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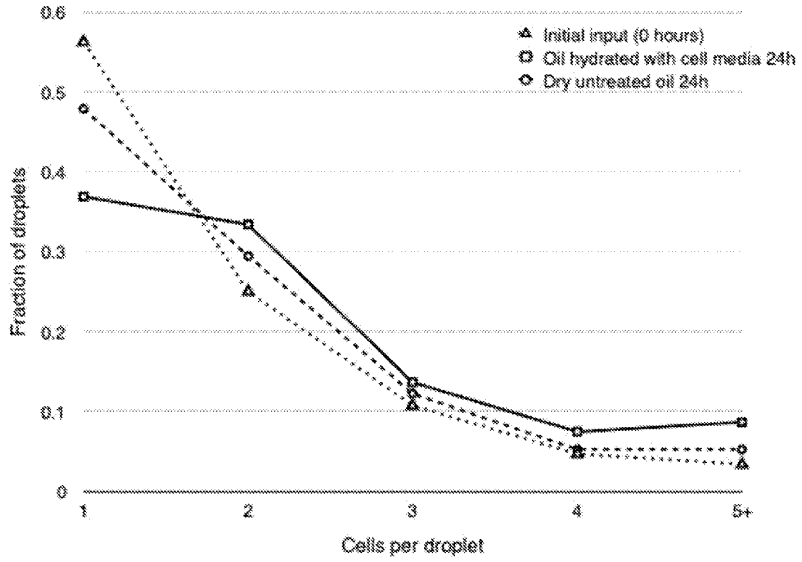
(54) Title: MICRODROPLET MANIPULATION METHOD

FIGURE 1 - Cell growth rates improved by oil hydration treatment



(57) Abstract: A method of manipulating microdroplets having an average volume in the range 0.5 femtolitres to 10 nanolitres comprised of at least one biological component and a first aqueous medium having a water activity of a_{w1} of less than 1 is provided. It is characterised by the step of maintaining the microdroplets in a water-immiscible carrier fluid which further includes secondary droplets having an average volume less than 25% of the average volume of the microdroplets up to and including a maximum of 4 femtolitres and wherein the volume ratio of carrier fluid to total volume of microdroplets per unit volume of the total is greater than 2:1. The method may be employed for example with microdroplets containing biological cells or with microdroplets containing single nucleoside phosphate such as are prepared in a droplet-based nucleic acid sequencer. The method is suitable

WO 2020/161500 A1

[Continued on next page]

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for controlling for example cellular, chemical or enzymatic processes and/or microdroplet size in microdroplets or single nucleotide nucleic acid sequencing.