Figure S1. Schematic representation of the molecular docking between the methyltransferase 3 protein and drug monomers, performed using Discovery Studio software.

Figure S2. LIC-A alleviates HFD-induced metabolic disorders and AT dysfunction in obese mice. (A) ITT measuring blood glucose levels at indicated time points following intraperitoneal insulin injection (0.75 U/kg) in HFD-fed mice with or without LIC-A treatment (60 mg/kg, twice weekly for 12 weeks). (B) GTT measuring blood glucose levels at indicated time points following intraperitoneal glucose injection in the same mouse cohorts. (C) Serum biochemical parameters including TC, TG, HDL and LDL levels. (D) Quantifying adipocyte size frequency distribution in iWAT. (E-G) Serum levels of adipokines and inflammatory cytokines measured by ELISA. (E) Adiponectin and resistin, (F) leptin and (G) IL-6, IL-1β and TNF-α. (H) Profiling mRNA levels of inflammatory cytokines by qPCR. (I) Plin1/METTL3 co-immunofluorescence staining was performed to identify and analyze METTL3-positive regions within iWAT. All data are presented as mean ± SD (n=6 mice per group for both HFD control and LIC-A treatment groups). Statistical significance was determined by one-way ANOVA followed by Tukey's post hoc test. $^{*}P<0.05$, $^{**}P<0.01$. AT, adipose tissue; GTT, glucose tolerance test; HDL, high-density lipoprotein; HFD, high-fat diet; ITT, insulin tolerance test; iWAT, inguinal white adipose tissue; LDL, low-density lipoprotein; LIC-A, licoisoflavone A; METTL3, methyltransferase 3; TC, total cholesterol; TG, triglycerides.