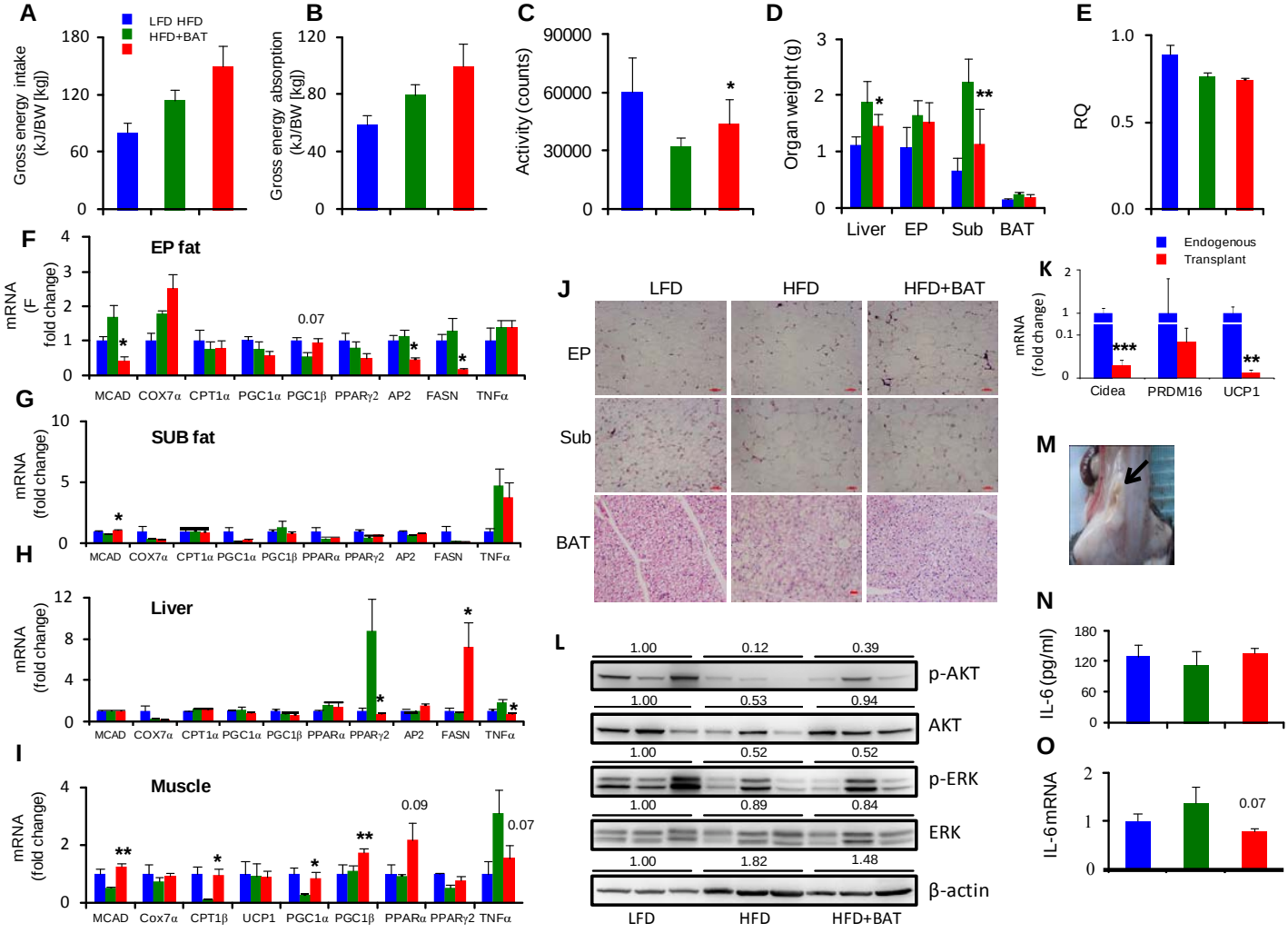

Supplementary information, Figure S1 To test if BAT could prevent obesity development, high fat diet (HFD) feeding was initiated immediately after BAT transplantation. BAT was taken from strain, sex and age matched donors and transplanted subcutaneously into the dorsal interscapular region of recipient mice (6 weeks old male) and HFD was initiated post BAT transplantation. Results shows that BAT transplantation (HFD+BAT) **(A)** without significantly altering energy intake and **(B)** energy absorption, but **(C)** significant increased total movement (assessed by optical beam technique), **(D)** reduced liver weight and subcutaneous fat mass, but **(E)** had no significant effect on the respiratory quotient (RQ) and **(F-H)** fatty acid oxidation related gene expression in **(F)** epididymal fat (EP fat), **(G)** subcutaneous fat (sub fat) and **(H)** liver, but **(I)** increased muscle fatty acid oxidation related gene expression. BAT transplantation **(J)** without significant alteration in morphology of epididymal fat (EP) or subcutaneous fat (sub). Endogenous BAT displayed smaller adipocytes to the HFD group. **(K)** Compared with the endogenous BAT (endo-BAT), transplanted BAT (trans-BAT) shows significantly reduced of BAT specific gene expression and **(L)** improved AKT phosphorylation in epididymal white adipose tissue. Densitometric result which is analyzed by image J software was represented as number. **(M)** location of transplanted BAT (arrow). However we found no significant alterations in **(N)** circulating IL-6 levels or **(O)** IL-6 mRNA in the endogenous BAT post BAT transplantation. Data are mean ± SEM. n = 7–8/group. *P < 0.05, **P < 0.01, ***P < 0.001 for comparisons between the BAT-transplanted mice and the HFD groups.