

## **Effects of particle size on drop delay accuracy and subsequent recovery in cell sorting; a multi-institutional, multi-sorter study**

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Successful cell sorting is a fine balance between sample preparation and cytometer operation. As a critical part of the process, determining the recovery of the sort by calibration of the time it takes for the cell of interest to get from detection by the laser to the drop, otherwise known as drop delay, is fundamental. Inaccuracies in sort delay calibration can lead to decreased sort recovery, especially when particles sorted are larger than those used for drop delay calibration. The Flow Cytometry Research Group (FCRG) is undertaking a drop delay study to measure the accuracy of automated drop delay processes across two types of cell sorters: those with a fully automated, non-adjustable drop delay set-up and those with an additional manual drop delay option. The accuracy of the automated calibration programs was tested by sorting 10 and 24um sized particles, across 14 institutions, using 11 cell sorter models, and sorting with a 100um nozzle on each instrument. Preliminary results indicate a decrease in sort recovery of 24um particles compared to 10um particles across sorters. The FCRG continues to collect data, which will be used to determine the accuracy of automated drop delay and sort recovery for different particle sizes and will serve as a guide for sorter operators to help choose a drop delay method, determine drop delay accuracy and assist in increasing the recovery of cells and particles of sorted samples.