ABSTRACT

METHODS, SYSTEMS, AND DEVICES FOR MULTIPLE SINGLE-CELL CAPTURING AND PROCESSING USING MICROFLUIDICS

Methods, systems, and devices are described for multiple single-cell capturing and processing utilizing microfluidics. Tools and techniques are provided for capturing, partitioning, and/or manipulating individual cells from a larger population of cells along with generating genetic information and/or reactions related to each individual cell. Different capture configurations may be utilized to capture individual cells and then processing each individual cell in a multi-chamber reaction configuration. Some embodiments may provide for specific target amplification, whole genome amplification, whole transcriptome amplification, real-time PCR preparation, copy number variation, preamplification, mRNA sequencing, and/or haplotyping of the multiple individual cells that have been partitioned from the larger population of cells. Some embodiments may provide for other applications. Some embodiments may be configured for imaging the individual cells or associated reaction products as part of the processing. Reaction products may be harvested and/or further analyzed in some cases.

[Figure 2]