Supplementary Material

1   Supplementary Figures and Tables

1.1   Supplementary Tables

Table S1. Primer sequences for *UCP1, PGC1α, PPARα, PPARγ, PRDM16* and *PPIA*.

| Genes	Primer sequence
UCP1	F-TCTCTGCCAGGACAGTACCCAA; R-GAGTCGCAGAAAAGAAGCCACAA
PGC1α	F-TATGGAGTGACATAGAGTGTGCT; R-CCACTTCAATCCACCCAGAAAG
PPARα	F-AGAGCCCCATCTGTCCTCTC; R-ACTGGTAGTCTGCAAAACCAAA
PPARγ	F-TCGCTGATGCACTGCCTATG; R-GAGAGGTCCACAGAGCTGATT
PRDM16	F-CAGCACGGTGAAGCCATTC; R-GCGTGCATCCGCTTGTG
PPIA	F-GCTGGACCAAACACAAACGG; R-TCCTGGACCCAAAACGCTC

1.2 Supplementary Figures

Figure S1. (A) Formula for dose translation based on body surface area. (B) The Km value among human and experimental animals. HED, human equivalent dose; Km factor, a parameter used to convert the mg/kg dose to an mg/m^2 dose.

A
$$\text{HED (mg/kg)} = \text{Animal dose (mg/kg)} \; \textit{multiplied by} \; \frac{\text{Animal } Km}{\text{Human } Km}$$

B

Species	Weight (kg)	BSA (m^2)	K_m factor
Human			
Adult	60	1.6	37
Child	20	0.8	25
Rat	0.15	0.025	6
Mouse	0.02	0.007	3

Figure S2. The relative gene expression levels of thermogenesis indicator in the interscapular brown adipose tissue of lean mice. CD, normal control diet with vehicle; CG, normal control diet with genistein; CABX, normal control diet with genistein and antibiotic cocktail. *UCP1*, uncoupling protein 1; *PGC1α*, peroxisome proliferator-activated receptor gamma coactivator 1-alpha; *PPARα*, peroxisome proliferator-activated receptor alpha; *PPARγ*, peroxisome proliferator-activated receptor gamma; *PRDM16*, positive regulatory domain containing 16. Data were expressed as means ± S.E.M. (n = 5-6 / group) and were analyzed by one-way ANOVA.
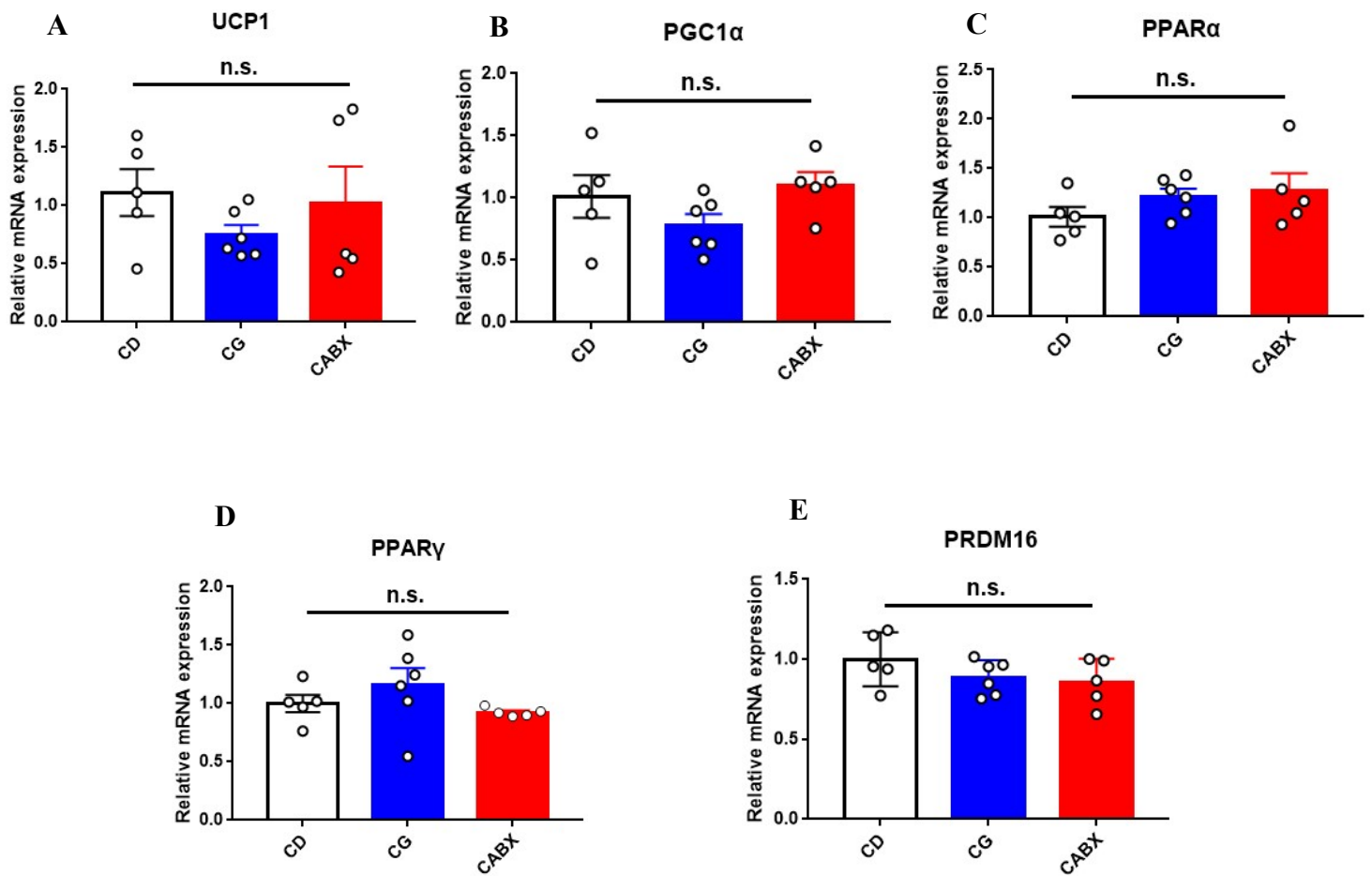
Figure S3. The relative gene expression levels of browning markers in the inguinal subcutaneous adipose tissue of obesity mice. HFD, high-fat diet with vehicle; HFG, high-fat diet with genistein; HFABX, high-fat diet with genistein and antibiotic cocktail. *UCP1*, uncoupling protein 1; *PGC1α*, peroxisome proliferator-activated receptor gamma coactivator 1-alpha; *PPARα*, peroxisome proliferator-activated receptor alpha; *PPARγ*, peroxisome proliferator-activated receptor gamma; *PRDM16*, positive regulatory domain containing 16. Data were expressed as means ± S.E.M. (n = 5-6 / group) and were analyzed by one-way ANOVA.