



**Supplementary Figure S14. Enhancer categorized according to Methylation boundary shift.**

(A) Enhancer is defined as H3K27ac peak except those located in promoter region (TSS  $\pm$ 1kb). Enhancers were arranged according to the H3K27ac peak length in 97L and LM3, respectively. Methylation level of enhancer is shown in the same order as H3K27ac peaks. (B) Methylation boundary shift is related to Enhancer alteration in LM3 cells comparing with Liver cells. A~E are classified as A (LM3 specific enhancer), B (Liver specific enhancer), C (enhancer in LM3 cells with width at least 500bp more than that in Liver), D (enhancer in LM3 or Liver cells extends less than 500bp), E (enhancer in Liver with width at least 500bp more than that in LM3 cells). A~E represent enhancer gain, loss, enhancer extension, no extension, and reverse extension respectively with corresponding aberrant DNA methylation in the right column. Bars showed percentage of up-regulated (Red bar) and down-regulated genes (Blue bar) in LM3 cell comparing with Liver. (C) Methylation boundary shift is related to Enhancer alteration in LM3 cells comparing with 97L cells. (D) 97L and LM3 express other cell type-specific genes to gain other cell type features. The y-axis shows the number of highly expressed genes (FPKM  $\geq$ 5).