

The differences between the illumina, Affymetrix, and Agilent methods are related to the specific technologies and methods used to generate and process the data.

Regarding the differences between Illumina and Affymetrix, Affymetrix data requires less preprocessing than Illumina data, and they use different libraries for annotation and data processing. In addition, the RLE method is not performed in the Illumina pipeline, while robust-multi-array average method is used in Affymetrix. Illumina uses MDS plots and employs batch correction and outlier detection, while Affymetrix does not. Illumina also performs covariate analysis to ensure that there are no multiple factors involved in the effect on expression.

When comparing Agilent to Illumina, they use different libraries for the analysis, and the data is read from either one-color channel or two-color channel data, which is different from what is followed in Illumina. Background correction is not done in Illumina, while it is done in Agilent and Affymetrix. Normalization between the arrays using quantile method for one color and lowess method for two color channel data is used in Agilent. The data annotation is also different between the two methods.

How is it different from Affymetrix and Agilent:

Difference with Affymetrix:

- Affymetrix data doesn't require much of the preprocessing as the illumina data requires.
- A different set of libraries are used for annotation and data processing.
- RLE isn't performed in illumina pipeline.
- RSN normalization method is used in illumina, whereas robust-multi-array average method is used in Affymetrix.
- MDS plots are used in illumina pipelines.
- Batch correction and outlier detection is employed in illumina, which isn't used in Affymetrix.
- In illumina, covariate analysis is done to make sure there are no multiple factors involved in the effect on expression.

Difference with Agilent:

- The Agilent method also uses a different set of libraries for the analysis.
- In this method, we read the data from either one-color channel or two color channel data which is different from what is followed in illumina.
- Background correction isn't done in illumina, whereas it is done in Agilent and Affymetrix.
- Normalization between the arrays using quantile method for one color and lowess method for two color channel data is used.
- Data annotation is different from illumina method.

In summary, while all three methods are used for gene expression analysis, the specific technologies and methods used in each can differ in terms of data preprocessing, normalization, annotation, and other factors. Researchers choose the method that best suits their research question and experimental design.

