

Figure S1 Serum polar lipids individual lipidome data. (A) PA, LPA, PI, and LPI. (B) PC and LysoPC. (C) PE and LPE. (D) PG, PS, LPS, and SM. (E) FFA, LBPA, GM3, Sph, S1P, and Cer. (F) Carnitine, LacCer and GluCer. Cer, ceramides; FFA, free fatty acids; LBPA, lysobisphosphatidic acids; LPA, lyso-phosphatidic acids; LPE, lyso-phosphatidylethanolamines; LPI, lyso-phosphatidylinositols; LPS, lyso-phosphatidylserines; LysoPC, lyso-phosphatidylcholines; PA, phosphatidic acids; PC, phosphatidylcholines; PE, phosphatidylethanolamines; PG, phosphatidylgycerols; PI, phosphatidylinositols; PS, phosphatidylserines; S1P, sphingosine-1-phosphate; SM, sphingomyelins; Sph, sphingosine.



Figure S2 Liver polar lipids individual lipidome data. (A) PA, LPA, PI, and LPI. (B) PC and LysoPC. (C) PE and LPE. (D) PG, PS, LPS, and SM. (E) FFA, LBPA, GM3, Sph, S1P, and Cer. (F) CL. (G) LacCer and GluCer. FFA, free fatty acids; LBPA, lysobisphosphatidic acids; LPA, lyso-phosphatidylethanolamines; LPI, lyso-phosphatidylinositols; LPS, lyso-phosphatidylethanolamines; LY, lyso-phosphatidylethanolamines; PG, phosphatidylglycerols; PI, phosphatidylinositols; PS, phosphatidylserines; S1P, sphingosine-1-phosphate; SM, sphingomyelins; Sph, sphingosine.



Figure S3 Changes of LBPA concentrations after ApoM knockout. (A) ApoM-KO SMMC-7721 cell lipidomics heatmap. (B) LBPA concentrations in ApoM-KO SMMC-7721 cells. (C) LBPA subclass lipidomics heatmap. (D) Serum concentration of LBPA in *ApoM^{-/-}* mice fed an ND for 12 months. SM represents SMMC-7721 cells, and SM-KO represents ApoM-KO SMMC-7721 cells. ApoM, apolipoprotein M; CE, cholesteryl esters; Cho, free cholesterol; CL, cardiolipins; DAG, diacylglycerols; FFA, free fatty acids; LBPA, lysobisphosphatidic acids; LPA, lyso-phosphatidylcholines; LPE, lyso-phosphatidylethanolamines; LPI, lyso-phosphatidylinositols; LPS, lyso-phosphatidyletines; ND, normal diet; PA, phosphatidic acids; PC, phosphatidylcholines; PCe/p, phosphatidylcholines ether and plasmalogen; PE, phosphatidylethanolamines; TAG, triacylglycerols.



Figure S4 The overexpression of ApoM in EA.hy926 cells. (A) Bright field and fluorescence photomicrographs of EA.hy926 cells infected by lentiviruses. The scale is 50 µm. (B) Western blots. (C) ApoM mRNA levels. N represents negative control group of EA.hy926 cells, M represents overexpressing ApoM group of EA.hy926 cells. ApoM, apolipoprotein M.