



**Supplementary figure.** LLE and nuciferine treatment primary brown adipocytes and HFD mice. A) Fold enrichment of UCP1 and OXPHOS protein level in primary brown adipocytes treated with or without LLE (n = 3 per group). B-C) Food intake of HFD mice treated with saline or LLE (n = 9-10 per group). D-E) mRNA expression level of beige marker (CD137 and TMEM26) in HFD mice treated with saline or LLE or nuciferine (n = 9-10 per group). F-G) Fold enrichment of UCP1 and OXPHOS protein level in BAT and SUB from HFD mice treated with saline or LLE (n = 4 per group). H-I) Fold enrichment of UCP1, PGC1a and OXPHOS protein level in BAT and SUB from HFD mice treated with saline or nuciferine (n = 4 per group).