

Biomedical microfluidic devices by using low cost fabrication techniques: a review

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Abstract:

One of the most popular methods to fabricate biomedical microfluidic devices is by using a soft-lithography technique [1, 2, 3]. However, the fabrication of the molds for the microfluidic device, such as SU-8 molds, usually requires a clean-room environment that can be quite costly. Recently, low-cost techniques without cleanroom facilities that feature aspect ratios more than 20, for fabricating those SU-8 molds have being reported [4]. In that technique, an UV exposure equipment, commonly used in the Printed Circuit Board (PCB) industry, replaces the more expensive and less available Mask Aligner that has been used in the last 15 years for SU-8 patterning. Hence, other techniques are currently being developed. An example is the xurography technique that uses a cutting plotter machine and adhesive vinyl films to generate the master molds to fabricate microfluidic channels [5]. The aim of this work is to review the most recent low-cost techniques to fabricate microchannels and to show possible applications of these devices in biomedical engineering.

Keywords: Low cost, microfluidic device, nonlithographic technique

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