

*Explanatory  
data analysis:  
(pre-analysis)*

Data Process

dataProcess

- Summary report: feature, sample, missingness(warning messages)
- Logarithm transformation with base 2 or 10
- Normalization: bias of MS run
  - Constant normalization
  - Quantile normalization
  - normalization using global standard proteins
- Feature selection: all features, top3 features, or high quality features
- Model-based run quantification
  - Tukey's median polish or linear model
  - Label-based or label-free
  - Censored or random missing values
  - Imputation by accelerated failure model or not

Visualization

dataProcessPlots

- Profile plot
- Quality control plot
- Condition plot

Visualization

modelBasedQCPlots

- Residual plot
- Normal quantile-quantile plot

*Model-based  
analysis:  
(testing)*

Comparisons between conditions

groupComparison

- Lists of adjusted p-values fitted with a variety of models
  - Multiple comparisons

Visualization

groupComparisonPlots

- Heatmap
- Volcano plot
- Comparison plot

*Design of  
a future  
experiment*

Sample size calculation

designSampleSize

- Sample size calculation: # of biological replicates according to FDR and CV
- Power calculation

Visualization

designSampleSizePlots

*Model-based  
Analysis:  
(quantification)*

Quantification

quantification

- Sample quantification
- Group quantification