



**Supplemental Figure 1.** The saturation analysis. Every row represented a sample and every column represented a cluster of genes with similar expression. The x axis represented the resampling percentage of data and the y axis represented the relative error of the gene expression under the resampling data. Q1, Q2, Q3, Q4 represent different clusters of genes with expression from low to high. All of the genes with different expression showed low relative error when the resampling percentage was more than 90% even if the expression of genes were very low.