Electronic Supplementary Material (ESI) for Food & Function.

Supplementary information

Table S1. RT-PCR primer sequences

Gene	Forward primer, 5' to 3'	Reverse primer, 5' to 3'
CYCLO	CAAATGCTGGACCAAACACA	CAGTCTTGGCGGTGCAGAT
NPC1L1	CCTGACCTTTATAGAACTCACCACAGA	GGGCCAAAATGCTCGTCAT
ACAT2	CCGAGATGCTTCGATTTGGA	GTGCGGTAGTAGTTGGAGAAGGA
MTP	GTCAGGAAGCTGTGTCAGAATG	CTCCTTTTTCTCTGGCTTTTCA
ABCG5	TGATTGGCAGCTATAATTTTGGG	GTTGGGCTGCGATGGAAA
ABCG8	TGCTGGCCATCATAGGGAG	TCCTGATTTCATCTTGCCACC
GAPDH	GAACATCATCCCTGCATCCA	CCAGTGAGCTTCCCGTTCA
SREBP2	GGACTTGGTCATGGGAACAGATG	TGTAATCAATGGCCTTCCTCAGAAC
HMG-CoA-R	CGAAGGGTTTGCAGTGATAAAGGA	GCCATAGTCACATGAAGCTTCTGTA
LDL-R	GCCGGGACTGGTCAGATG	ACAGCCACCATTGTTGTCCA
CYP7A1	GGTAGTGTGCTGTTGTATATGGGTTA	ACAGCCCAGGTATGGAATCAAC

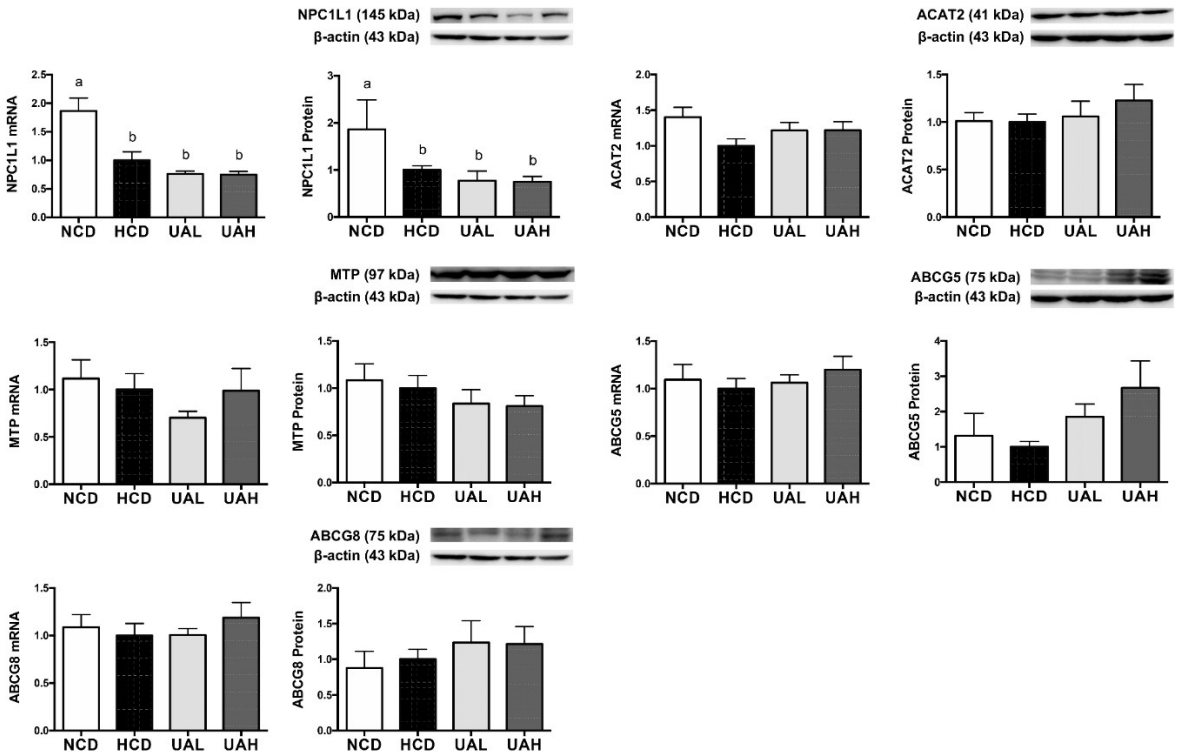

Figure S1. Relative abundance of mRNA and protein levels of intestinal Niemann-Pick C1-like 1 protein (NPC1L1), microsomal-triacylglycerol-transport protein (MTP), acyl-CoA:cholesterol acyltransferase 2 (ACAT2), and members 5 and 8 of the ATP-binding-cassette-transporter subfamily G (ABCG5/ 8) in hamsters given one of four diets: NCD, a noncholesterol diet; HCD, a high-cholesterol diet with 0.1% cholesterol added; UAL, an HCD diet plus 0.2% ursolic acid or UAH, an HCD diet plus 0.4% ursolic acid for 6 weeks. Values are expressed as the mean ± SEM. Means with different superscript letters (a, b) differ significantly, $p < 0.05$.

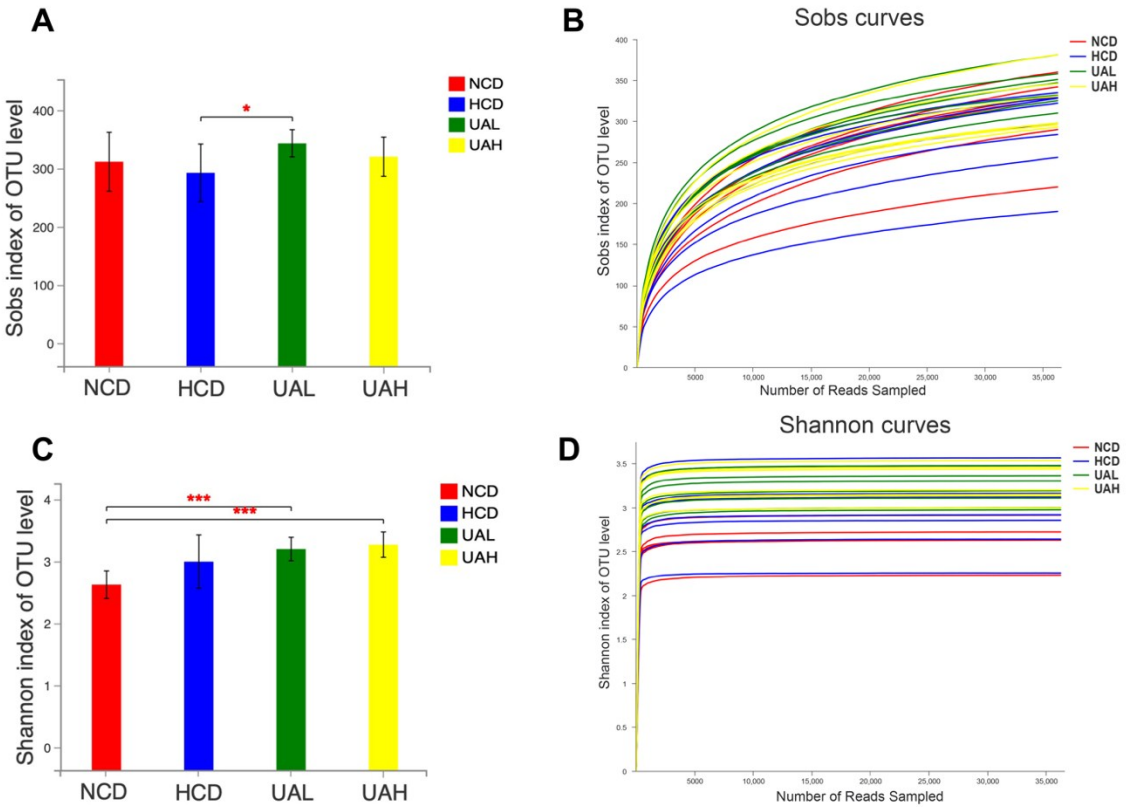

Figure S2. (A) Alpha diversity of gut microbiota illustrated by Sobs index based on the relative abundance of OUT. (B) Corresponding rarefaction curves of Sobs index. (C) Alpha diversity of gut microbiota explained by Shannon index based on the relative abundance of OUT. (D) Corresponding rarefaction curves of Shannon index in hamsters given one of four diets: NCD, a noncholesterol diet; HCD, a high-cholesterol diet with 0.1% cholesterol added; UAL, an HCD diet plus 0.2% ursolic acid or UAH, an HCD diet plus 0.4% ursolic acid for 6 weeks.

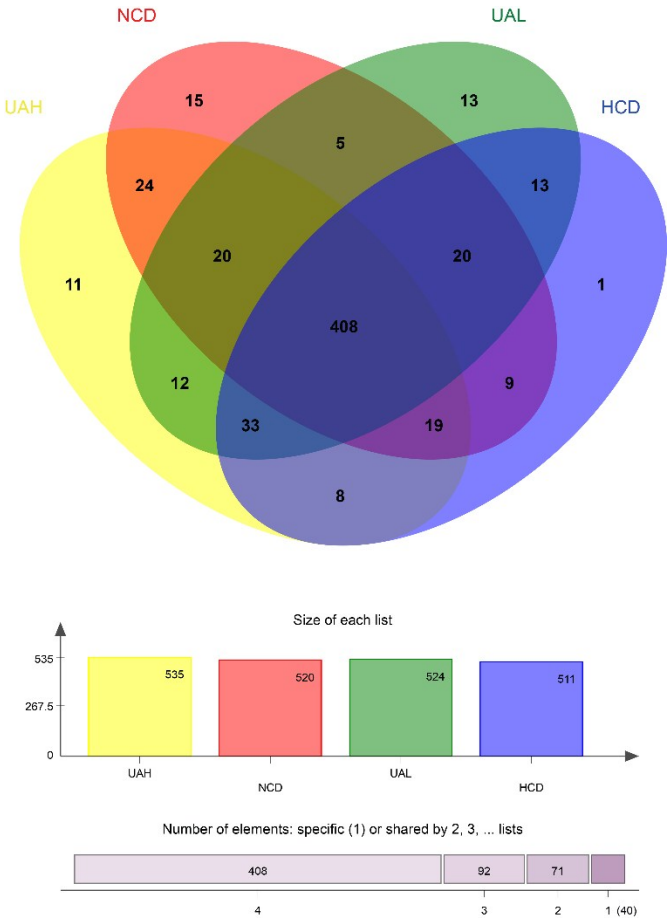

Figure S3. Venne diagram summarizing the number and the relationship of OTUs in the gut microbiota of four groups of hamsters given one of four diets: NCD, a noncholesterol diet; HCD, a high-cholesterol diet with 0.1% cholesterol added; UAL, an HCD diet plus 0.2% ursolic acid or UAH, an HCD diet plus 0.4% ursolic acid for 6 weeks.

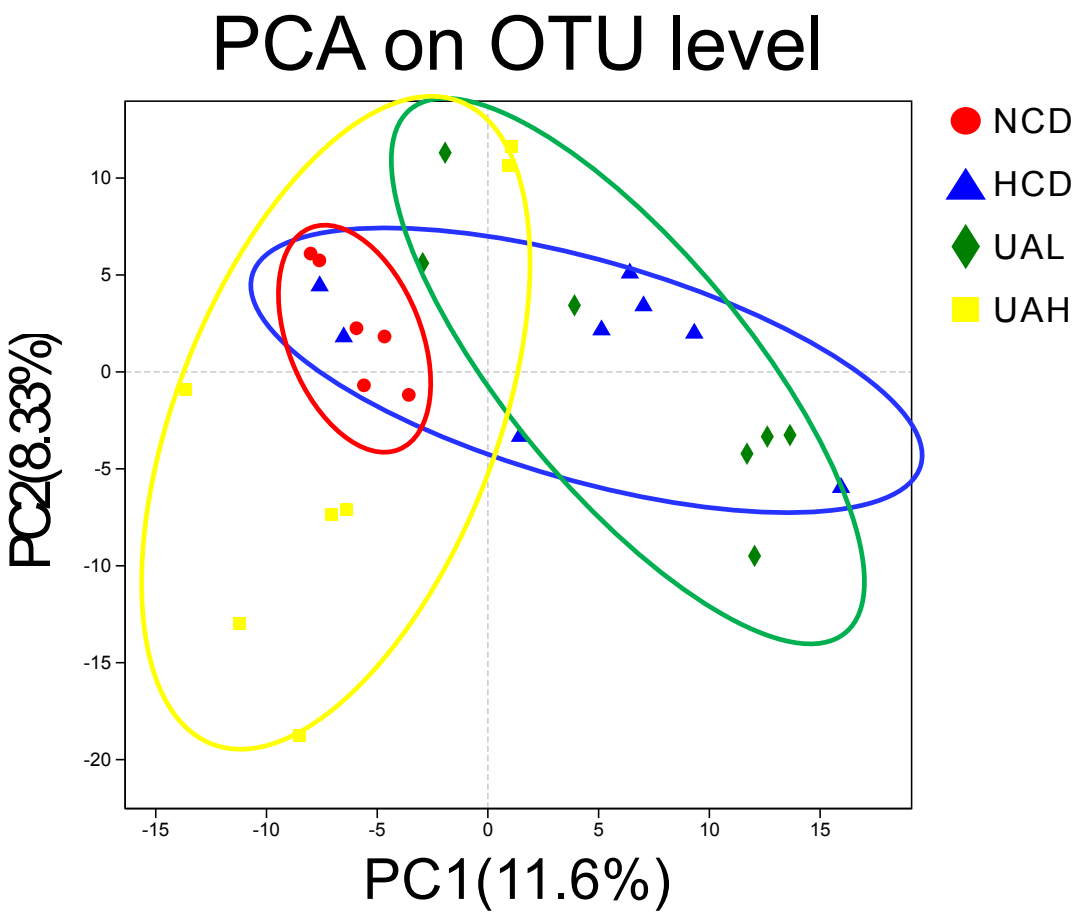

Figure S4. Beta diversity of gut microbiota evaluated by principle component analysis (PCA) plots in hamsters given one of four diets: NCD, a noncholesterol diet; HCD, a high-cholesterol diet with 0.1% cholesterol added; UAL, an HCD diet plus 0.2% ursolic acid or UAH, an HCD diet plus 0.4% ursolic acid for 6 weeks.

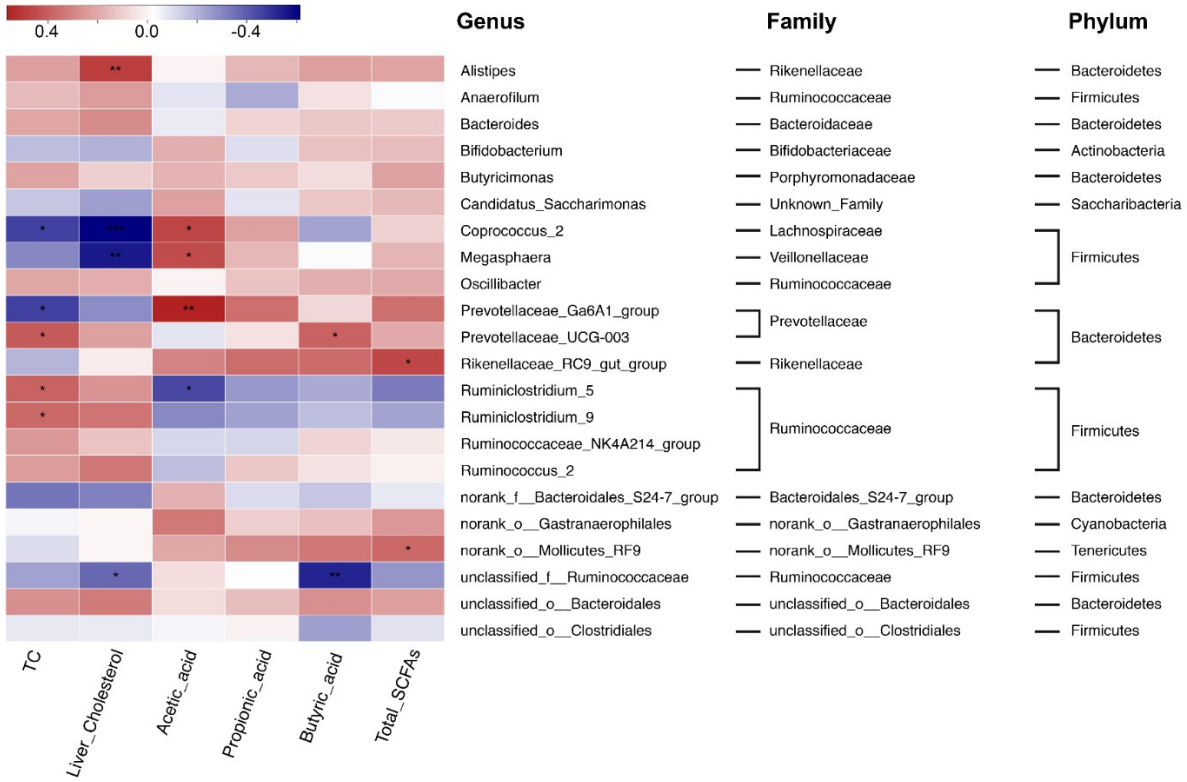

Figure S5. Heatmap of Spearman's correlation between key genera and parameters related to cholesterol metabolism in hamsters given one of four diets: NCD, a noncholesterol diet; HCD, a high-cholesterol diet with 0.1% cholesterol added; UAL, an HCD diet plus 0.2% ursolic acid or UAH, an HCD diet plus 0.4% ursolic acid for 6 weeks. Colors of squares indicate the R-value of Spearman's correlation. Asterisks "*", "**", and "***" indicate the different levels of associations significant ($p < 0.05$; $p < 0.01$ and $p < 0.001$ respectively). The detailed taxonomy information (family, phylum) of the genera is displayed on the right.