# The positional capture experiments of the LCM using near field fiber probe

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## Abstract

Laser Capture Microdissection (LCM) is a technique that permits rapid and reliable procurement of pure population of cells from tissue sections. We created the LCM system with a near field fiber probe to transmit the laser light (808 nm) to heat the thermoplastic polymer film which was placed above the tissue section. Laser spots in nano-dimension cause the film to be melted and fused with the underlying target of choice. In the study, we set the fiber probe on a two-dimensional nanometer PZT to do precisely capture. The aperture of fiber probe we used is 100 nm through which light can be focused. We used 20 nm spread gold particles to be captured in these experiments instead of tissue sections. By moving the probe in X direction to melt spots in different distances, we can know more molecular properties of the thermoplastic polymer film especially in its resolving power. When the film is removed, the chosen particles remain bound to the film, while the rest of the tissue or particles are left behind. According to the results of this study, we can know how close the melted spots can reach to, and it is also helpful to the operation of this new LCM system.