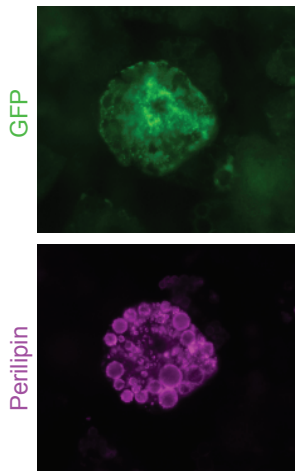
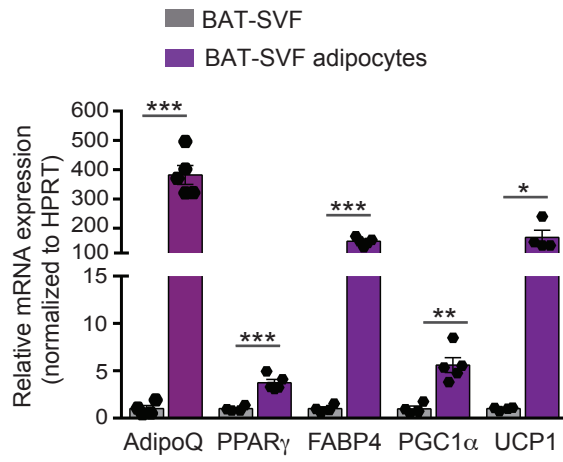
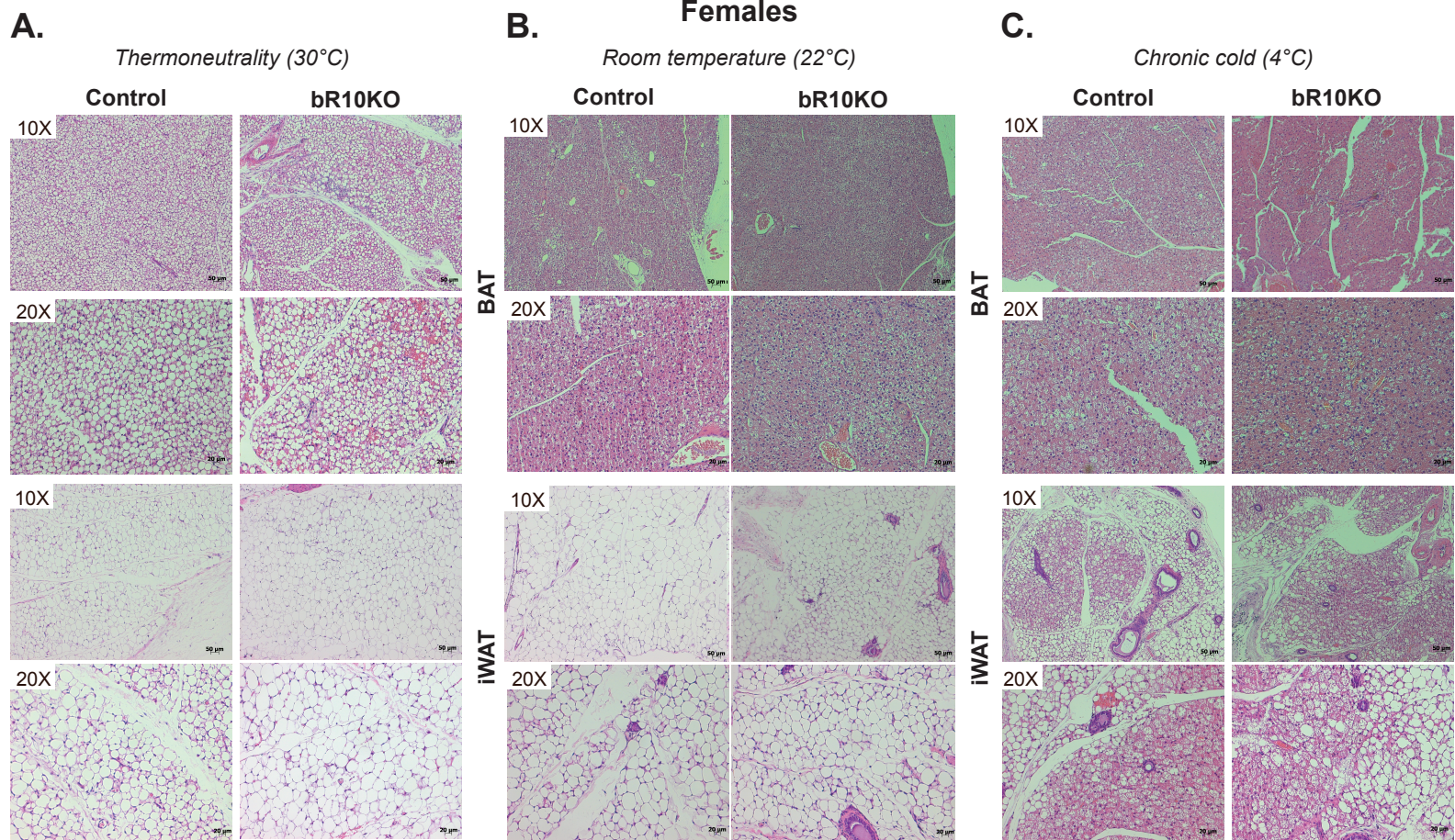
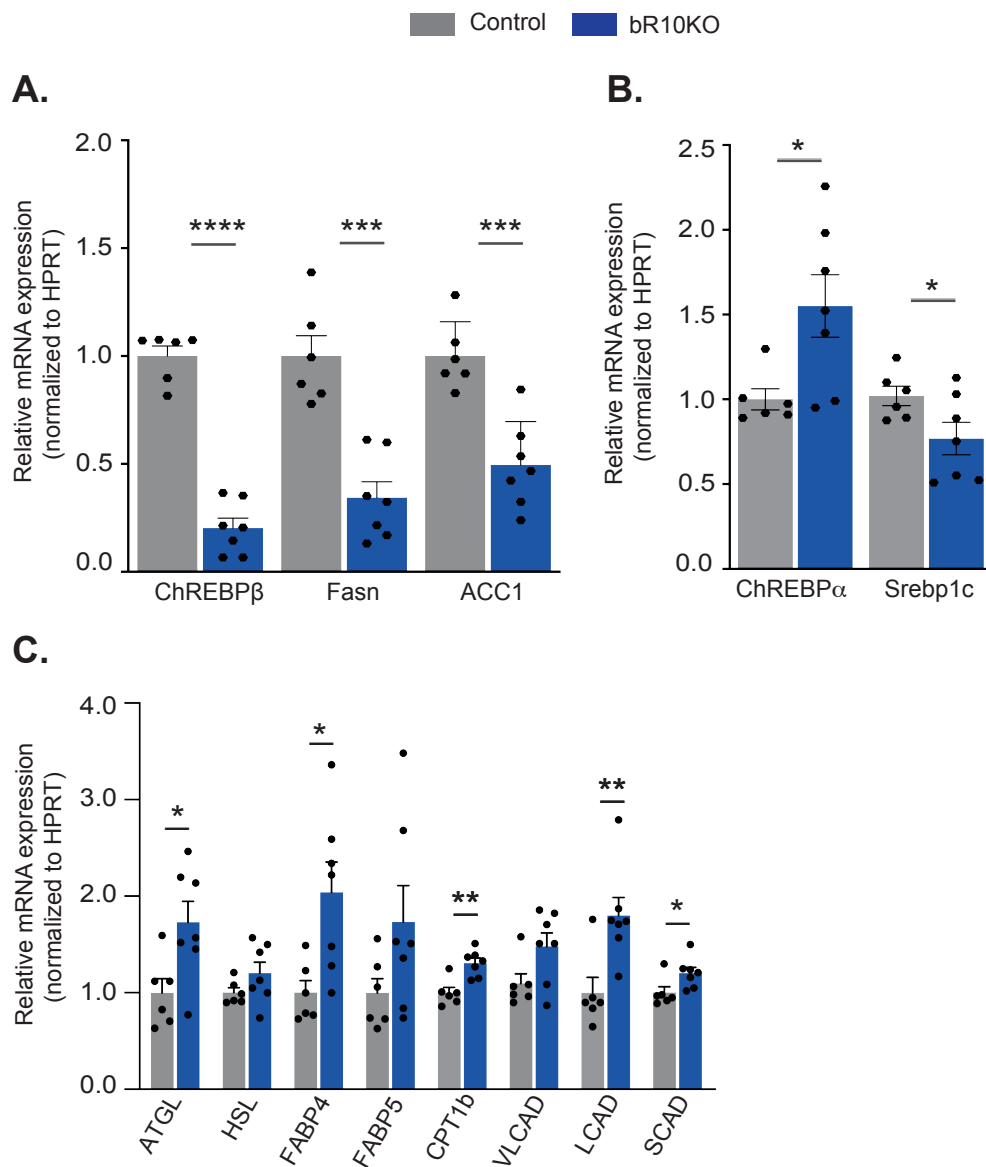


**A.****BAT-SVF adipocytes****B.**

**Supplementary Figure 1. BAT-SVF adipocytes.** A. Immunofluorescence staining for perilipin in BAT-SVF adipocytes. B. qPCR analysis of mRNA levels of brown adipocyte markers of BAT-derived SVF cells before and after differentiation into adipocytes. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.



**Supplementary Figure 2. Brown (BAT) and inguinal white adipose tissue (iWAT) from female mice.** A. BAT and iWAT from female mice acclimated to thermoneutrality for 21 days. B. BAT and iWAT from female mice housed at room temperature. C. BAT and iWAT from female mice acclimated to chronic cold for 14 days. Images are shown at 10X and 20X magnification with 50µm and 20µm scale bars respectively.



**Supplementary Figure 3. ChREBP $\beta$  and DNL-related gene expression are blunted in Rab10KO BAT from male mice.** mRNA expression for A. ChREBP $\beta$ , Fasn and ACC1 and B. ChREBP $\alpha$  and Srebp1c in BAT samples from 9-12 weeks of age male mice at thermoneutrality (30°C) for 3 weeks (n=5-7 mice/group). C. mRNA expression for key fatty acid transportation proteins and fatty acid lipolysis and  $\beta$ -oxidation enzymes in BAT samples from 9-12 weeks of age male mice at thermoneutrality (30°C) for 3 weeks (n=5-7 mice/group). Unpaired Student's t-test was used for comparing groups. \*p<0.05, \*\*p<0.01\*\*\*p<0.001 and \*\*\*\*p<0.0001.