

High throughput generation of droplet using 3D-printed microfluidic device

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Droplets generation via microfluidic device have a wide range applications such as biological assays and material synthesis. Actually, droplet microfluidic system requires the scale-up of droplet generation in terms of industry applications. In general, photolithography is the general method to stack the layers for making 3D structure. However, this method is difficult and needs several steps to fabricate device. Herein, in order to generate the mass production of droplets, we fabricated 3D-printed microfluidic device without leaking problem at high flow rate. The microfluidic device for droplet generation was made by 3D digital light processing (DLP) method. This 3D-printed droplet generator has excellent pressure tolerance because the device is made with direct prototype without bonding process. Moreover, the 3D-printing method has no need of special fabrication skills and attention in industry fields with user friendly method.