

**Supplemental Figure 1.** Comparison of transgene effect on body weights of 3 month old lean mice. **a**, Males and **b**, Females. Values are means  $\pm$  S.D.,  $n \geq 5$ . \*,  $P < 0.05$ , when compared to +/+.

**Supplemental Figure 2.** Transgene expression in the hindbrain. *In situ* hybridization of LEPR-B mRNA in 25  $\mu$ M hypothalamic brain sections including Area Postrema (AP) and the Nucleus Tractus Solitarius (NTS). *In situ* hybridization autoradiographic images are represented in panels **a** and **b**. Genotypes are indicated. Panels **a** represents *Nse+Syn db/db* mice and panel **b** represents *Syn db/db* mice. There only appears to be expression in the AP of *Nse+Syn db/db* mice. There is also increased expression in the NTS in the *Nse+Syn db/db* brain compared to *Syn db/db*. Magnification 15x. Red arrowhead indicates AP, black arrowhead indicates NTS.

Figure S1

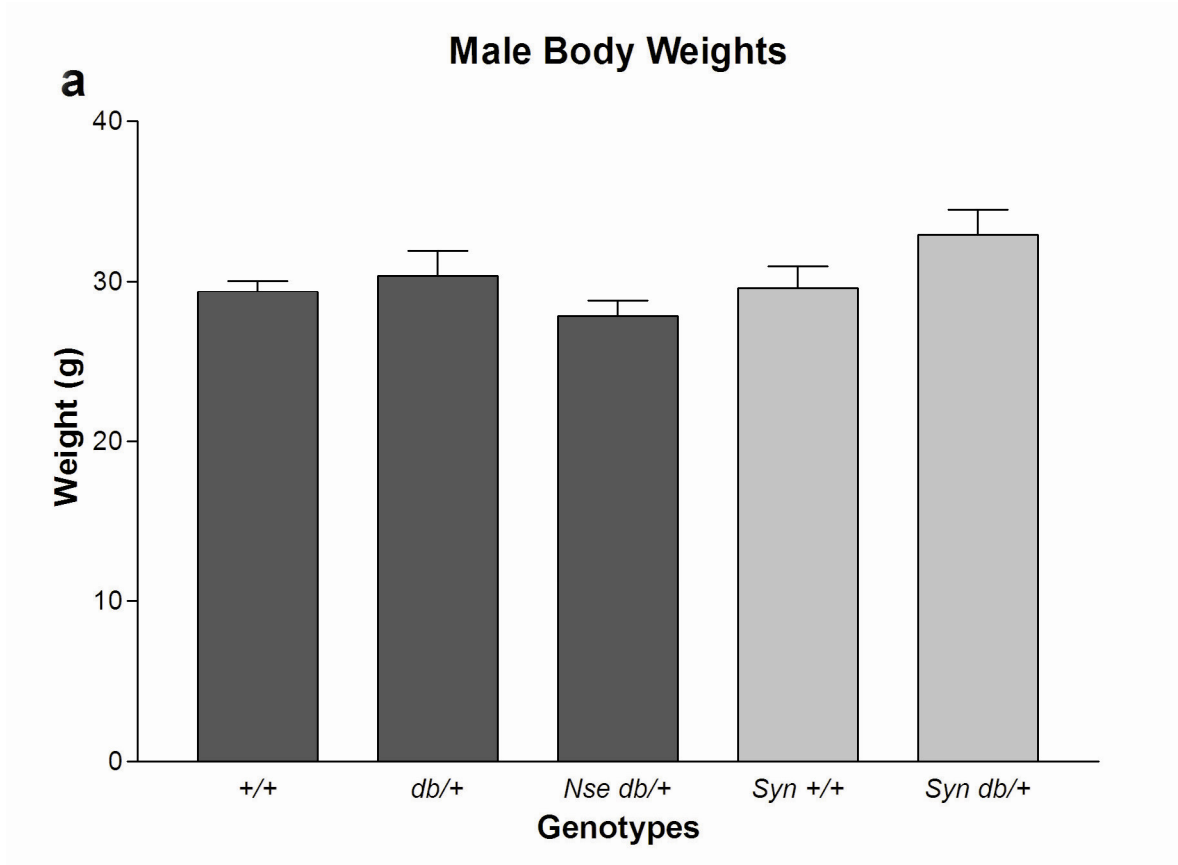


Figure S1b

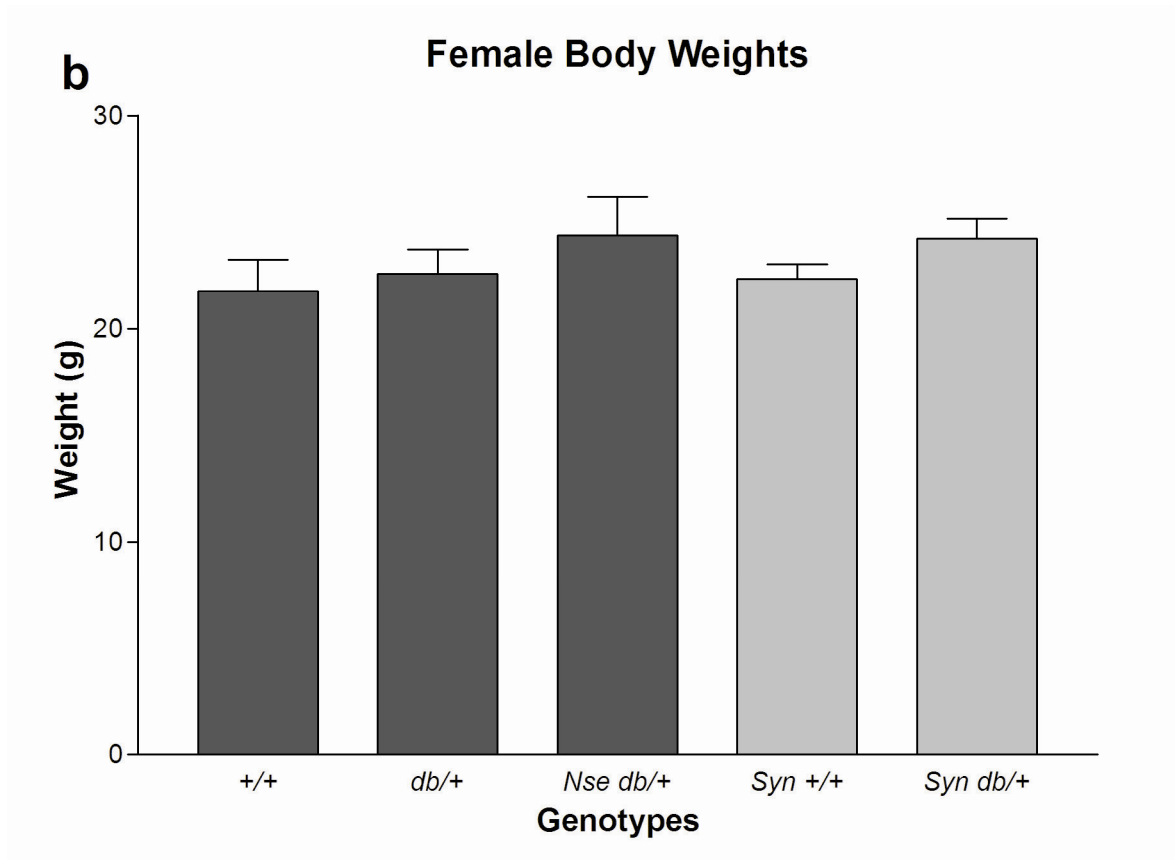


Figure S2

