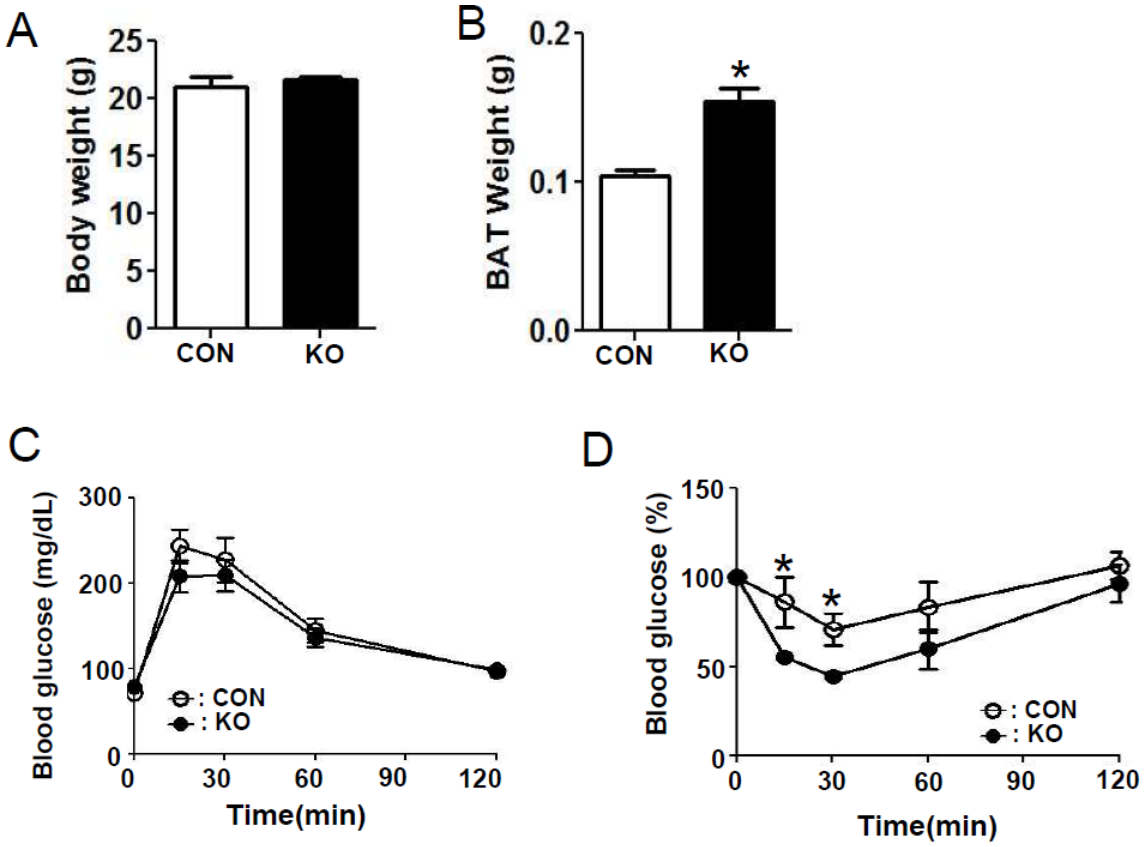
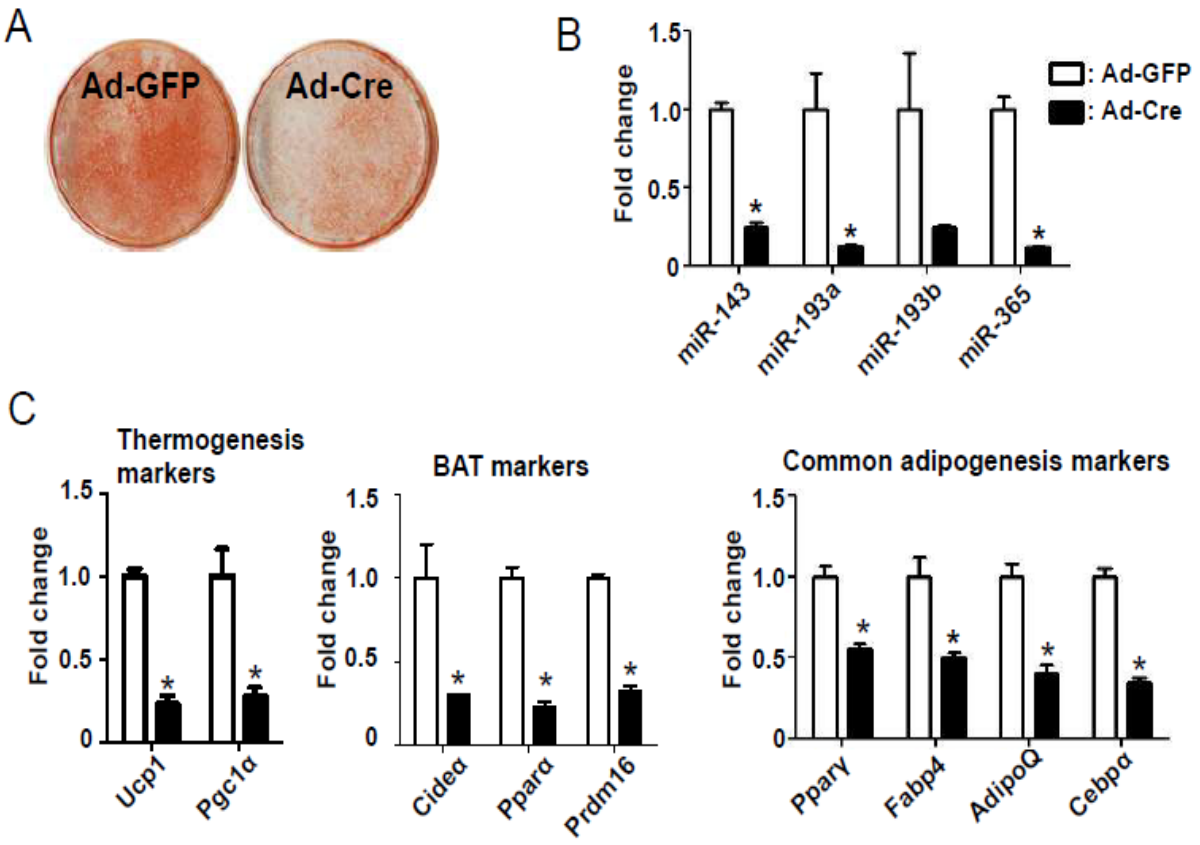
SUPPLEMENTARY DATA

Supplementary Figure 1. Body weights (A) and interscapular BAT (BAT) weights (B) of control and KO female mice. (n=4 each group). Glucose tolerance test (C) and insulin tolerance test (D) of 20 weeks old female mice (n=4 each group). *P<0.05, t-test ; Means ± SEM.



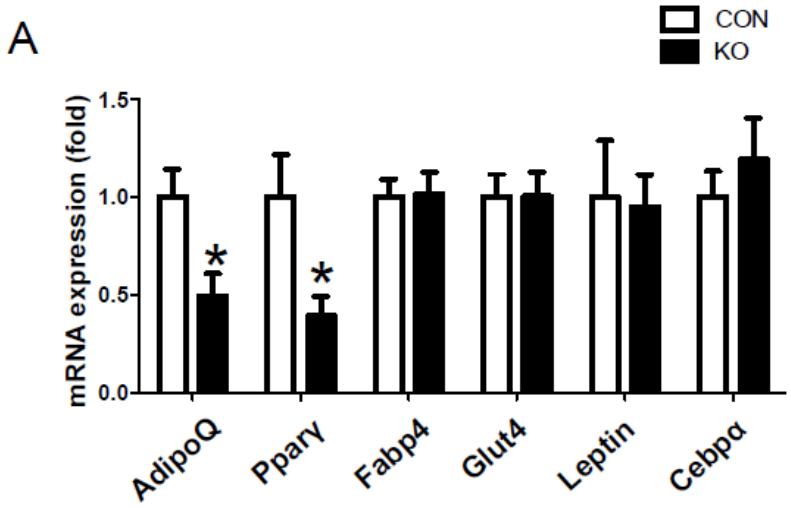
SUPPLEMENTARY DATA

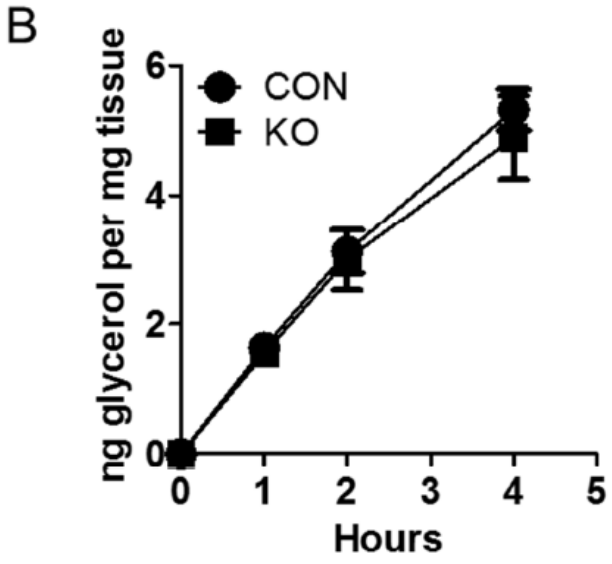
Supplementary Figure 2. (A) Oil red O staining of primary brown adipocyte cultures 4 days after differentiation with Ad-GFP or Ad-Cre infection. (B) Real-PCR results of miR-143, miR-193a, miR-193b and miR-365 expression 4 days after differentiation of primary brown adipocyte with Ad-GFP or Ad-Cre infection. (C) Real-time PCR results of thermogenesis related markers (Ucp1 and Pgc1α), brown fat markers (Prdm16, Cidea and Ppar α) and adipocyte differentiation markers (Pparγ, Fabp4, AdipoQ and Cebpα) 4 days after differentiation of primary brown adipocyte with Ad-GFP or Ad-Cre infection (n=3 each group) *P<0.05, t-test ; Means ± SEM.



SUPPLEMENTARY DATA

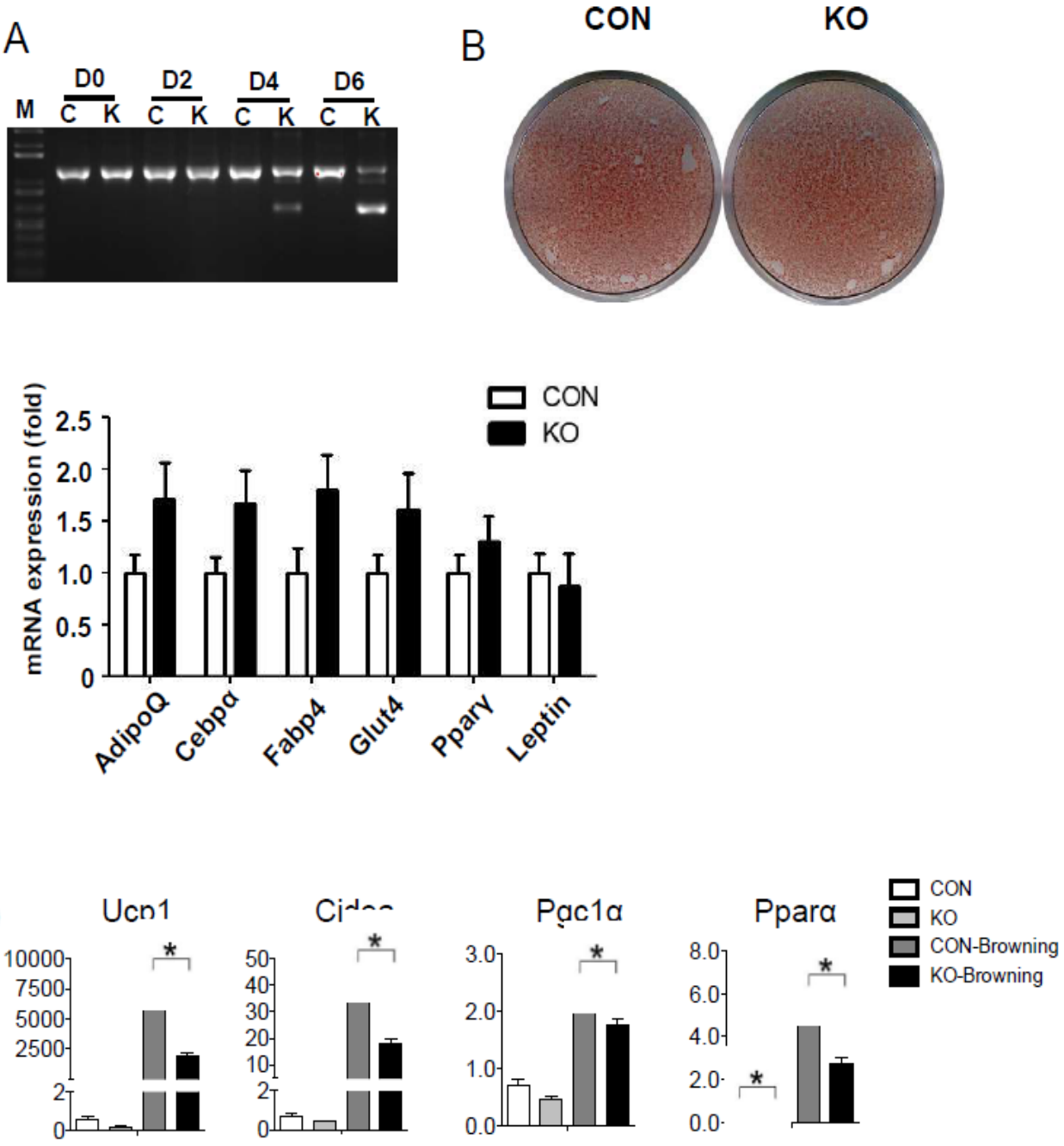
Supplementary Figure 3. (A) Real-time PCR to examine RNA expression of Pparγ, Fabp4, Glut4, AdipoQ, Leptin and Cebpα of Epididymal fat (EPI) *P<0.05, t-test ; Means ± SEM. (B) Quantification of fatty acid release from fat pad explants. 20 mg of epididymal fat pads were removed from mice and incubated at 37 °C in Krebs-Ringer buffer (12 mM HEPES, 121 NaCl, 4.9 mM KCl, 1.2 mM MgSO4, and 0.33 mM CaCl2) with 3.5% fatty acid-free BSA and 3 mM glucose (KRB), with 200 nM isoproterenol (Sigma). Medium was collected at 1, 2, and 4 h, and glycerol content was measured enzymatically (Sigma).





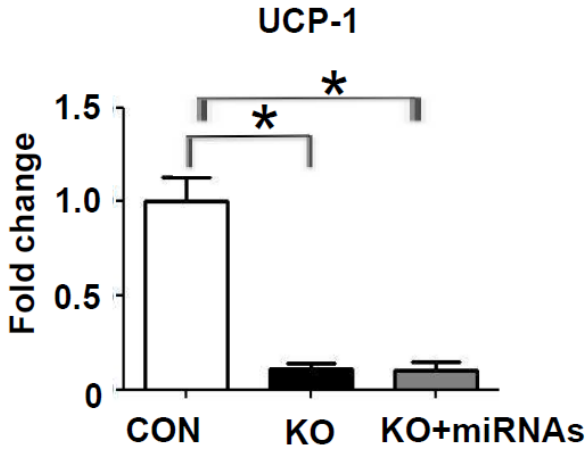
SUPPLEMENTARY DATA

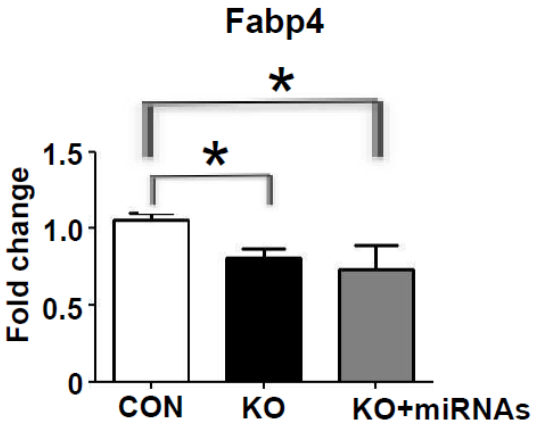
Supplementary Figure 4. (A) Genotyping results of deletion efficiency of Dgcr8 in primary white adipocyte cultures. (B) Oil red O staining of primary white adipocyte cultures 8 days after differentiation. (C) Real-time PCR results of adipocyte differentiation markers (AdipoQ, Cebpα, Fabp4, Glut4, Pparγ and Leptin) 8 days after differentiation of primary subcutaneous white adipocyte culture from control and KO mice (n=3 each group). (D) Subcutaneous white adipocyte culture was treated with Rosiglitazone (1μM) and Norepinephrine (1μM) for 8 days to induce "browning" and Real-time PCR was used to examine the browning marker expression. *P<0.05, t-test ; Means ± SEM.

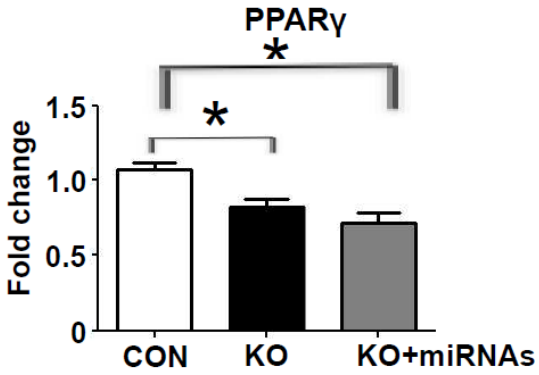


SUPPLEMENTARY DATA

Supplementary Figure 5. MicroRNA mimics (5nM for each mimic) for all 10 BAT-enriched microRNAs identified in Fig 4 were pooled together and transfected into the primary brown adipocytes from Control and KO mice at day 4 during the differentiation. After transfection, the cells were further differentiated for 4 more days. Real-time PCR was performed to examine the expression of Ucp1, Fabp4 and Pparγ. (n=3 each group) *P<0.05, t-test ; Means ± SEM.







SUPPLEMENTARY DATA

Supplementary Table 1. Real-time PCR primers.

	FORWARD	REVERSE
18S	GTAACCCGTTGAACCCCATT	CCATCCAATCGGTAGTAGC
AdipoQ	CGATTGTCAGTGGATCTGACG	CAACAGTAGCATCCTGAGCCCT
Cebpa	TGCGCAAGAGCCGAGATAAA	CCTTCTGTTGCGTCTCCACG
Cidea	TGCTCTTCTGTATCGCCCAGT	GCCGTGTTAAGGAATCTGCTG
Cox8b	GAACCATGAAGCCAACGACT	GCGAAGTTCACAGTGGTTCC
Fabp4	ACAAGCTGGTGGTGGAATGTG	CCTTTGGCTCATGCCCTTT
Glut4	CTGTCGCTGGTTTCTCCAACT	CCCATAGCATCCGCAACATA
Pgc1a	CCCTGCCATTGTTAAGACC	TGCTGCTGTTCCTGTTTTC
Ppara	AGAGCCCCATCTGTCCTCTC	ACTGGTAGTCTGCAAAACCAAA
Pparg	GTGCCAGTTTCGATCCGTAGA	GGCCAGCATCGTGTAGATGA
Prdm16	CAGCACGGTGAAGCCATTC	GCGTGCATCCGCTTGTG
Ucp1	ACTGCCACACCTCCAGTCATT	CTTTGCCTCACTCAGGATTGG
Cebpb	CGTTCATGCACCGCCTGCG	AGGGGCTGAAGTCGATGCCG
Cox4	ACCAAGCGAATGCTGGACAT	GGCGGAGAAGCCCTGAA
Cox7	CAGCGTCATGGTCCAGTCTGT	AGAAAACCGTGTGGCAGAGA
Leptin	GAGACCCCTGTGACGGTT	CTGCGTGTGTGAAATGTCATTG