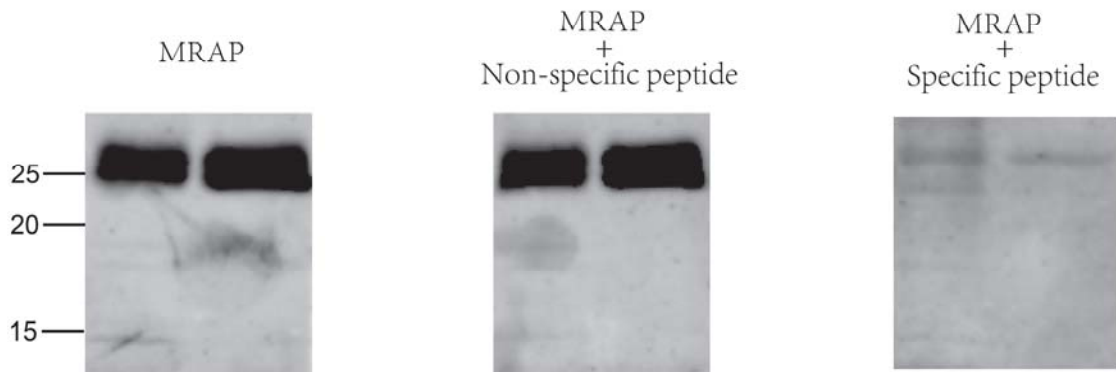


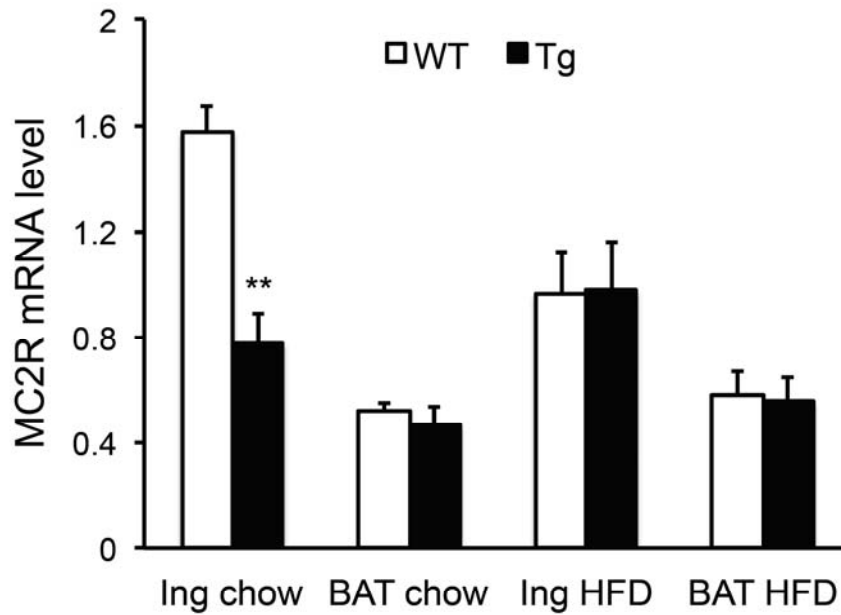
SUPPLEMENTARY DATA

**Supplementary Figure 1.** The specificity verification of the MRAP antibody. Lysates from inguinal WAT (left lane) and interscapular BAT (right lane) were immunoblotted using the newly generated MRAP antibody in the presence of either the antigenic peptide used to produce the MRAP antibody or a peptide derived from a non-specific MRAP sequence. The sequences of the specific peptide and the non-specific peptide are CLRRASLQTTEEPGRRAGTDQWLT and ASVPLTSYEYYLDYIDLIPVDEK, respectively. The peptides were obtained from FabGennix Int. Inc.



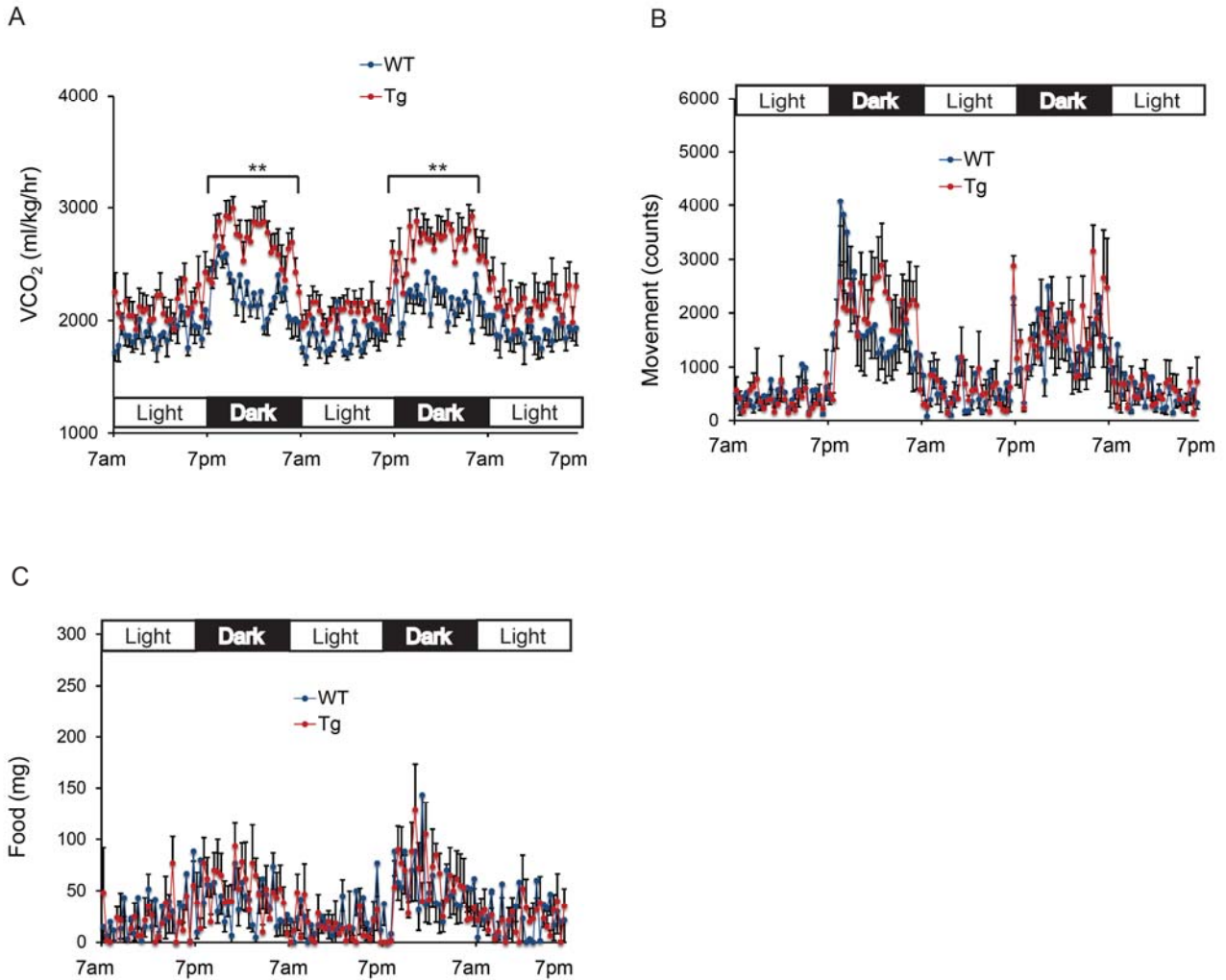
SUPPLEMENTARY DATA

**Supplementary Figure 2.** The MC2R expression in adipose tissues. RT-PCR was used to analyze the mRNA level of MC2R in adipose tissues isolated from mice fed either chow diet or HFD for 12 weeks. Ing, inguinal adipose tissue; BAT, brown adipose tissue. Data were shown as mean  $\pm$  SE ( $n = 4-5$  per group). \*\* $P < 0.01$  vs. Ing chow (WT).



SUPPLEMENTARY DATA

**Supplementary Figure 3.** Adipose over-expression of MRAP increases energy expenditure in HFD-fed mice. Female mice fed HFD for 12 weeks were subjected to a multi-day metabolic cage study. *A*: Carbon dioxide production. *B*: Movement. *C*: Food intake. All data were shown as mean  $\pm$  SE ( $n=6$  per group). **\*\* $P<0.01$  vs WT group.**



SUPPLEMENTARY DATA

**Supplementary Figure 4.** Adipose over-expression of MRAP ameliorates hyperlipidemia in female mice after 12 weeks of HFD feeding. *A*: Fed and 16-h fasted plasma FFA levels. *B*: Fed plasma triglyceride levels. *C*: Fed plasma cholesterol levels. All data were shown as mean  $\pm$  SE ( $n = 10$ – $12$  per group). \* $P < 0.05$ , \*\* $P < 0.01$  vs WT group.

