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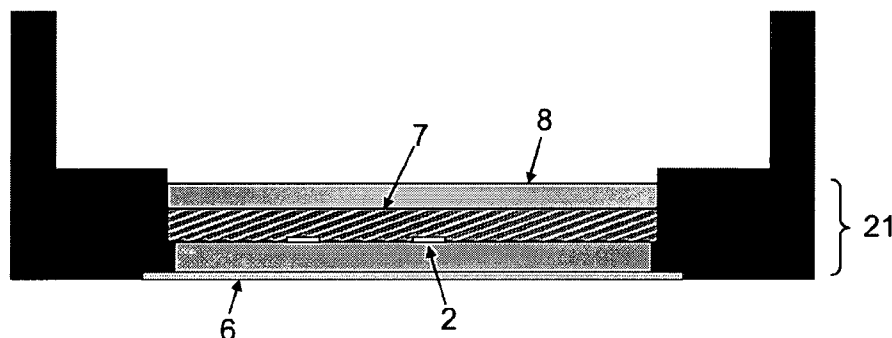
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(54) Title: APPARATUS FOR PROCESSING A SAMPLE IN A LIQUID DROPLET AND METHOD OF USING THE SAME



(57) Abstract: The invention provides an apparatus and a method of processing a biological and/or chemical sample in a liquid droplet. The apparatus comprises a processing compartment, which is defined by a reservoir and an immobilisation member. The processing compartment is further adapted to accommodate a medium, which is immiscible with the liquid droplet, and of a lower surface energy than the liquid of the liquid droplet. The reservoir is defined by a circumferential wall and a base. The immobilisation member is arranged within the reservoir and comprises a surface that is patterned in such a way that it comprises at least one predefined immobilisation area. The predefined immobilisation area within the patterned surface is of a higher surface energy than the medium. Furthermore the at least one predefined area is of a higher surface energy than the remaining surface and of a sufficient width in the plane of the surface to allow, in said hydrophobic medium, the immobilisation of the liquid droplet on the hydrophilic area via hydrophilic-hydrophilic or hydrophobic-hydrophobic interactions. The remaining surface is of at most about the same surface energy as the medium. In the method of the invention the medium is disposed into the apparatus, such that the predefined immobilisation area is entirely covered by the medium. The liquid droplet is disposed onto the predefined immobilisation area, whereby the liquid droplet is immobilised thereon via hydrophilic-hydrophilic or hydrophobic-hydrophobic interactions. A process is performed on the biological and/or chemical sample in said liquid droplet.



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