

Video Article

Laser Capture Microdissection of Mammalian Tissue

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Abstract

Laser capture microscopy, also known as laser microdissection (LMD), enables the user to isolate small numbers of cells or tissues from frozen or formalin-fixed, paraffin-embedded tissue sections. LMD techniques rely on a thermo labile membrane placed either on top of, or underneath, the tissue section. In one method, focused laser energy is used to melt the membrane onto the underlying cells, which can then be lifted out of the tissue section. In the other, the laser energy vaporizes the foil along a path "drawn" on the tissue, allowing the selected cells to fall into a collection device. Each technique allows the selection of cells with a minimum resolution of several microns. DNA, RNA, protein, and lipid samples may be isolated and analyzed from micro-dissected samples. In this video, we demonstrate the use of the Leica AS-LMD laser microdissection instrument in seven segments, including an introduction to the principles of LMD, initializing the instrument for use, general considerations for sample preparation, mounting the specimen and setting up capture tubes, aligning the microscope, adjusting the capture controls, and capturing tissue specimens. Laser-capture micro-dissection enables the investigator to isolate samples of pure cell populations as small as a few cell-equivalents. This allows the analysis of cells of interest that are free of neighboring contaminants, which may confound experimental results.

Video Link

The video component of this article can be found at <https://www.jove.com/video/309/>

Disclosures

The authors have nothing to disclose.