter region and *Rptor* intron 3 and 4 regions, which are involved in mTOR signaling pathway. The samples named YS-F0 refers as young mice sperm-F0 and VOS-F0 refers as very old mice sperm-F0. The high levels of blue and red strips indicate the DNA methylation levels.**