

## SVM analysis of expression microarray

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Expression microarray is an important tool for investigating gene expression according to time in a large scale. It is believed that genes in similar functional groups have similar expression patterns. Thus, we could infer gene function by classify it into certain functional groups according to its expression pattern. SVM is a powerful machine learning tool for classification. Here, I will try to reproduce the result in the famous paper by Brown et al, using the 2467 by 79 expression array data, and SVM, to find expression pattern for a certain functional group. Six functional groups will be picked for this test, and each will be trained by a SVM. For each SVM, three-fold cross validation will be used to evaluate the performance. I will also use classification tree and some other machine learning methods to compare their performance with SVM. Also, I will use trained SVM to predict function categories for unknown genes by their expression patterns.