

Figure S1: Scatter plots of gene expressions across the CAGE libraries (different batches) with the same barcodes. Individual dots represent quantified levels of transcript abundances.

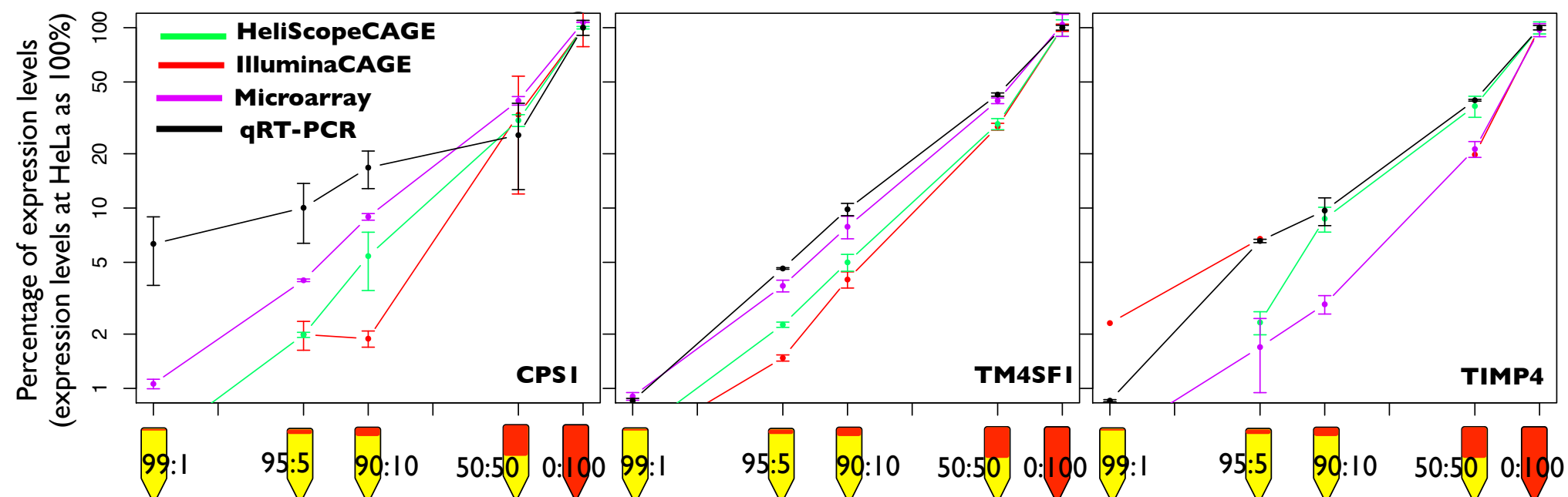


Figure S2: Quantification of gene abundance with different technologies. Different color represent different protocols, and x-axis corresponds to mixing ratio of HeLa cells.

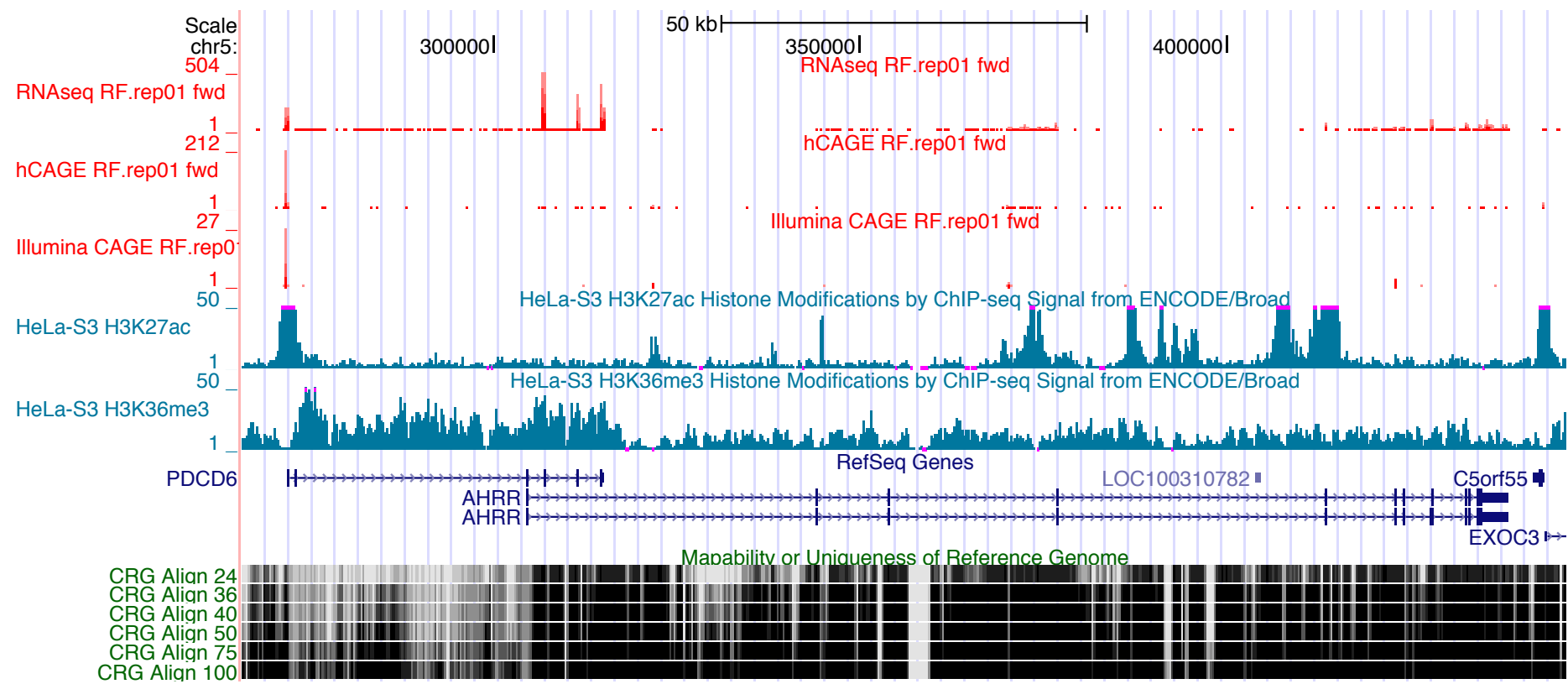


Figure S3: CAGE, RNA-seq, and chromatin marks at AHRR loci

(Spearman) correlation coefficient  
to the experimentally mixed (50%:50%) profile

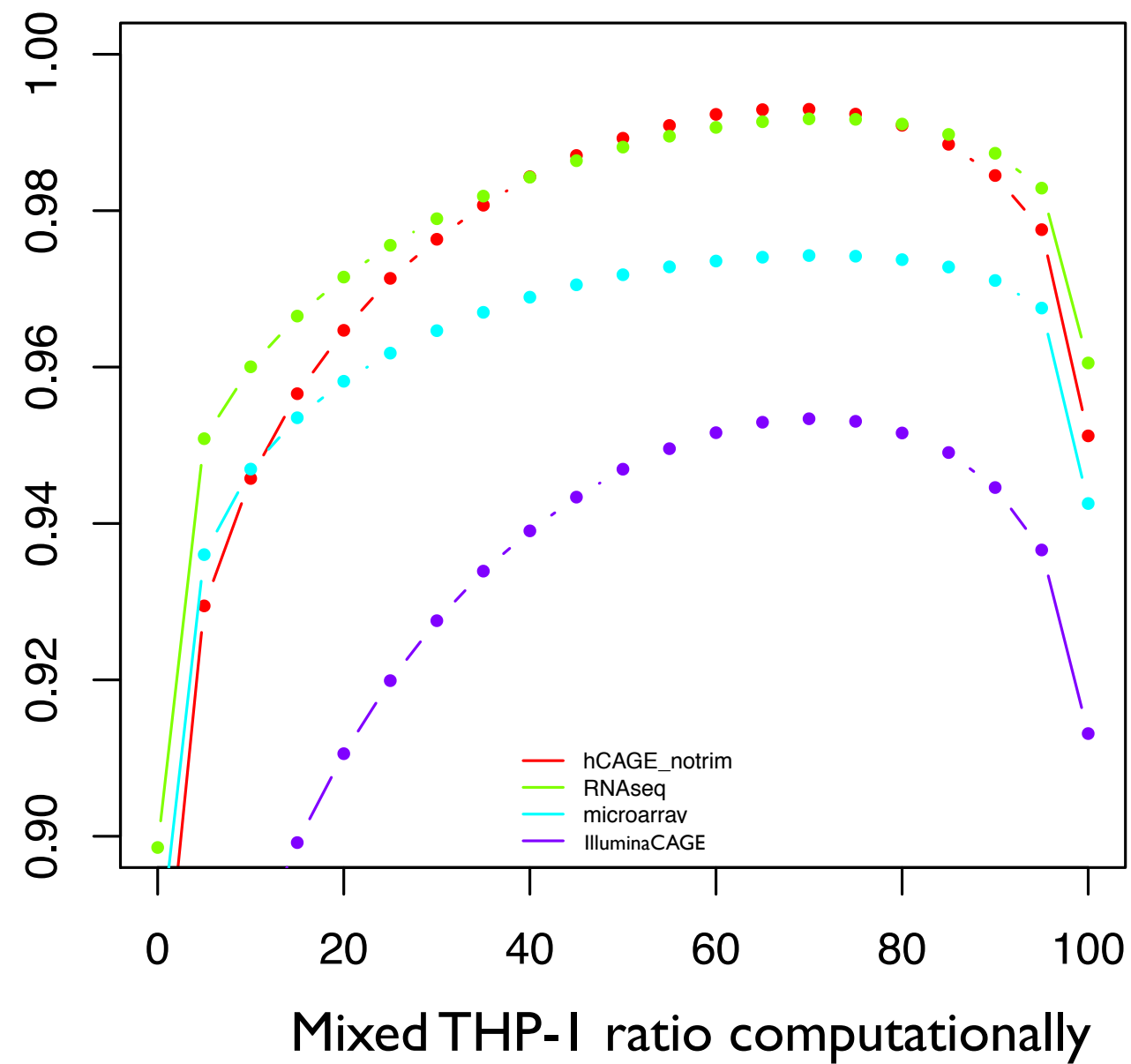


Figure S4: Comparison of computationally and experimentally mixed profiles

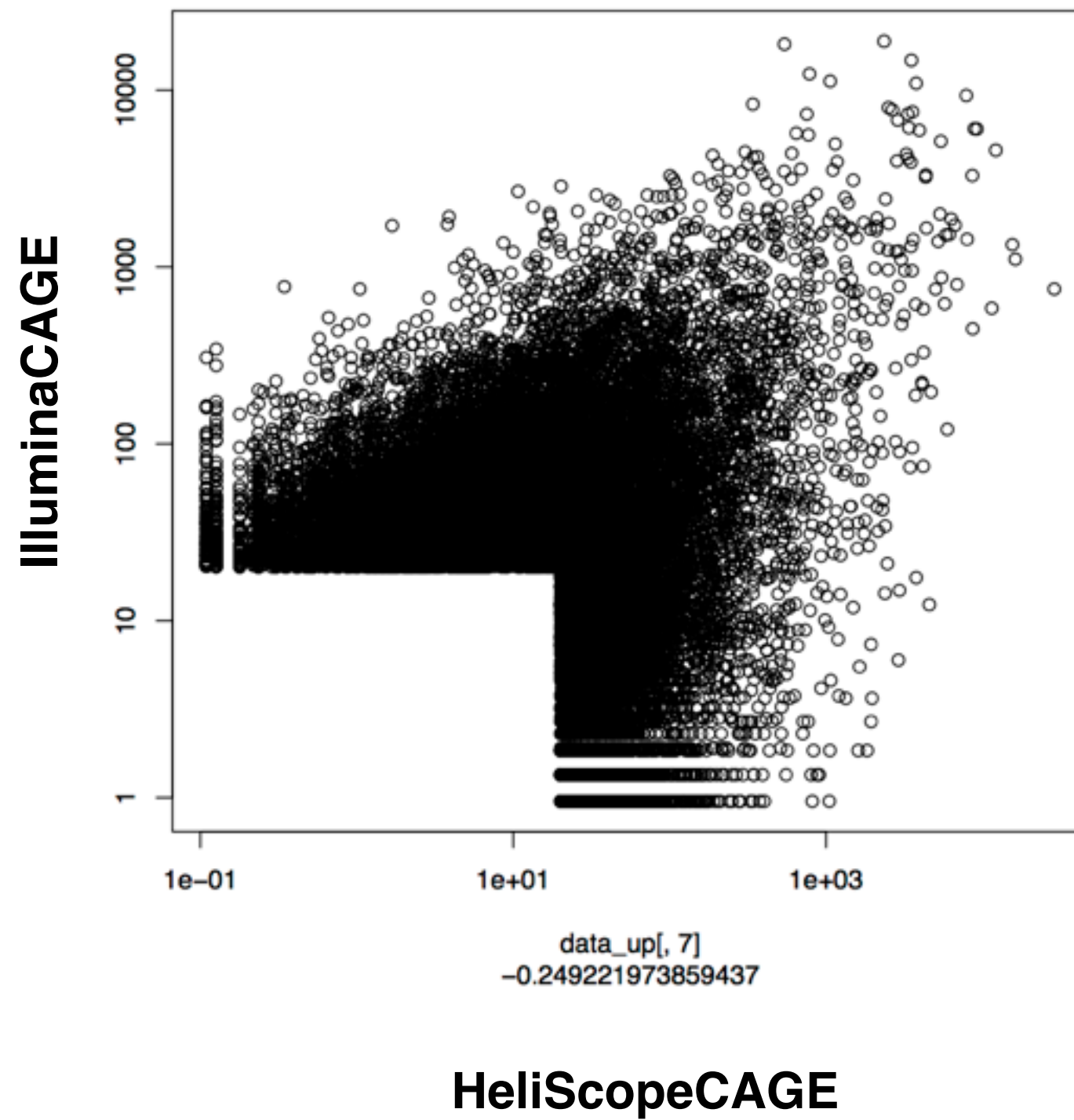


Figure S5: Scatter plot of the TSS activities in THP-1 cells, Only TSSs with >50tpm at either technologies are shown.

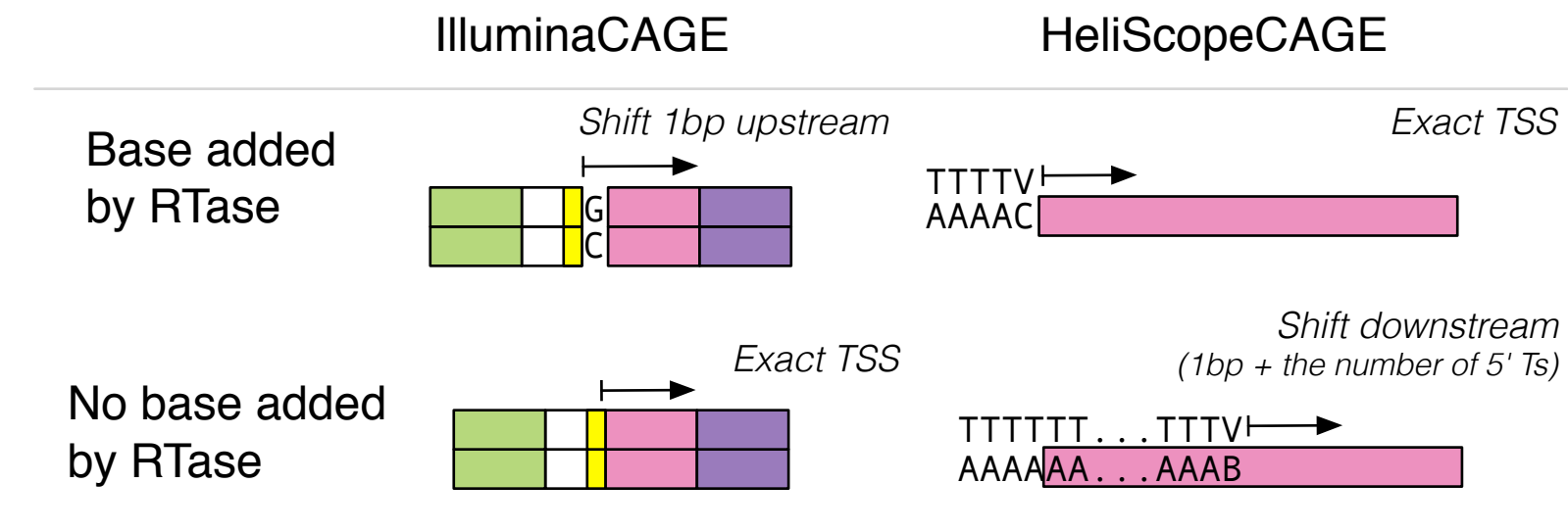


Figure S6: Schematic view of how CAGE platforms identify actual TSSs accurately or in a shift manner.

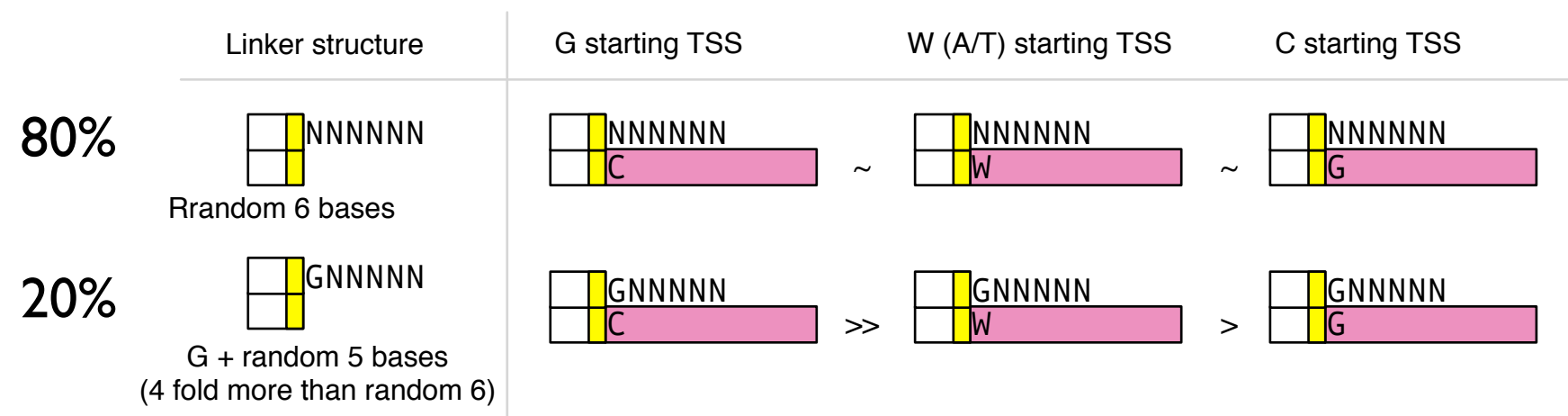


Figure S7: 5'Linker structure in IlluminaCAGE and their ligation efficiencies that potentially affect to skewed TSS profiles

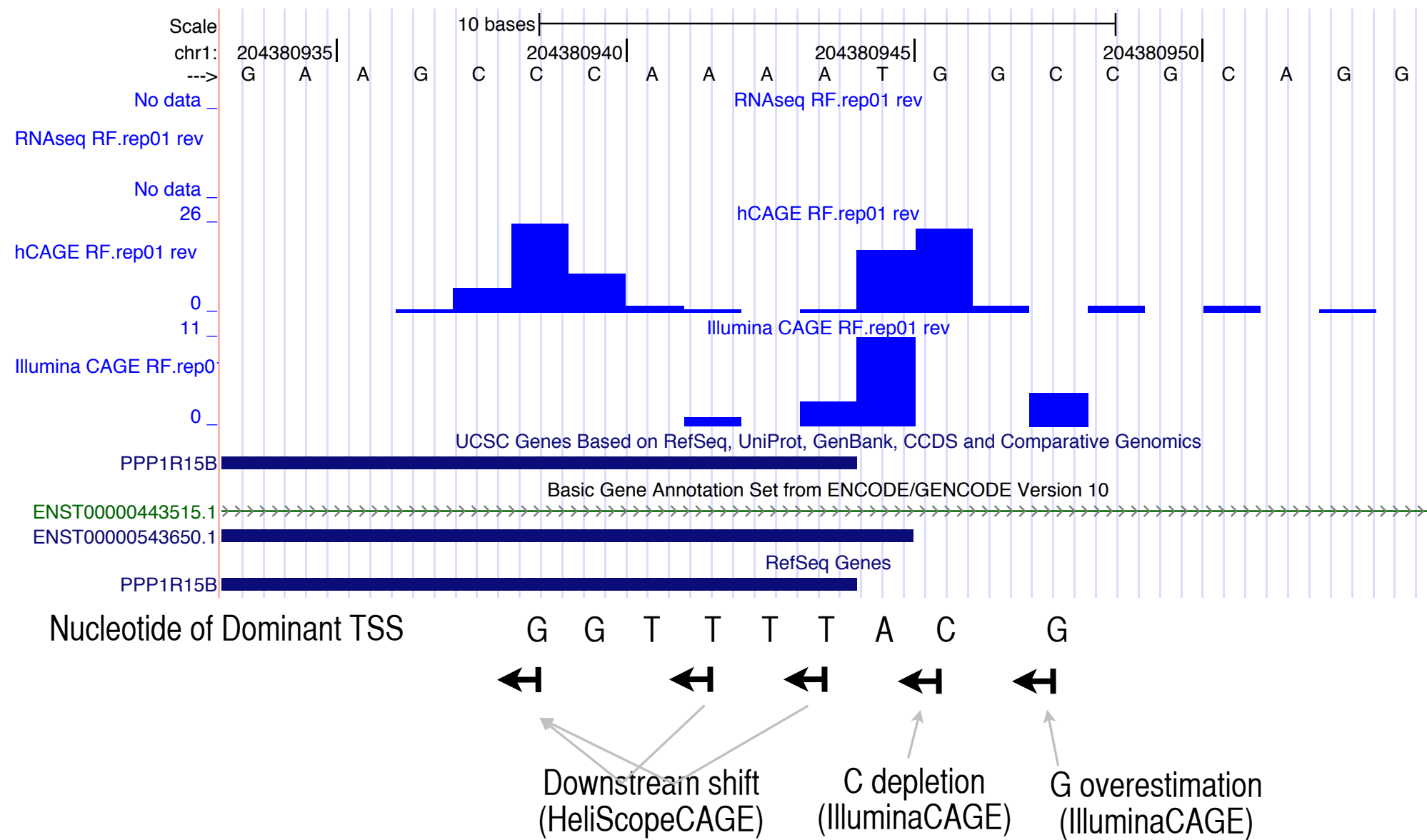
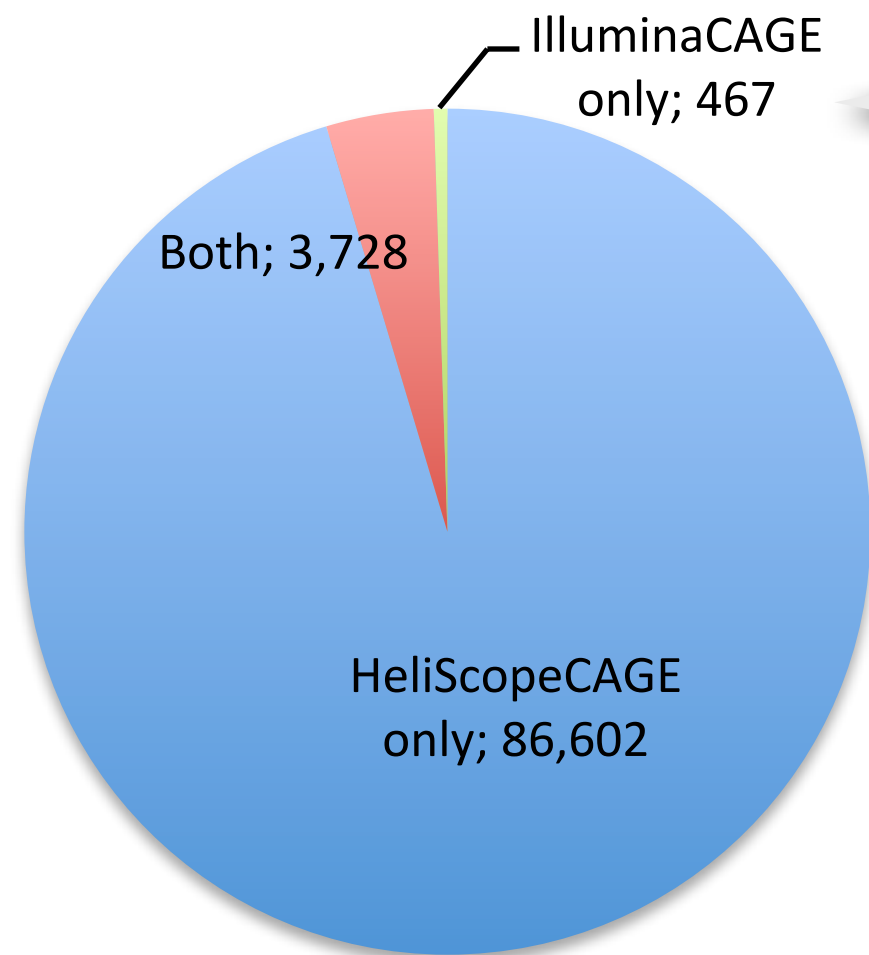


Figure S8: TSS activities at a single base pair resolution between IlluminaCAGE and HeliScopeCAGE at PPP1R15B locus





HeliScopeCAGE  
( $\geq 3$  counts),  
within 100bp; 12

remaining; 35

HeliScopeCAGE  
( $\geq 3$  counts)  
within 10bp; 87

HeliScopeCAGE  
( $\geq 3$  counts); 333

Figure S9: overlap of identified TSSs with  $>10$  counts are shown as pie chart.

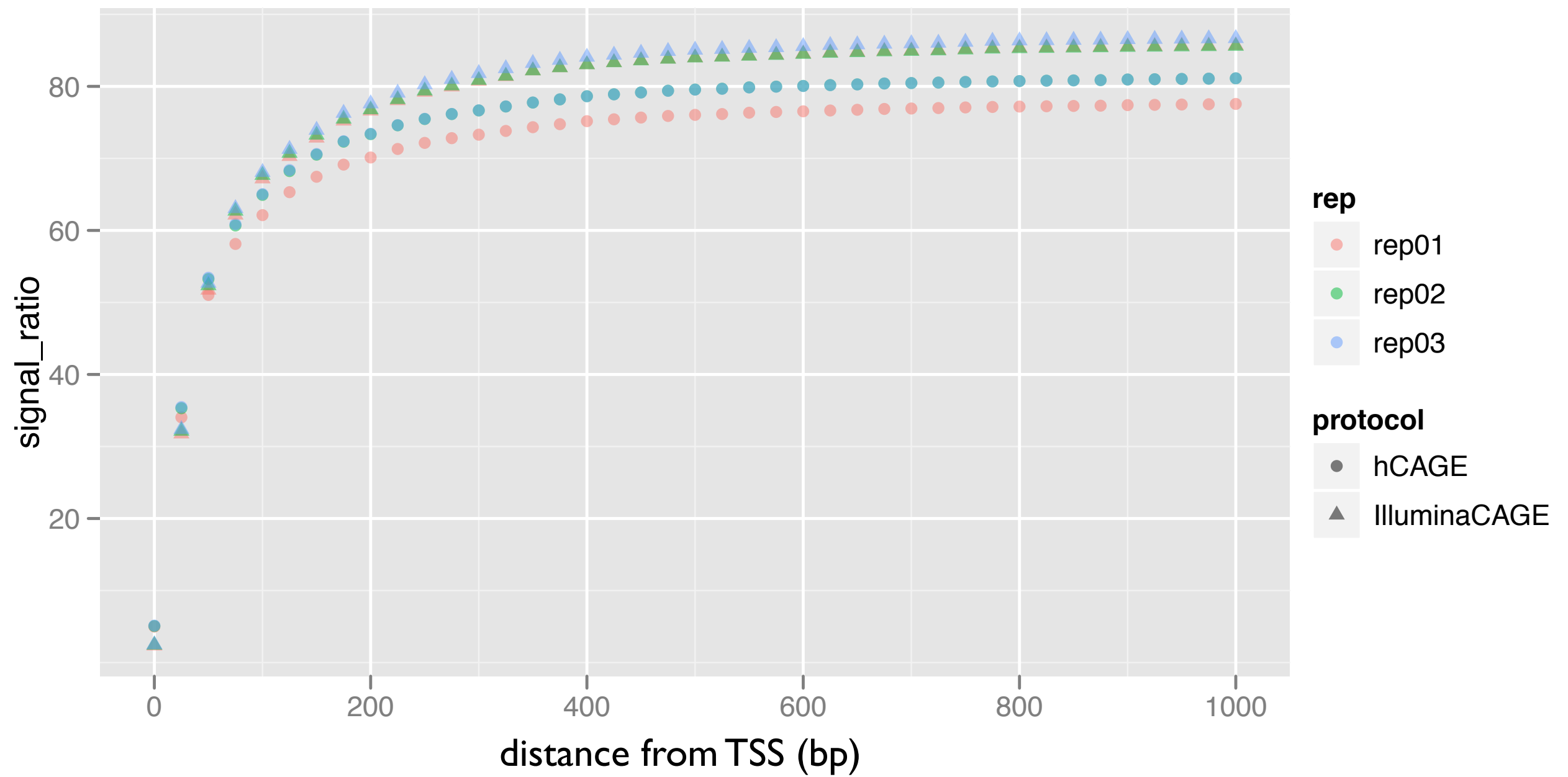


Figure S10: the ratio of CAGE reads starting from TSS proximal regions

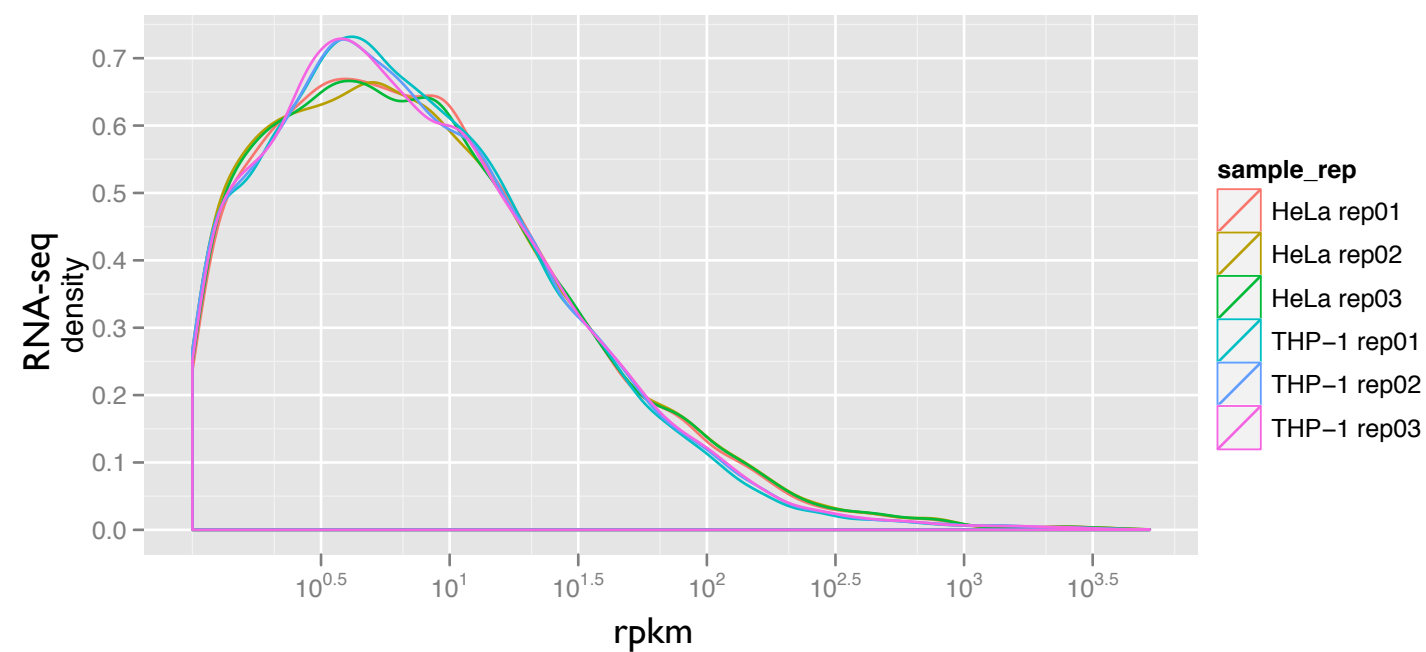
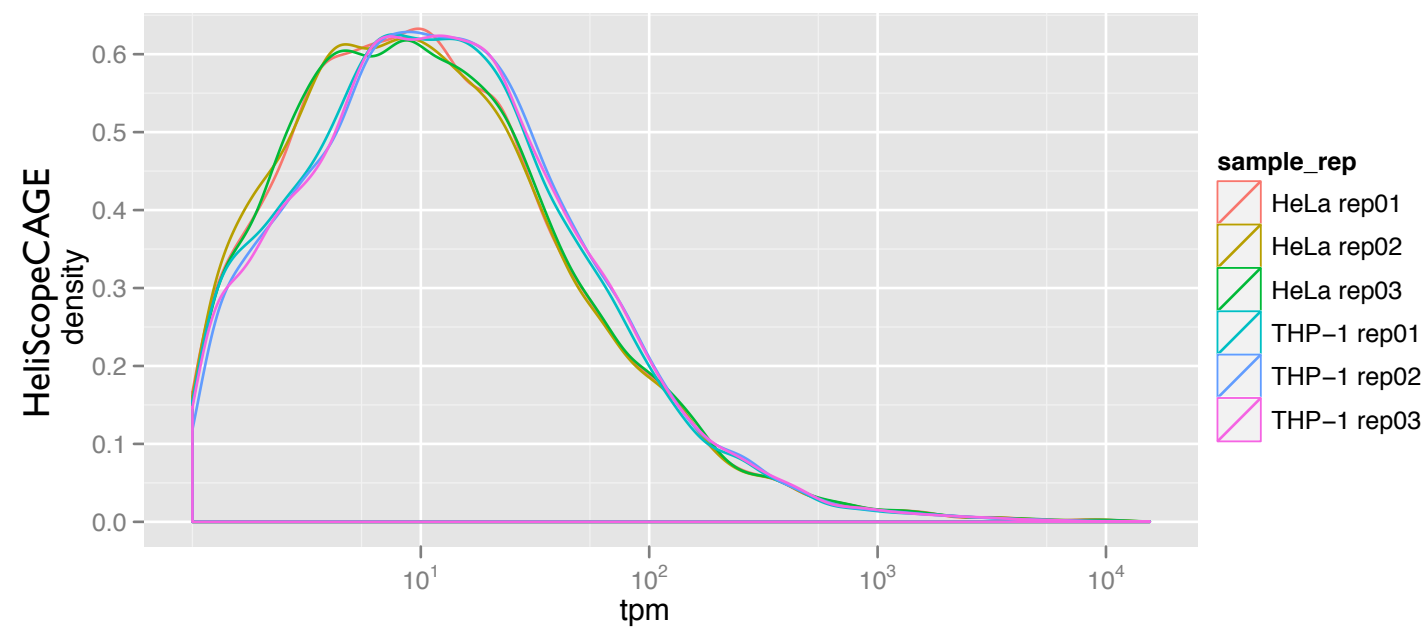
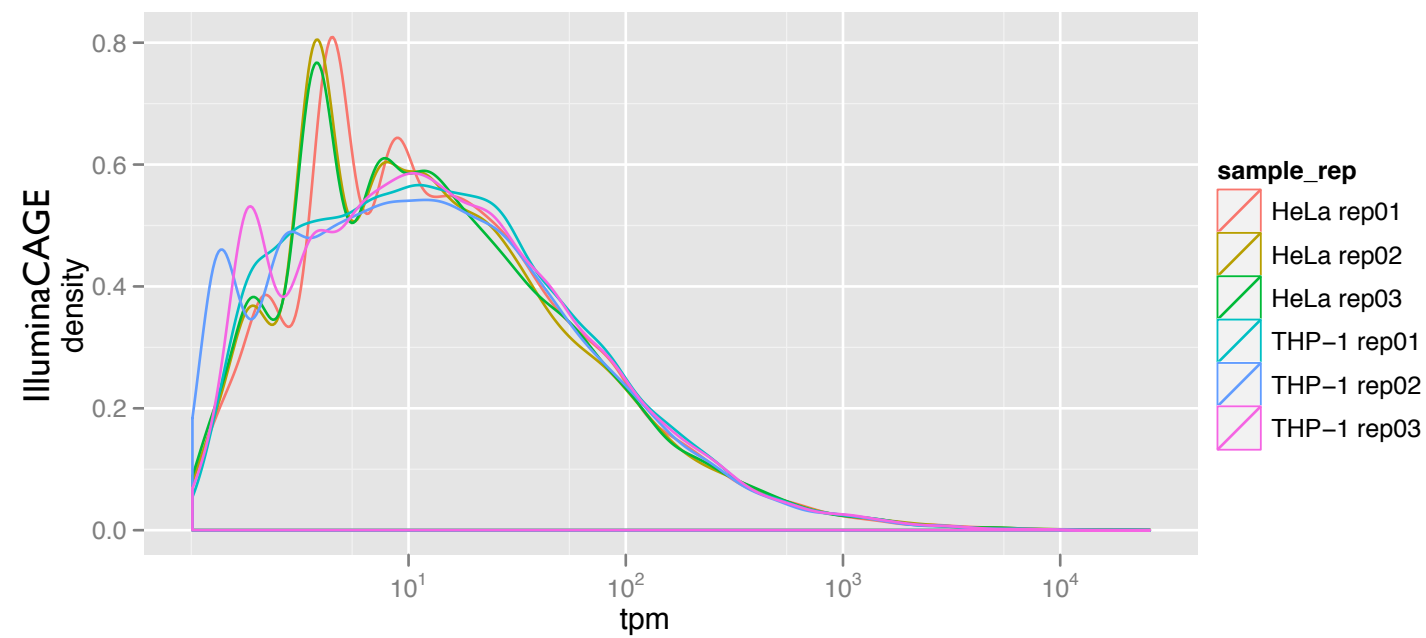
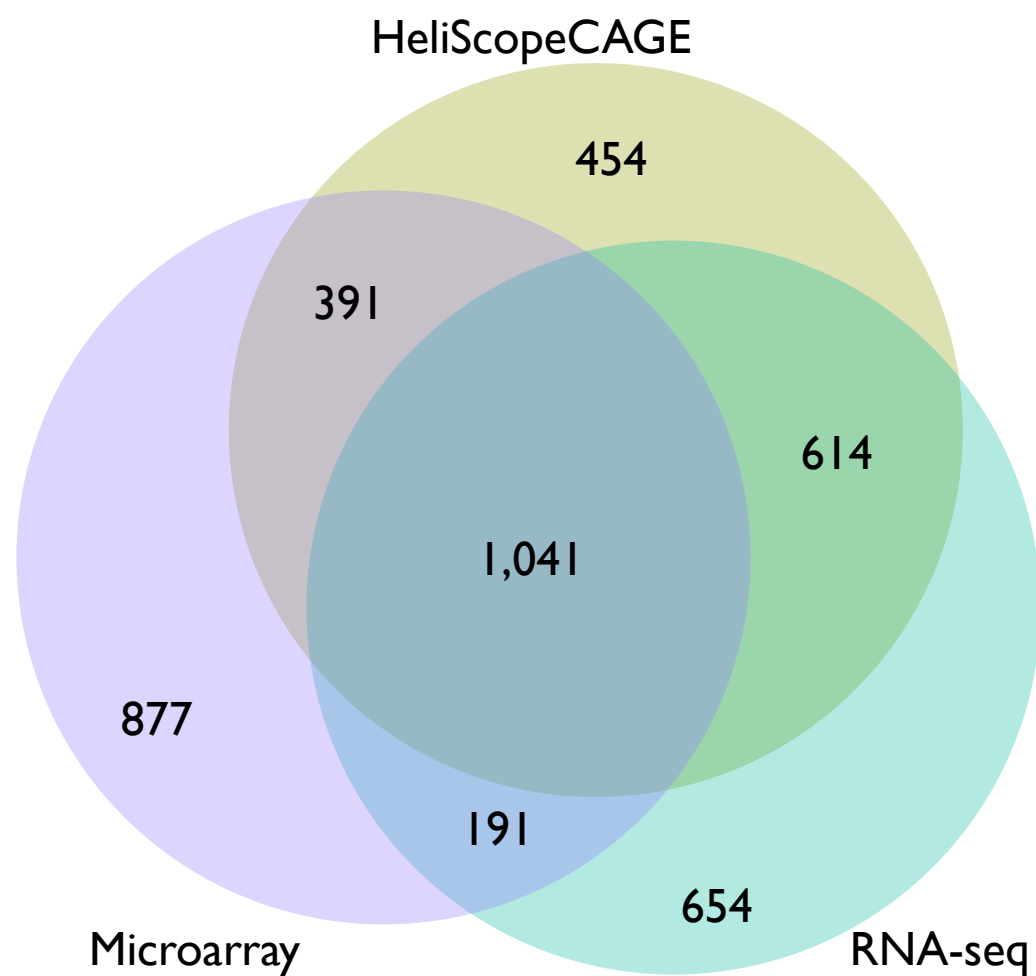
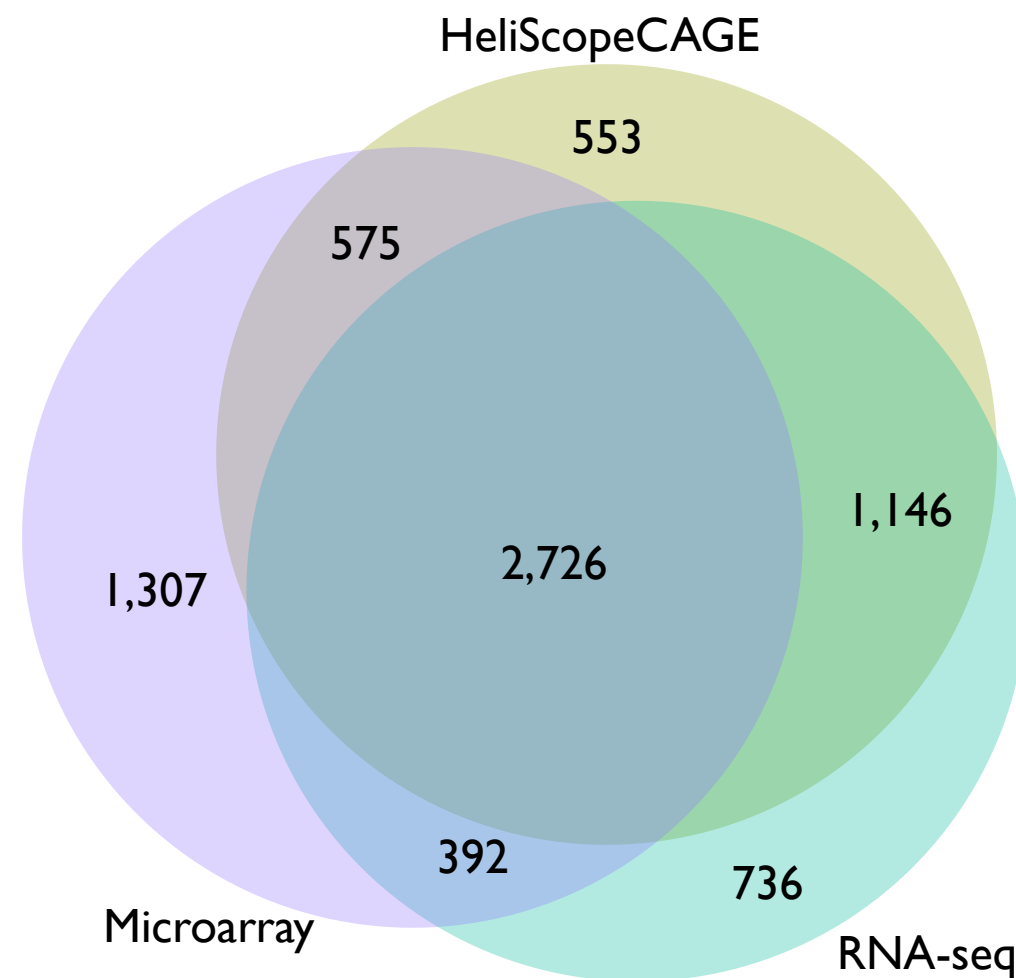


Figure S1 I: complexity of detected RNA species in THP-I and HeLa RNA



Top 2500 genes in each platform  
(4,222 genes in total)



Top 5,000 genes in each platform  
(7,435 genes in total)

Figure S12: Overlaps of genes detected in HeLa cells by each platform.