

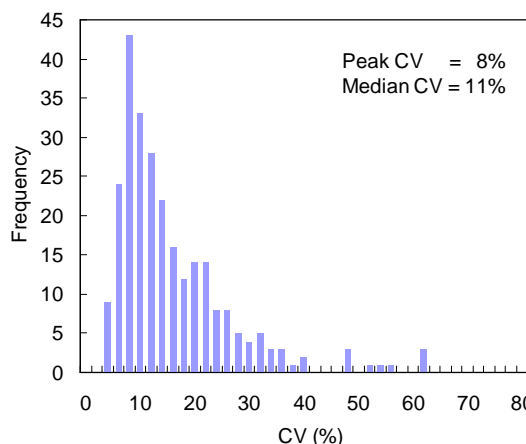
Assay Reproducibility

μ Parafl[®] microfluidic array platform of LC Sciences has an excellent assay reproducibility. Assay reproducibility is measured by how small chip-to-chip variation is for the same sample assayed over multiple chips. For each miRNA the assay variation across multiple chips is calculated using variation coefficient (CV)

$$CV_{miR-i} = \text{Standard Deviation } (I_{miR-i}) / \text{Average } (I_{miR-i})$$

where I_{miR-i} is the signal intensity of miRNA-i. Figure 1 shows a histogram of CV from six individual assays using a total RNA sample of human kidney tissue. A CV peak value of 8% and a median value of 11% were measured. These numbers indicate a low system noise that is more than sufficient to detect a 1.5-fold change that is commonly used as a threshold number for indicating significant biological differentiation.

Figure 1. A CV histogram based on six individual assays using a total RNA sample of human kidney tissue. Data are collected from average signal intensities above 32.



Dual-Sample Consistency

μ Parafl[®] microfluidic array platform of LC Sciences produces highly consistent dual-sample assay data and is capable of revealing even very small differences between two samples. The dual-sample consistency is measured by how small signal difference is between Cy3 and Cy5 channels of the same sample source. The signal difference is measured by variation coefficients between Cy3 and Cy5 signals. Figure 2a plots CV histogram of a dual sample assay data using a total RNA sample of human muscle tissue. A low CV peak value of 4% and a median value of 6% were measured. Figure 2b is a scatter plot of the Cy3 and Cy5 signals used to calculate the CV values of 2a. A high Pearson coefficient of 0.992 indicates a high consistency between the Cy3 and Cy5 signals.

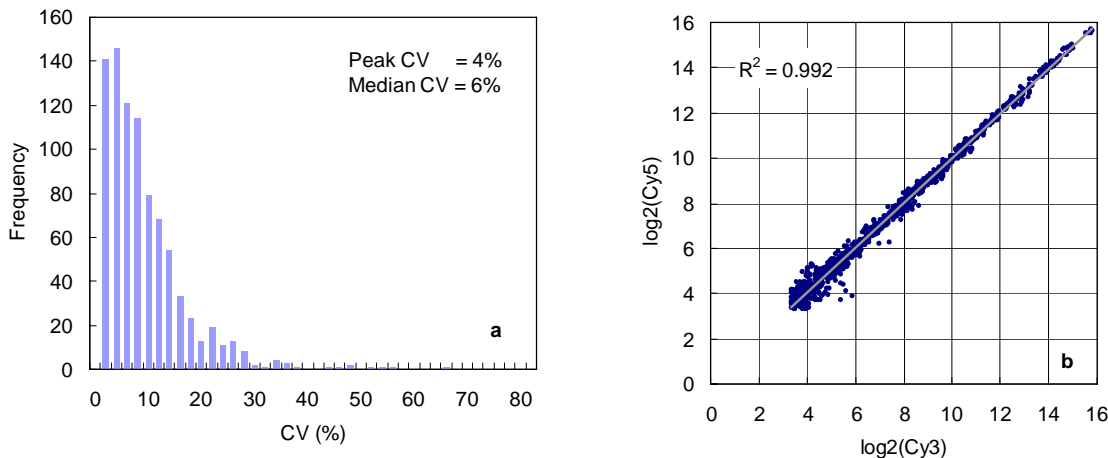


Figure 2. (a) CV histogram of a dual sample assay data using a total RNA sample of human muscle tissue. Data are collected from average signal intensities above 16. $CV_i = \text{Standard Deviation } (I_{Cy3i}, I_{Cy5i}) / \text{Average } (I_{Cy3i}, I_{Cy5i})$, where I_{Cy3i} and I_{Cy5i} are signal intensities of Cy3 and Cy5 channels at spot i. (b) A scatter plot of the Cy3 and Cy5 signals used to calculate the CV values of 2(a).

