**Additional file 3. siRNA rescue assay.** (A). Expression of FLAG-HNF4α produced by the expression construct containing silent mutations is resistant to HNF4α shRNA. HepG2 cells were transfected with combinations of FLAG-HNF4α expression constructs (empty vector, wild type or siRNA-resistant mutant) and HNF4α shRNA. Expression level of FLAG-HNF4α protein was characterized by immunoblotting with anti-FLAG antibody. The blot was also probed using anti-β-actin antibody as a loading control. (B). HNF4α siRNA-resistant construct restores the siRNA-induced regulatory effect on HNF4α target genes, and the regulatory effects induced by HNF4α shRNA are consistent with our microarray data. HepG2 cells were transfected with non-specific shRNA control (Control), HNF4α shRNA plasmid (shRNA) alone or shRNA with HNF4α siRNA-resistant mutant (shRNA-Mut). The mRNA expression levels of ZNF175 and ApoB were measured by real-time PCR. The results represent the relative mRNA expression level normalized by GAPDH mRNA level. The controls were set at 1. Data represent mean ± SD of 3 replicates. **p<0.01 indicates a significant difference compared to Controls. #p<0.05 and ##p<0.01 indicate a significant difference compared to shRNA alone.