

Title

Detection of Differential Splicing Between Two Groups Using Gene Expression Arrays

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Abstract

Gene expression arrays have been a driving force for high-throughput research for the past two decades. During this time, a massive collection of arrays, in particular the Affymetrix HG-U133 Plus 2.0 (~50,000 in GEO), have been generated and their expression datasets are now available in public repositories. On U133 arrays a large number of genes are interrogated by multiple probesets and previous literature has suggested that discordancy in the expression values of these probesets can be evidence of alternative splicing events. This means valuable information on alternative splicing can be potentially gleaned from already existing datasets. Existing methods generate discrepancy measures at a per probeset level, but require a post-processing step to detect for alternative splicing across a gene. To address this problem, we have developed a discordancy score algorithm which calculates and ranks genes based on the discrepancy in their probesets' expression pattern between two groups of samples. We used our algorithm to detect differential splicing between the two main subgroups of Diffuse Large B-Cell Lymphoma and we are currently in the process of validating our findings using corresponding RNASeq libraries and wet lab experiments to measure the performance of our algorithm.