

Laser Technology and Liver Chips

The “liver chip” is an MIT project designed to culture liver tissue. It’s seen as a tool for drug discovery and development including drug metabolism and toxicology. The chip’s cell-holding scaffolds are made of laser-machined polymers. Extremely small channels and pores in the scaffolds are micro-machined using highly precise UV excimer lasers designed by J P Sercel Associates (JPSA) in Hollis, NH. Very fine and measured amounts of material are removed as a plasma plume by “photo-ablation” with each laser pulse, leaving a cleanly sculpted pore, channel, or feature. The chip’s tiny channels provide simulated blood flow and supply cells with the correct nutrients and hormones to promote growth of tissue architecture and function. JPSA products and services include UV excimer and DPSS laser micro-machining systems.

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