**figureS4**

**Supplementary Figure 4.** (**A**) Western blotting analysis of BCKDH protein expression in C2C12 cells infected with LV-EV or LV-BCKDH. (**B**) Relative glutamine levels in supernatant after co-culture with LV-BCKDH- or LV-EV-infected *C2C12* cells (n=6). **(C)** Relative mRNA expression of glutamine transporters in liver of mice from different groups (n=6). **(D-E)** Western blotting analysis of ASCT2 protein expression in liver tissue of treated mice (n=3). **(F)** Relative glutamine levels in liver tissue of mice from different groups (n=6). (**G-L**) Analysis of liver weight (**G**), liver weight-to-body weight ratio (**H**), liver TG **(I)** and TC contents (**G**), and serum AST(**K**) and ALT levels (**L**) in different groups (n=6). **(M-N)** mRNA levels of inflammation and fibrosis related genes (n=6). HFHC: High fat and high cholesterol; SED: Sedentary group; EXE: Exercise group; AAV: Adeno-associated virus; LV: lentivirus; EV: empty vector. \*\*p<0.01.