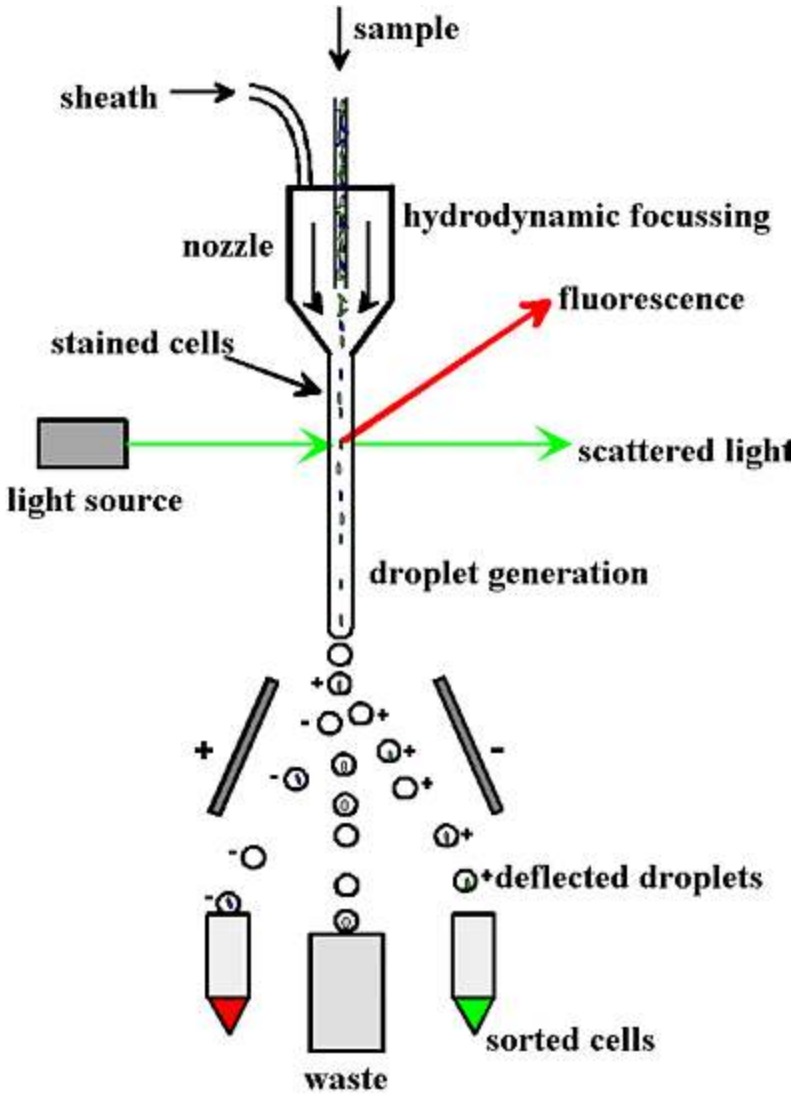
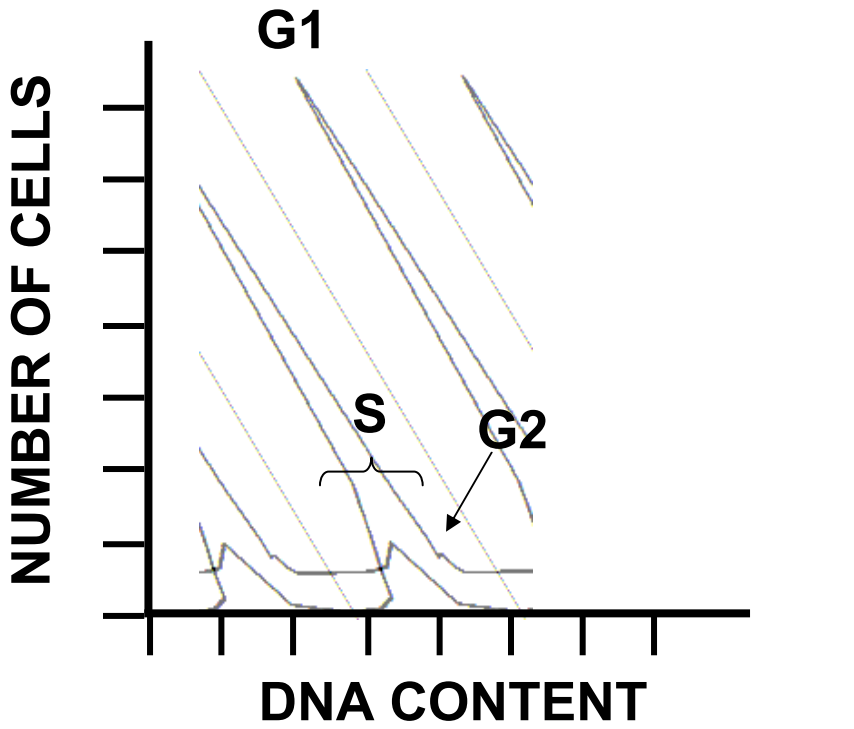
Flow Cytometry



You are a researcher studying cancer and you frequently use the flow cytometer to analyze cells during your experiments. A colleague from another institution sends you a cell line that you have an interest in using for your study. The first thing you do with the <u>population of cells</u> is analyze their DNA content in a flow cytometer using DAPI, which only binds dsDNA. At the same time you analyze HT2 cells that display a typical cell cycle profile. Both cell types come from an organism having only 4 chromosomes (2N=4).

The images below show the results after analyzing 500 cells of each cell type. The phases of the cell cycle are designated on the graph.

A. On the graph below showing the normal HT2 cells, please indicate with an arrow where M-phase would be represented. Describe your rationale.



B. On the graph showing the new cell line there are two bumps indicating a subpopulation of cells that differ from the other cells within the same sample. These are labeled as X and Y on the graph. Please draw a schematic of the chromosomes in the cells at positions X and Y. Describe the event that led to the formation of those cells.