

PATTERNING OF SURFACES FOR HIGH-DENSITY, SUB-CELLULAR RESOLUTION, DIRECTED CELL CULTURES

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ABSTRACT

Biosensors, cell adhesion platforms, bioMEMS devices, and many other devices used in the study of cellular interactions require the ability to pattern microfluids at increasingly finer resolutions. To date, there is no practical method to pattern microfluids at a sub-cellular resolution with a single step. Techniques currently in use, such as spotting, stamping, and microfluidic patterning, either cannot achieve the necessary resolution or rely on complicated, time-consuming and expensive alignment steps.

Researchers at the University of California, Berkeley have developed a single-step process for sub-cellular level patterning of surfaces with proteins and small molecules. The technique requires only conventional?inexpensive and readily available--laboratory equipment. The new process developed at Berkeley is widely applicable to preparation of substrates for the study of cellular interactions with extra-cellular matrices made up of proteins and other polymers.

APPLICATIONS

BioMEM devices, Tissue Engineering, Biosensors, Neural networks, Cell adhesion platforms, Scaffolds for tissue engineering

ADVANTAGES

Fast one-step patterning of proteins and other small molecules

Simpler and cheaper than current sub-cellular patterning techniques

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