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(54) Title: A METHOD OF PROFILING A SAMPLE COMPRISING A PLURALITY OF CELLS AND A SYSTEM FOR PERFORMING THE SAME

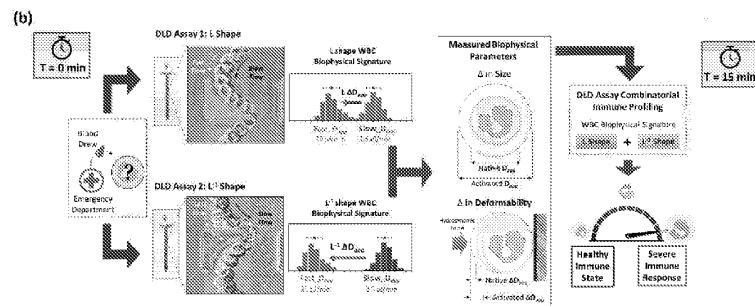


FIG. 1B

(57) Abstract: The invention is to provide a method of profiling a sample comprising a plurality of cells, the method comprising: flowing cells from the sample through a first array of pillars to obtain one or more distribution profiles of cells sorted by the first array; flowing cells from the sample through a second array of pillars that is different from the first array of pillars to obtain one or more distribution profiles of cells sorted by the second array; and deriving a biophysical signature of the sample based on at least the one or more distribution profiles of the cells sorted by the first array and/or the one or more distribution profiles of the cells sorted by the second array. The method further comprises determining a health status of a subject based on the biophysical signature of the sample. The invention is also to provide a sample profiling system. In various embodiments, the distribution profile of cells in the output regions is indicative of one or more biophysical properties of the cells, which may include the size and deformability of the cells. The pillars in the first array and the second array may have a shape selected from the group consisting of a substantially L shape and a substantially inverse L shape, mirror reflections thereof or combinations thereof.

[Continued on next page]

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