MICROFLUIDIC CHIPS AND MICROPHYSIOLOGICAL SYSTEMS USING THE SAME

ABSTRACT

Described herein is a microfluidic chip comprising a first channel in fluid communication with an adjacent second channel through a opening, wherein the height of the first channel and the second channel are chosen to generate sufficient surface tension at the opening such that a liquid injected into the first channel or the second channel is substantially confined within the first channel or the second channel, respectively, or that flow of the liquid therebetween is controlled, the surface tension producing a non-physical microfluidic barrier that limits or selectively controls passage of the liquid. Also described are in vitro microphysiological systems that use such microfluidic chips in modeling the structure and functions of human organs, such as a blood-brain barrier, and studying in vivo-like physiological responses of such organs to various investigative or therapeutic agents.

No suitable figure