

Resolution comparison of Three-Dimension Printing Platforms

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Three-dimensional printing has emerged as a potential revolutionary technology for the fabrication of microfluidic devices. A direct experimental comparison of the two 3D printing technologies domination microfluidics was conducted using a open channel microfluidic device, the design of which was optimized for each printer: Polyjet, digital light processing stereo-lithography(DLP-SLA). Printer performance was evaluated in terms of feature size for mass manufacturing. Polyjet was suitable for microfluidic fabrication with minimum features of $>500\mu\text{m}$. DLP-SLA fabricatied a minimum channel size $>100\mu\text{m}$. Compared with Polyjet, resolution better than Polyjet and showed suitable for microfluidic fabrication. Microfluidic application requiring precise control of flow. In discussion of limitations channel size of these printers, the various size width of high in 3D-printed microchannels should find wide applicablity in drug delivery, tissue engineering, organ-on-a-chip platforms.

Keyword: Microfluidic, Resolution, Three-dimension printing, Polyjet, Digital light processing stereo-lithography.