

## **Analysis of Affymetrix Exon Arrays**

### **ABSTRACT**

Affymetrix Exon array is the new technology for gene expression analysis after single channel oligonucleotides array. This array is based on exon-level and contains more than 7 times more information than the other array. In this thesis, we propose a statistical method to identify the significant (differentially expressed) genes. We employ robust multichip average (RMA) as our preprocessing method to summarize the probe level intensities, and conduct t-test for single-probeset exons and two-way ANOVA for multi-probeset exons. The p-values for all exons corresponding to the same gene are then combined by Fisher's method for the significance of the gene. We compare our methods with the only probe-level analysis and concluded that our method had potential to reduce false positive rate.