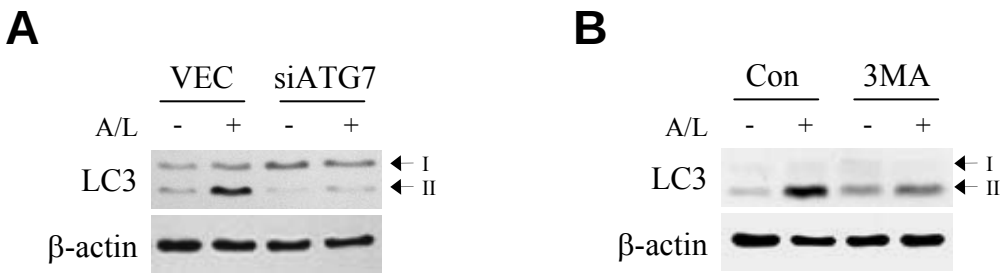
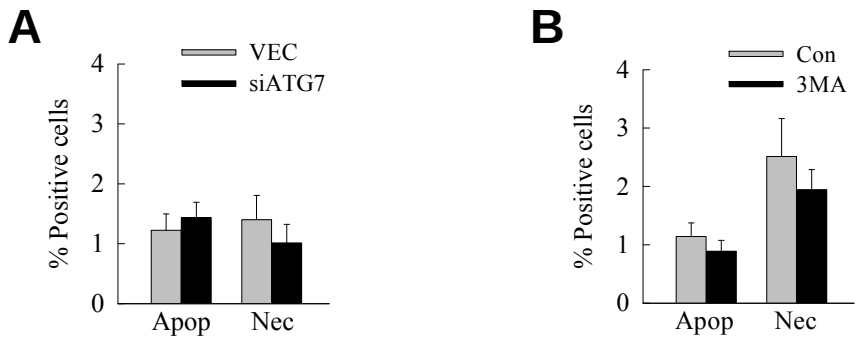


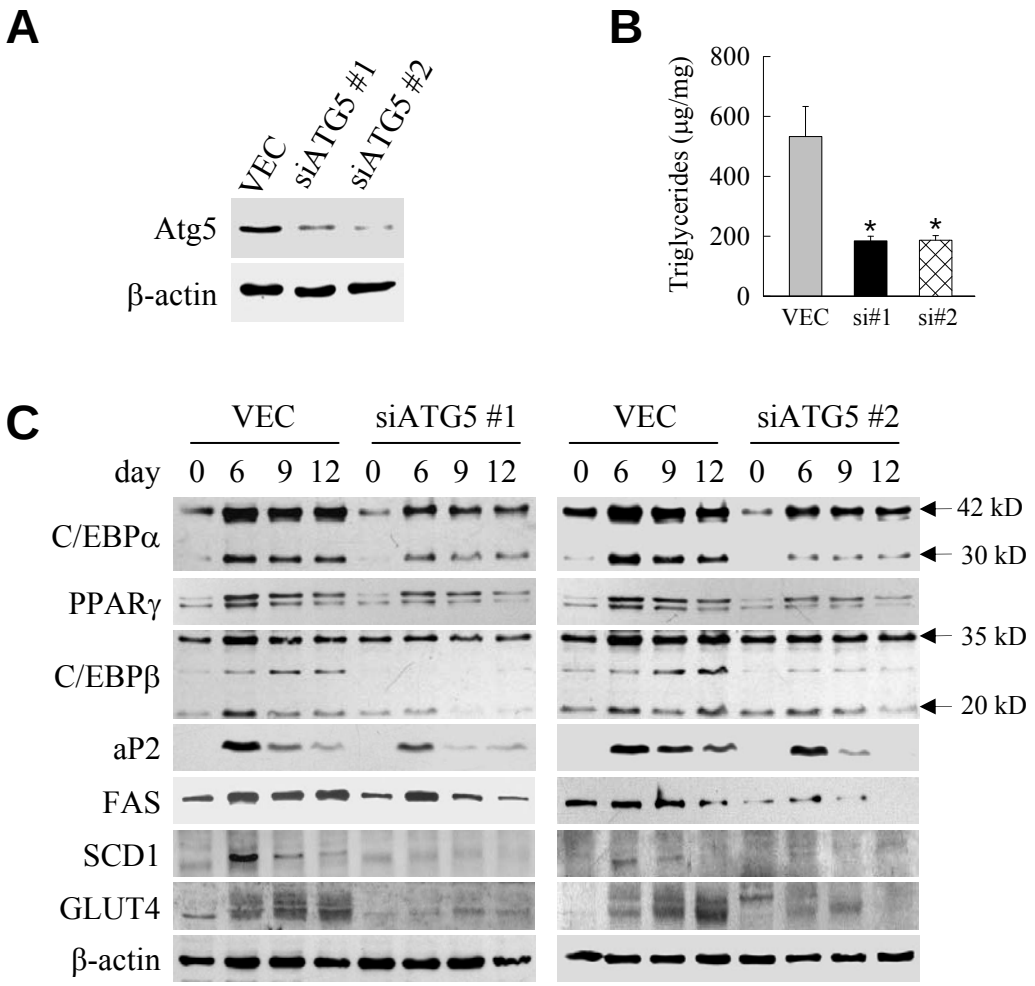
Supplemental Figure 1

Macroautophagy is inhibited in siATG7 and 3-methyladenine-treated cells. (**A**) Immunoblots of total protein from VEC and siATG7 cells untreated and treated with ammonium chloride and leupeptin (A/L) and probed for LC3 or β-actin. (**B**) Immunoblots of wild-type cells untreated (Con) or treated with 3-methlyadenine (3MA) in the absence or presence of ammonium chloride/leupeptin. The LC3-I and LC3–II forms are indicated by arrows.



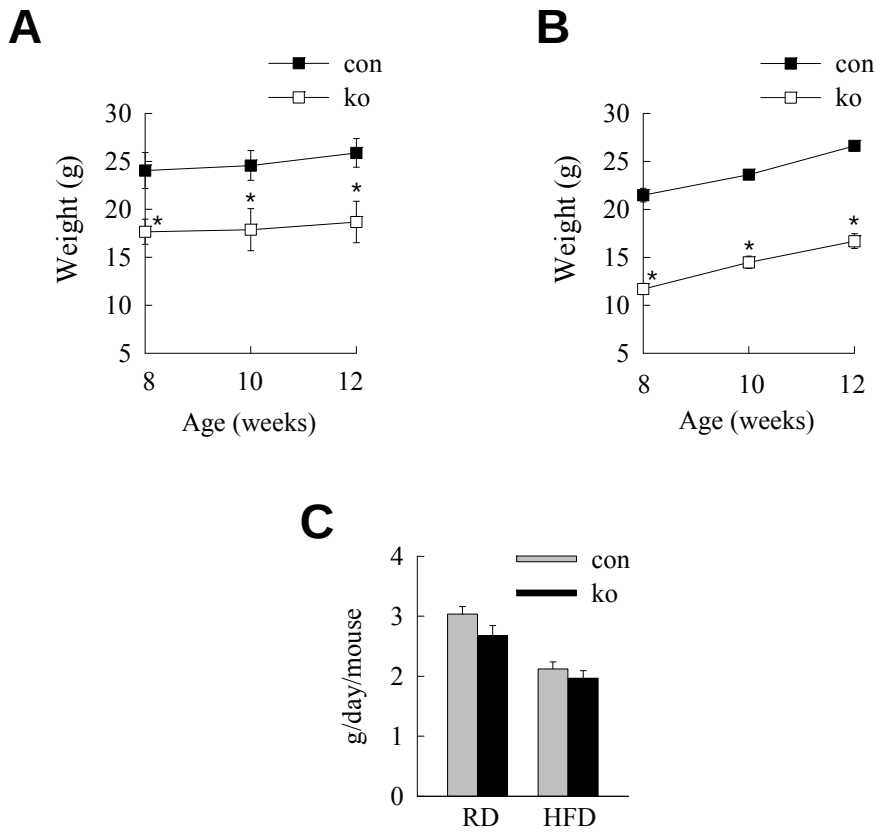
Supplemental Figure 2

An inhibition of autophagy does not induce 3T3-L1 cell death. The percentages of apoptotic (Apop) and necrotic (Nec) cells were determined after acridine orange/ethidium bromide costaining by fluorescence microscopy 24 h after the induction of adipocyte differentiation in VEC and siATG7 cells (**A**), and wild-type cells untreated (Con) or treated with 3-methyladenine (3MA) (**B**). Acridine orange stained cells were evaluated for morphological characteristics of apoptosis and cells staining positive for ethidium bromide were considered necrotic. Results are mean + SEM (*n*=3-4).



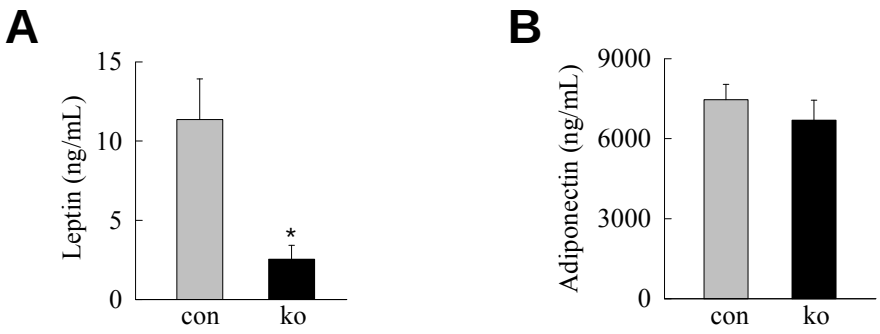
Supplemental Figure 3

Knockdown of *atg5* in 3T3-L1 cells blocks TG accumulation and adipocyte differentiation. (**A**) Total protein was isolated from VEC cells and cells stably infected with a lentivirus expressing one of two different shRNAs for *atg5* (siATG5 #1 and siATG5 #2 cells) and immunoblotted with antibodies for Atg5 and β-actin. (**B**) TG levels in VEC, siATG5 #1 and siATG5 #2 cells at Day 6 after initiation of adipocyte differentiation. Results are mean + SEM (n=6-7). *P<0.006 versus VEC cells. (**C**) Immunoblots of proteins isolated from VEC, siATG5 #1 and siATG5 #2 cells on the days of differentiation listed and probed with the indicated antibodies.



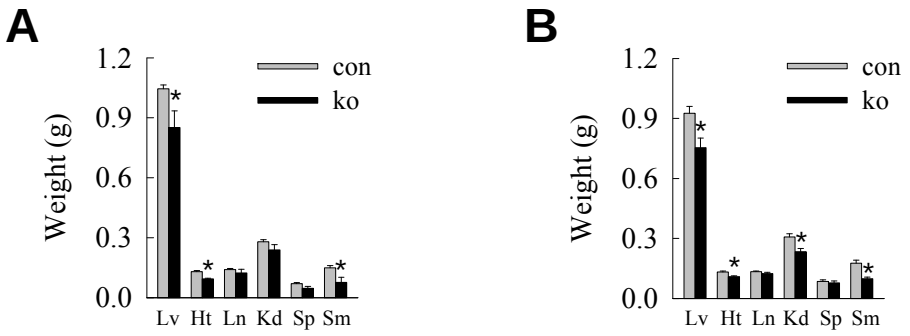
Supplemental Figure 4

Effects of the adipose-specific loss of *atg7* on body weight and food intake. (**A**) Total body weights of control (con) and knockout (ko) mice fed a RD (n=5). *P<0.04 versus control. (**B**) Body weights of HFD-fed animals (n=4). *P<0.001 versus control. (**C**) Average daily oral food intake measured over a two-week period in RD and HFD-fed mice (n=19-24). Results are mean ± SEM.



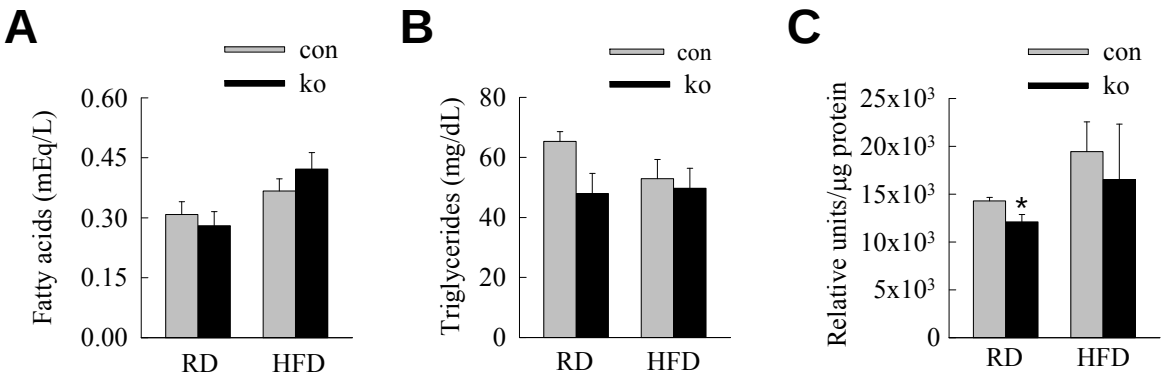
Supplemental Figure 5

Knockout mice have decreased serum leptin levels and no change in adiponectin levels. Serum levels of leptin **(A)** and adiponectin **(B)** in control (con) and knockout (ko) mice. Results are mean + SEM (n=5-11). *P<0.04 versus control.



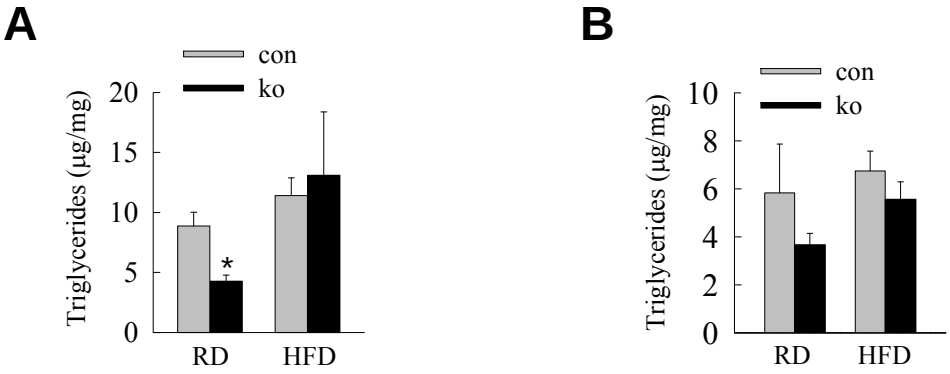
Supplemental Figure 6

Weights in non-adipose tissues. (**A**) Weights of liver (Lv), heart (Ht), lung (Ln), kidney (Kd), spleen (Sp) and skeletal muscle (Sm) from control (con) and knockout (ko) mice fed RD. (**B**) Organ weights from HFD-fed mice. Results are mean + SEM (n=3-9). *P<0.03 versus control.



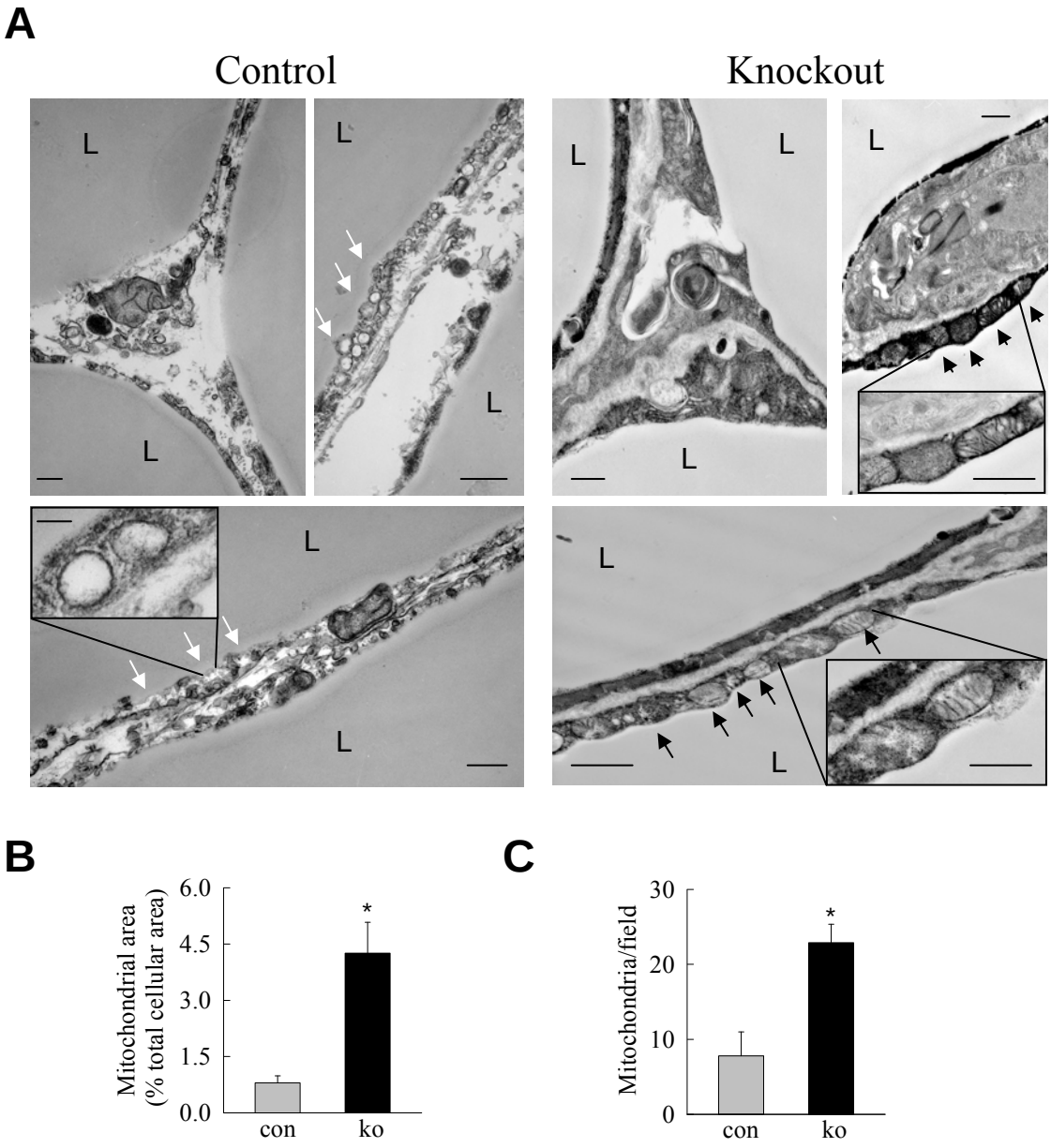
Supplemental Figure 7

Serum lipid levels in RD- and HFD-fed mice. Serum levels of fatty acids **(A)**, triglycerides **(B)** and total cholesterol **(C)** in control (con) and knockout (ko) mice. Results are mean + SEM (n=3-11). *P<0.04 versus control.



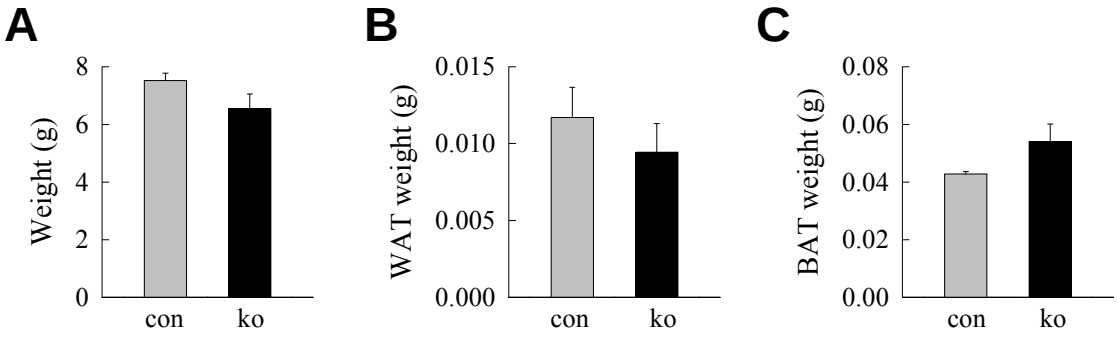
Supplemental Figure 8

TG content does not increase in non-adipose tissues. (**A**) Hepatic TG content. (**B**) Heart TG content. Results are mean + SEM (*n*=3-10). **P*<0.05 versus control fed the same diet.



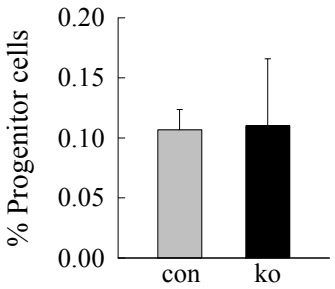
Supplemental Figure 9

Adipocytes in WAT from ATG7$^{F/F}$-aP2-Cre mice contain more mitochondria. (**A**) Representative electron micrographs of WAT from control and knockout mice. Inserts show areas at higher magnification to illustrate the presence of "vacuolated structures" (white arrows) and mitochondria (black arrows). L: lipid. Scale bars: 1 μm; inserts: 0.5 μm. The percentage of cellular area occupied by mitochondria (**B**) and the number of mitochondria per microscopic field (**C**) were calculated from 9 different micrographs of control (con) and knockout (ko) mice. **P*<0.001 versus control. Results are mean + SEM.



Supplemental Figure 10

Total body and adipose tissue weights do not change in young knockout animals. (**A**) Body weights in RD-fed 3-week old control (con) and knockout (ko) mice. (**B**) Gonadal WAT weights. (**C**) Interscapular BAT weights. Results are mean + SEM (*n*=4-7).



Supplemental Figure 11

The WAT progenitor cell population is unchanged by a knockout of autophagy. The numbers of white adipocyte progenitor cells identified as Lin^-, $CD29^+$, $CD34^+$, $Sca\text{-}1^+$ and $CD24^+$ cells as a percentage of the population of adipose stromal vascular cells in control (con) and knockout (ko) mice. Results are mean + SEM (*n*=4-9).