Gene Expression Analysis

This tutorial will illustrate:

- Importing Affymetrix CEL files
- Adding sample information
- Exploring gene expression data
- Identifying differentially expressed genes using ANOVA
- Creating gene lists from ANOVA results
- Performing hierarchical clustering
- Adding gene annotations

*Note: the workflow described below is enabled in Partek Genomics Suite version 7.0 software. Please fill out the form on Our support page to request this version or use the **Help > Check for Updates** command to check whether you have the latest released version. The screenshots shown within this tutorial may vary across platforms and across different versions of Partek Genomics Suite.*

Description of the Data Set

Down syndrome is caused by an extra copy of all or part of chromosome 21; it is the most common non-lethal trisomy in humans. At the time of the study used in this tutorial, conflicting reports had thrown into doubt whether individuals with Down syndrome have dysregulation of gene expression throughout the genome or primarily in genes from chromosome 21. To address this question, Affymetrix GeneChip™ Human U133A arrays were used to assay 25 samples taken from 10 human subjects, with or without Down syndrome, and 4 different tissues. The data revealed a significant upregulation of chromosome 21 genes at the gene expression level in individuals with Down syndrome; this dysregulation was largely specific to chromosome 21 and not a genome-wide phenomenon.

The raw data is available as experiment number GSE1397 in the Gene Expression Omnibus.

Data and associated files for this tutorial can be downloaded using this link - Gene Expression Analysis tutorial data (right-click the link and choose "Save Link As" to download the tutorial data).

Additional Assistance

If you need additional assistance, please visit our support page to submit a help ticket or find phone numbers for regional support.

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