

Table S1. Primers for RT-qPCR

Primers	Sequence (5'- 3')
ABCA1 Forward	CGTTTCCGGGAAGTGTCTTA
ABCA1 Reverse	GCTAGAGATGACAAGGAGGATGGA
ABCG5 Forward	TGGATCCAACACCTCTATGCTAAA
ABCG5 Reverse	GGCAGGTTTTCTCGATGAACTG
ABCG8 Forward	TGCCCACCTTCCACATGTC
ABCG8 Reverse	ATGAAGCCGGCAGTAAGGTAGA
CYP7A1 Forward	CTGGGGATTTCGTGTAGCTGG
CYP7A1 Reverse	AGAGCATGTCGAAACTTCCCTA
LXR α Forward	GAGTCTTGGGTCGCCAGTAG
LXR α Reverse	AAGACACTGTCCTGGCCTTC

Figure S1

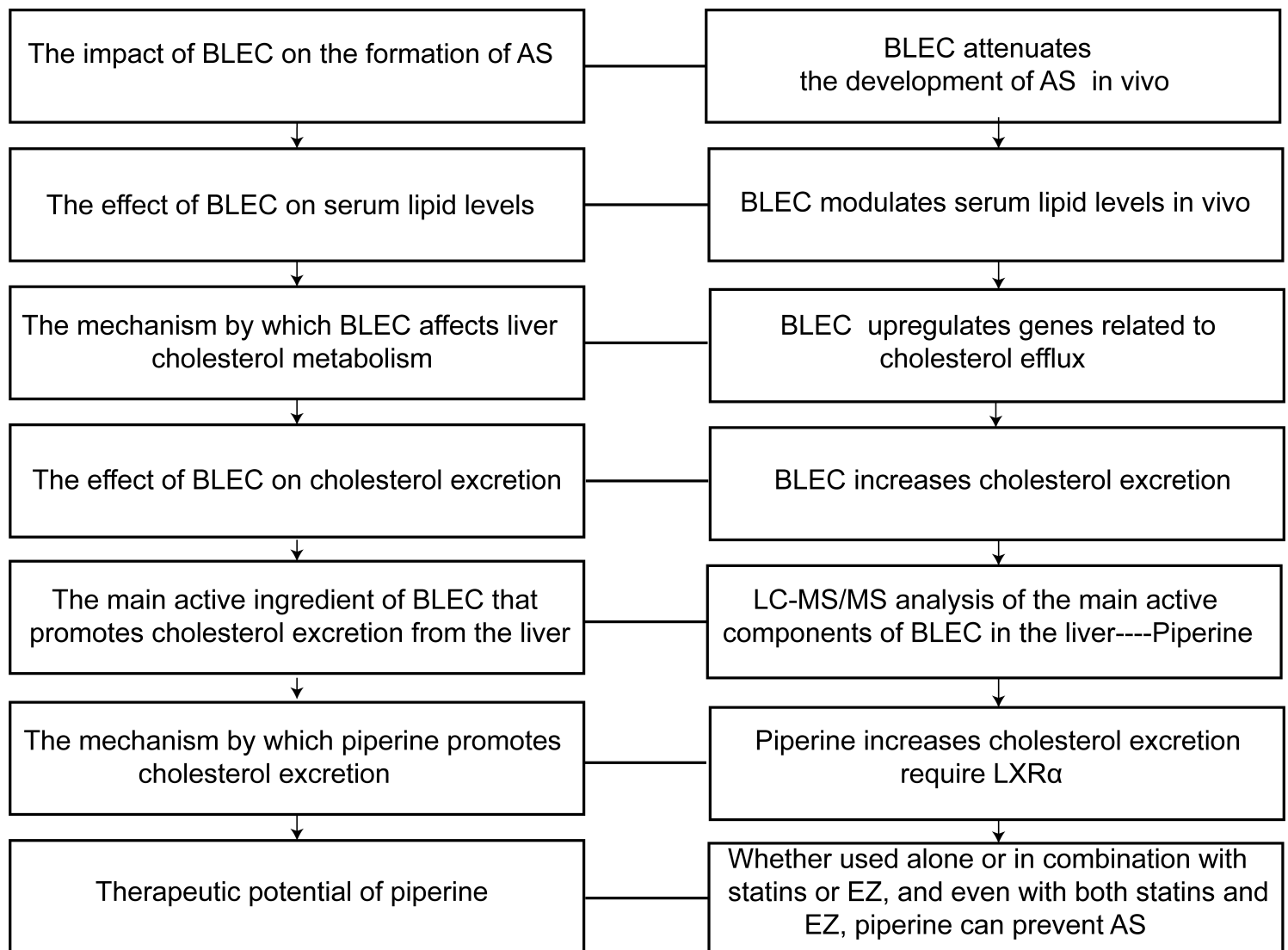
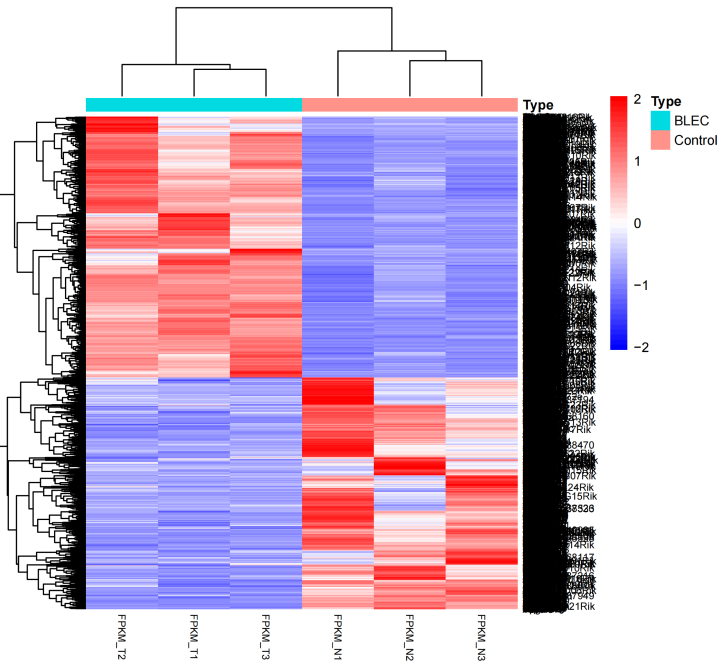


Figure S2

A



B

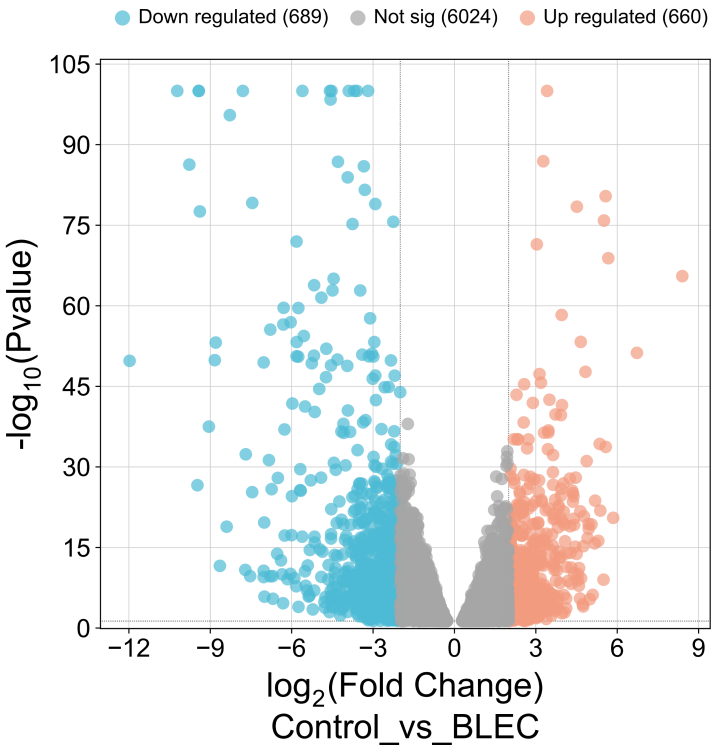


Figure S3

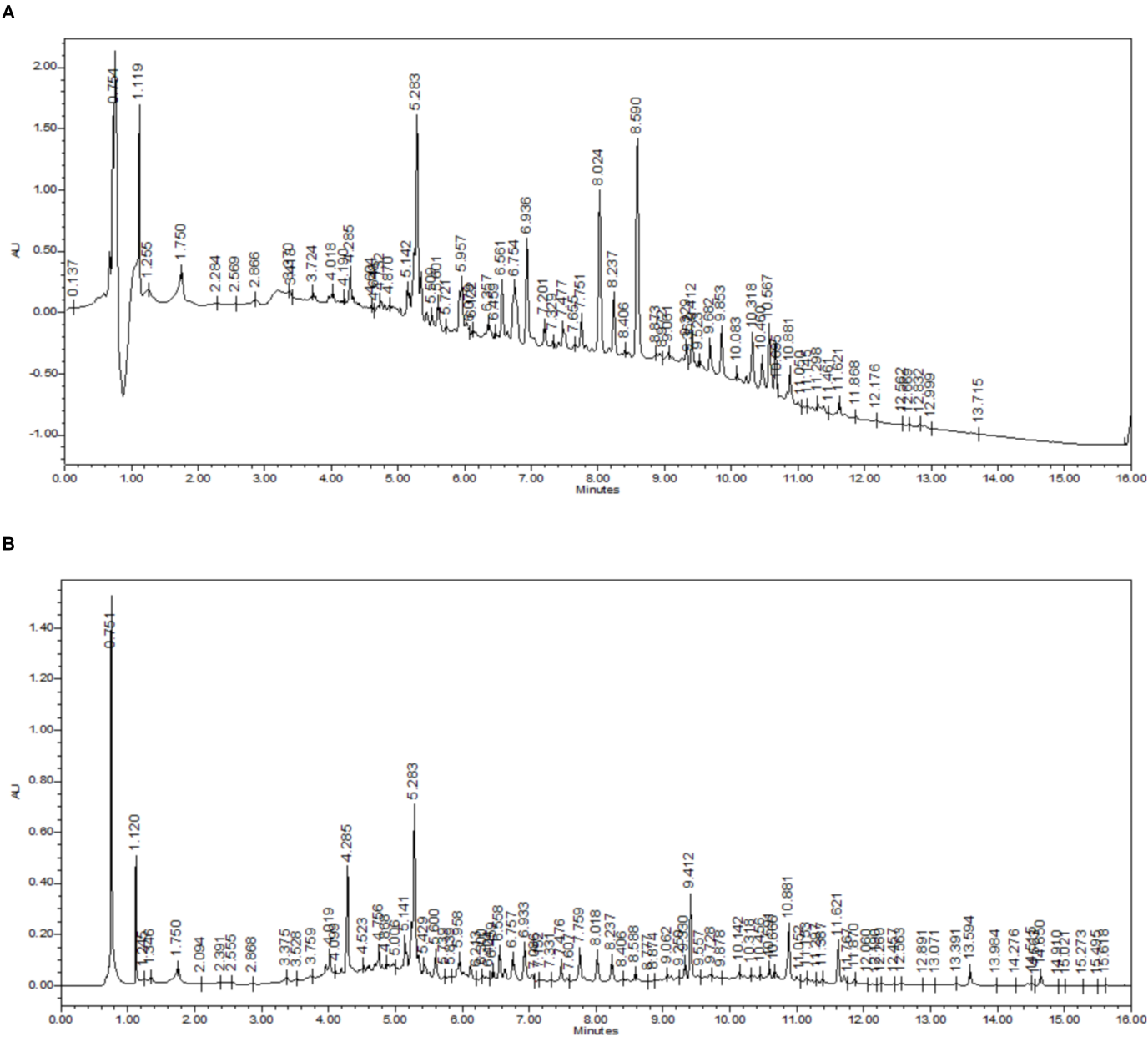
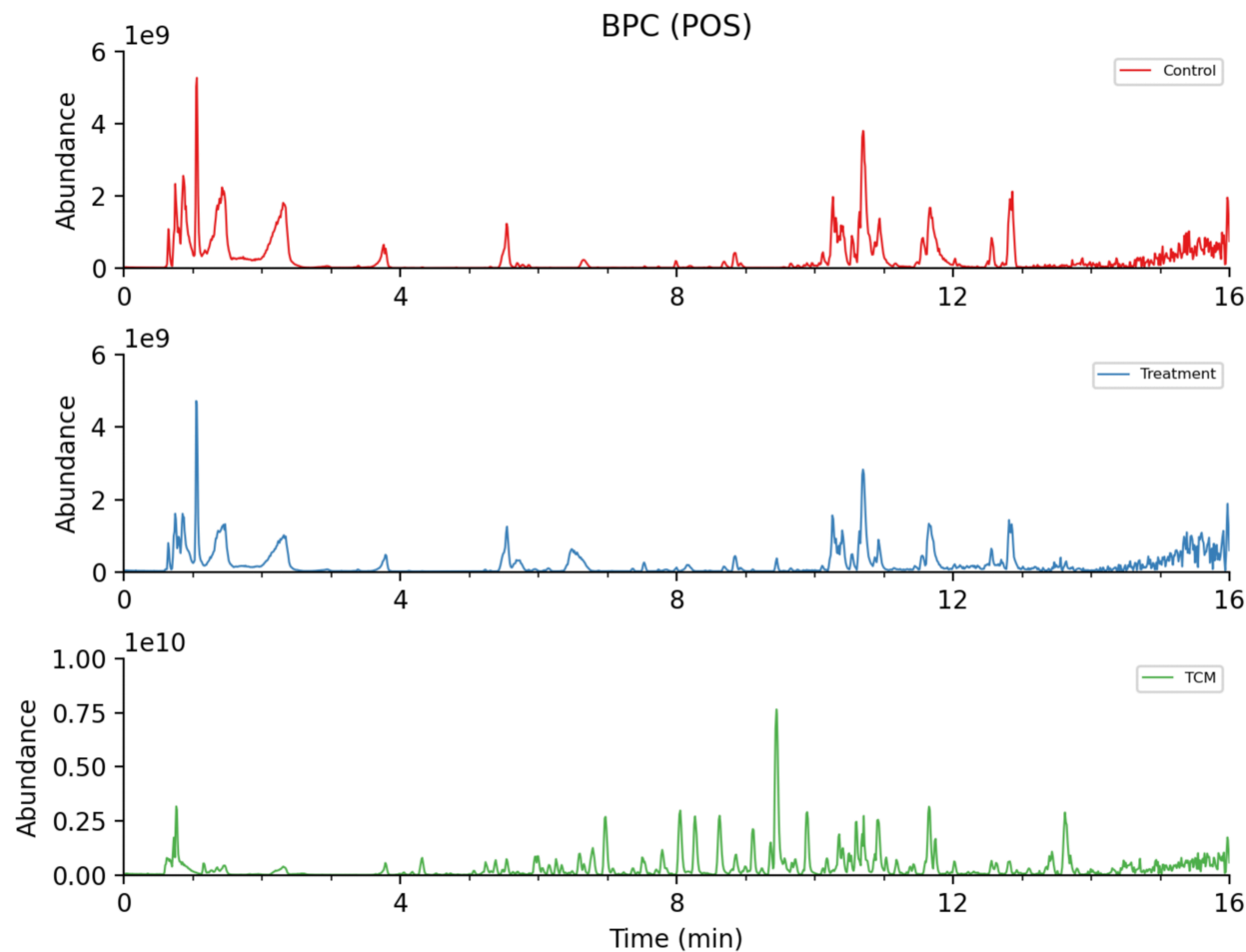


Figure S4

A



B

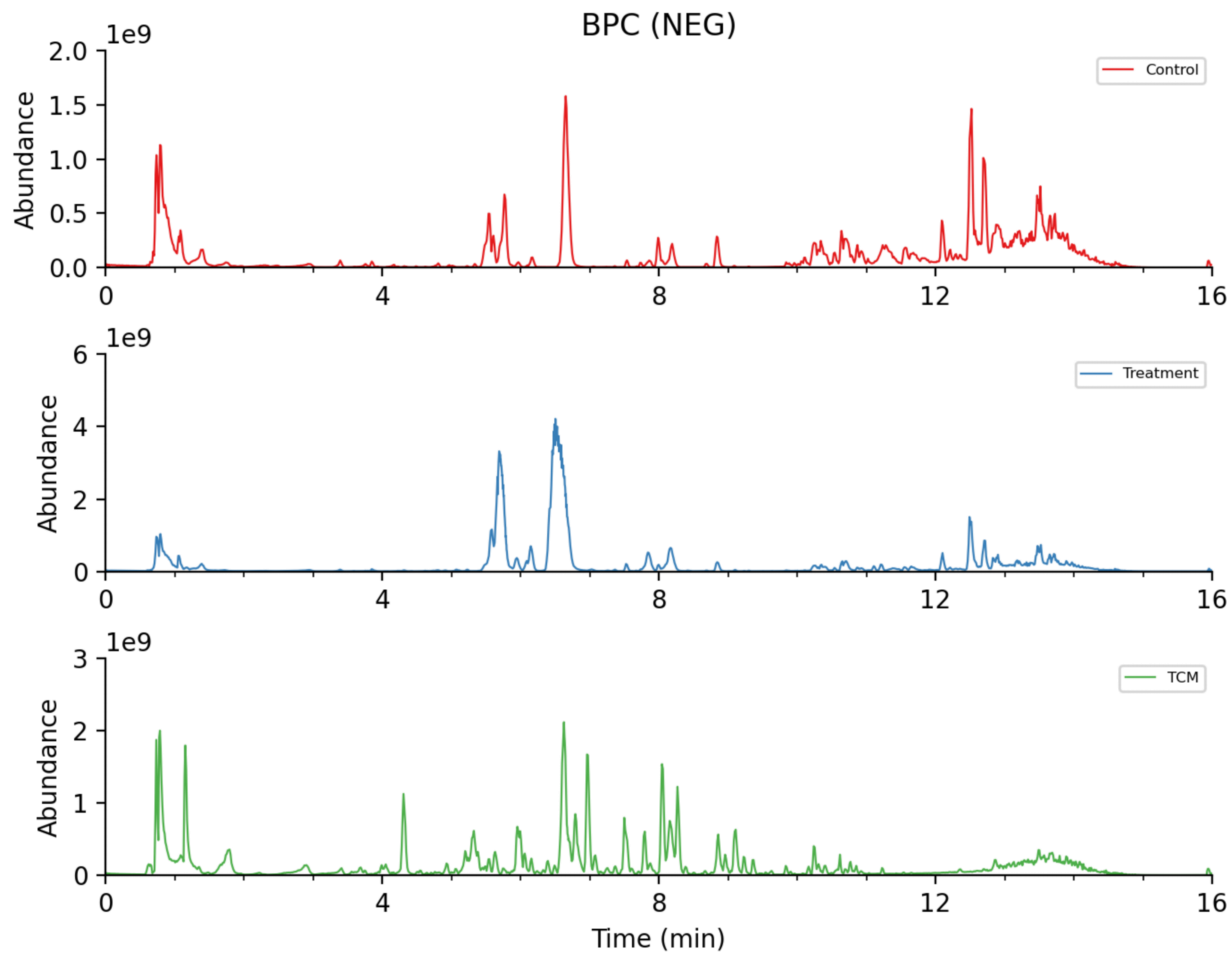


Figure S5

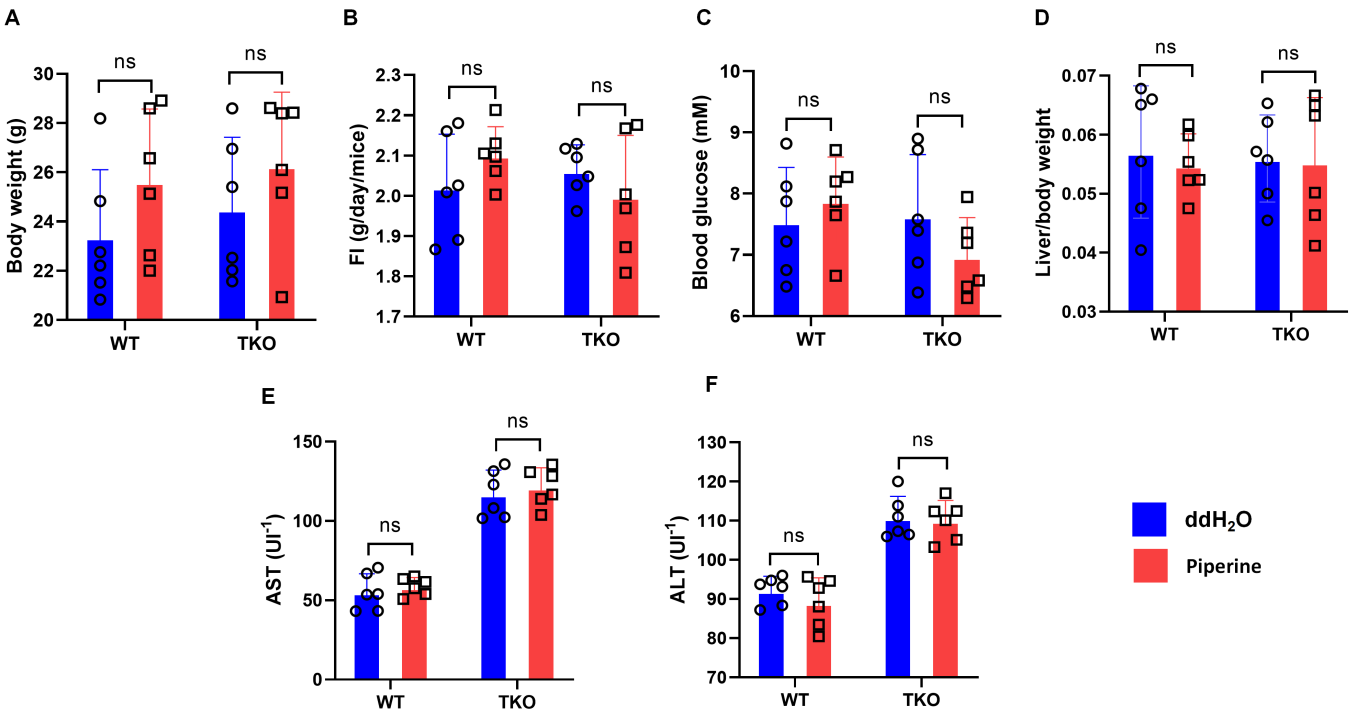


Figure S6

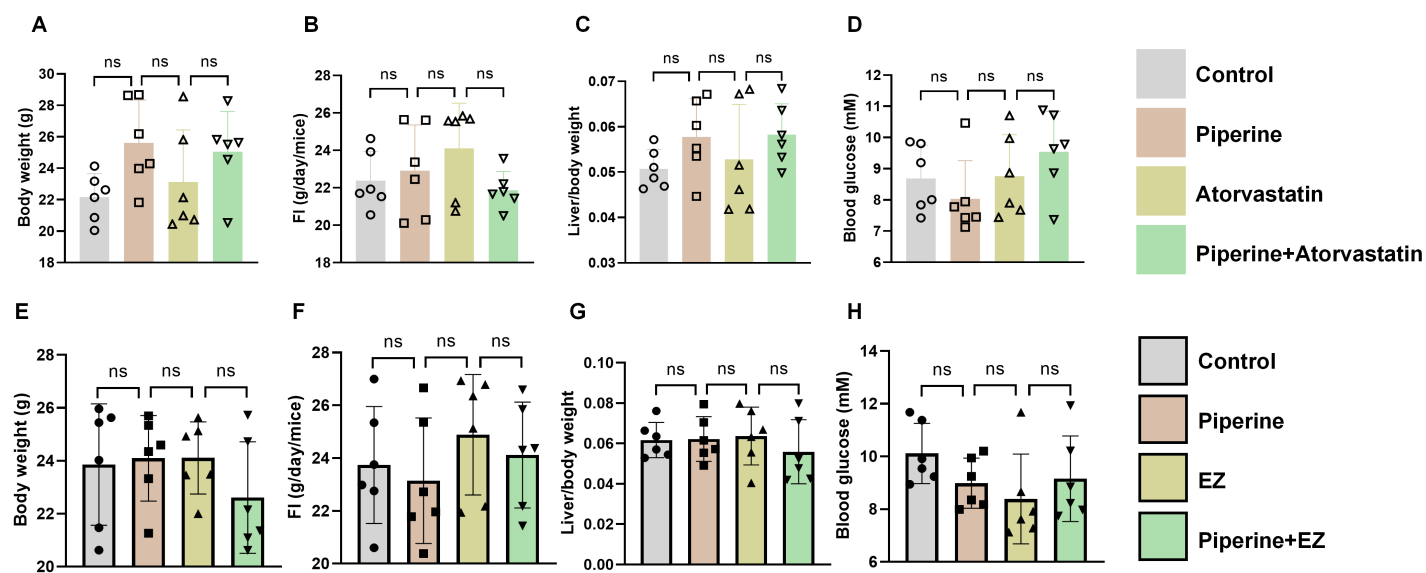


Figure legend

Fig S1. The project flowchart about study design.

Fig S2. Transcriptomic analysis of differential transcripts between different groups. **A.** Heatmap of transcripts in different groups. **B.** Volcano plot of differentially expressed transcripts in BLEC-treated mice vs. control mice.

Fig S3. Analysis of BLEC components in the test solution by UPLC-MS. **A.** Chromatogram (210 nm). **B.** Chromatogram (254 nm).

Fig S4. Base-peak intensity (BPI) chromatograms of BLEC obtained by UPLC-MS/MS analysis.

A: positive-ion scan, and **B:** negative-ion scan.

Fig S5. Piperine increases cholesterol excretion require LXR α . ApoE^{-/-} mice with liver LXR α -specific knockout (TKO) and ApoE^{-/-} mice (WT) fed a high-fat diet (HFD) for 8 weeks and administrated with piperine (30mg/kg/day) and ddH₂O through gavag for 4 weeks. **A.** Body weight. **B.** Food intake (FI). **C.** Blood glucose. **D.** Liver-to-body weight ratio. **E.** Serum levels of AST. **F.** Serum levels of ALT. Data are mean \pm SD from N=6 mice per group. *P < 0.05, **P < 0.01 and ***P < 0.001 by unpaired two-tailed *t* test.

Fig S6. Piperine synergizes with statin/ezetimibe. Some 8-week-old male ApoE^{-/-} mice were randomly grouped and fed a high-fat diet (HFD) for 8 weeks. Mice were gavaged with ddH₂O, piperine (30mg/kg/day), atorvastatin (30mg/kg/day) or piperine and atorvastatin for 4 weeks. **A.** Body weight. **B.** Food intake (FI). **C.** Liver-to-body weight ratio. **D.** Blood glucose. Some 8-week-old male ApoE^{-/-} mice were randomly grouped and fed a HFD for 8 weeks. Mice were gavaged with ddH₂O, piperine (30mg/kg/day), EZ (10mg/kg/day) or piperine and EZ for 4 weeks. **E.** Body weight. **F.** FI. **G.** Liver-to-body weight ratio. **H.** Blood glucose. Data are mean \pm SD from N=6 mice per group. *P < 0.05, **P < 0.01 and ***P < 0.001 by one-way ANOVA.