Supplementary Table S1. Sequences of the primers used for quantitative real-time PCR for in vitro.

Gene	Primer sequence (5′→3′)
PPARγ	Forward: TTTTCAAGGGTGCCAGTTT Reverse: AATCCTTGGCCCTCTGAGAT
C/EBPα	Forward: TTACAACAGGCCAGGTTTCC Reverse: GGCTGGCGACATACAGTACA
C/EBPβ	Forward: CCAAGAAGACGGTGGACAA Reverse: CAAGTTCCGCAGGGTGCT
SREBP-1c	Forward: TGTTGGCATCCTGCTATCTG Reverse: AGGGAAAGCTTTGGGGTCTA
ACC	Forward: GCGTCGGGTAGATCCAGTT Reverse: CTCAGTGGGGCTTAGCTCTG
FAS	Forward: TTGCTGGCACTACAGAATGC Reverse: AACAGCCTCAGAGCGACAAT
β-actin	Forward: CCACAGCTGAGAGGAAATC Reverse: AAGGAAGGCTGGAAAAGAGC

Supplementary Table S2. Sequences of the primers used for quantitative real-time PCR for in vivo.

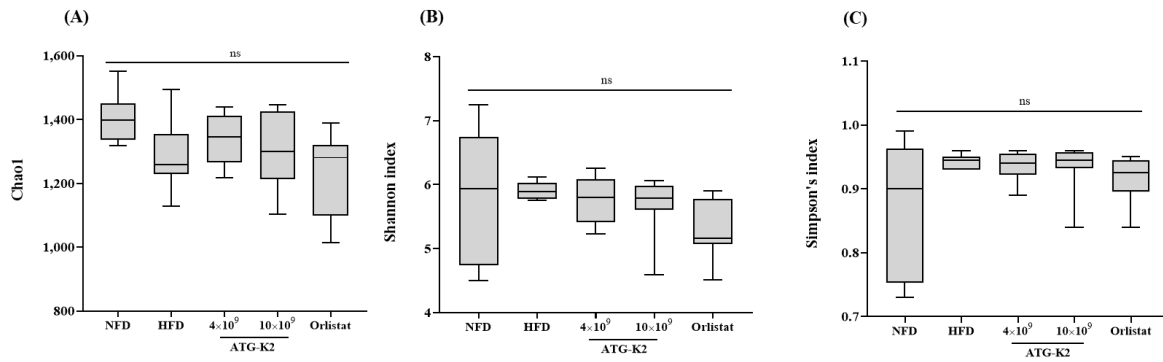| Genes	Primer sequence (5′→3′)
PPARγ	Forward: AGTGGAGACCGCCCAGG Reverse: GCAGCAGGTTGTCTTGGATGT
SERBP1c	Forward: AGCAGCCCCTAGAACAAACAC Reverse: CAGCAGTGAGTCTGCCTTGAT
SCD1	Forward: TCAACTTCACCACGTTCTTCA Reverse: CTCCCGTCTCCAGTTCTCTT
FAS	Forward: CTGGACTCGCTCATGGGTG Reverse: CATTTCCTGAAGTTTCCGCAG
DGAT1	Forward: TCAGATTGAGAAGCGCCTGG Reverse: ACGGAACCCACTGGAGTGAT
PPARα	Forward: GTACGGTGTGTATGAAGCCATCTT Reverse: GCCGTACGCGATCAGCAT
ACO	Forward: GTGCAGCTCAGAGTCTGTCCAA Reverse: TACTGCTGCGTCTGAAAATCCA
CPT1	Forward: TGAGTGGCGTCCTCTTTGG Reverse: TCAGCGAGTAGCGCATAGTCA
UCP1	Forward: CTTTGCCTCACTCAGGATTGG Reverse: ACTGCCACACCTCCAGTCATT
PGC1α	Forward: CCTGAAGCCGGGAGAGAATG Reverse: TAGCCAGCAGAGACTGTGGA
Prdm16	Forward: GAAGTCACAGGAGGACACGG Reverse: CTCGCTCCTCAACACACCTC
ND5	Forward: AGCATTCGGAAGCATCTTTG Reverse: TTGTGAGGACTGGAATGCTG
Dio2	Forward: TTGGGGTAGGGAATGTTGGC Reverse: TCCGTTTCCTCTTTCCGGTG
β-actin	Forward: GGCACCACACYTTCTACAATG Reverse: GGGGTGTTGAAGGTCTCAAAC

Supplementary Figure S1

Figure S1. The richness and diversity of *L. plantarum* ATG-K2 in HFD-induced obese mice. (A) Chao 1, (B) Shannon index, and (C) Simpson's index. NFD: Normal fat diet; HFD: High-fat diet; 4×10^9, 10×10^9: HFD + 4×10^9 or 10×10^9 CFU/day *L. plantarum* ATG-K2; Orlistat: HFD + Orlistat 15.6 mg/kg. The ends of the whiskers represent the minimum and maximum, the bottom and top of the box are the 1st and 3rd quartiles, and the line within the box is the median.
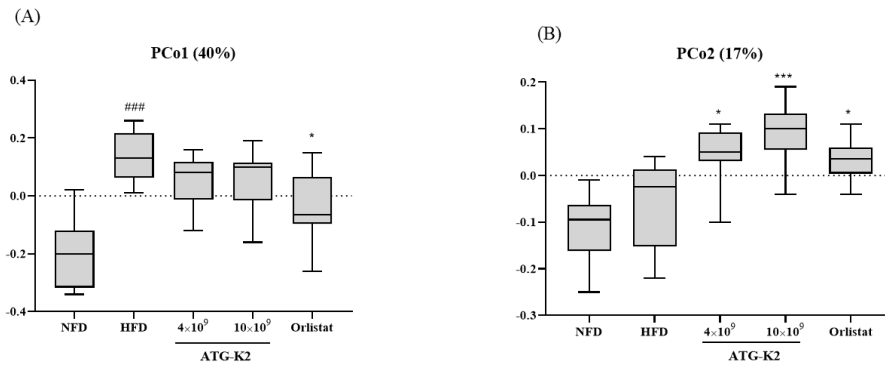
Supplementary Figure S2

Figure S2. Principal coordinates analysis of *L. plantarum* ATG-K2 in HFD-induced obese mice using UniFrac distance matrix. (A) Examination of the PCo1, (B) Examination of the PCo2. Normal fat diet; HFD: High-fat diet; 4 × 10^9, 10 ×10^9: HFD + 4 ×10^9 or 10 ×10^9 CFU/day *L. plantarum* ATG-K2; Orlistat: HFD + Orlistat 15.6 mg/kg. [###] $p < 0.005$ vs. NFD group; [*] $p < 0.05$, [**] $p < 0.01$, and [***] $p < 0.005$ vs. HFD group.