

# Partek Training: Visual and Statistical Analysis with Partek® Genomics Suite Software

## Course Description

The class will start with gene expression data examples to explain basic features of the software, such as how to import data into Partek, how to visualize data to identify outliers and other anticipated or unanticipated patterns, how to use statistical tests to identify differentially expressed genes between treatment or phenotype groups, and how to visualize the results. Generating lists of genes of interest, and learning how to remove unwanted “batch” effects from a properly designed experiment will also be discussed. Then it will go on to illustrate exon array and mapping array data analysis, such as how to detect alternative splicing on exon array data, how to identify regions of amplification/deletion on copy number data. Promoter tiling array data analysis will also be demonstrated.

## Course Objectives

The topics to be covered:

- ❖ Data importing (GeneChip® data and text format data etc.)
- ❖ Data filtering
- ❖ Data visualization (PCA scatterplot, MDS scatterplot, histogram, profile, box & whisker, etc.)
- ❖ Cluster analysis
- ❖ Inferential statistics (linear correlation, parametric and non-parametric tests)
- ❖ Results visualization (heat map, sources of variation plot, dot plot, ANOVA interaction plot, volcano plot, MA plot, Venn diagram, chromosome view, etc.)
- ❖ Gene annotation and gene list generation
- ❖ Assessing & removing batch effects
- ❖ Use statistical tests to identify differential expression at gene level and exon level
- ❖ Identify genes that undergo alternative splicing
- ❖ Exporting genes and exons to NetAffx™, IGB, and the UCSC Genome Browser
- ❖ Estimate copy number
- ❖ Visually and statistically identify regions of copy number aberration on mapping array data
- ❖ Identify binding regions on promoter tiling array data

## Who should attend?

Anyone who works with microarray data, exon data, SNP data, tiling data, proteomics data is encouraged to attend.

## Time Required

12 hours