

Capturing dissociated cells from core needle biopsies: Up front triaging to enhance comprehensive diagnostics

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Due to developments in imaging, there has been a significant diminution to the volume of tissue obtained for diagnostic purposes. While this has been of benefit to the patient, the miniscule amounts of tissue received have been strained to keep up with the increasing demands for molecular testing. Most developments in this field have concentrated on modifications to the tissue specimen after it has been fixed in formaldehyde, this despite the fact it has been known for years this fixative negatively impacts the integrity and recovery of nucleic acids. Alternative approaches to processing and triaging diminutive tissue specimens may be needed to address this burgeoning problem in the pathology laboratory. Recently, an up-front step involving washing of the biopsy specimen was incorporated into the processing of the sample and found to be able to recover diagnostic cells for molecular testing. This simple step allowed for the retrieval of unfixed cells that are normally lost during routine processing, yet preserved the tissue core for traditional pathologic analysis. Sufficient amounts of high quality, high molecular weight DNA can be recovered from these cells for molecular testing. To carry these findings to the next step, and as proof of concept, we recently subjected the DNA from these cells to molecular testing on a pre-determined, 144 gene panel. The end goal was to demonstrate the ability to provide informative data that would guide a treating physician's treatment strategies. We found that this triaged approach not only provided a level of molecular testing on par with recommendations, but preserved the core tissue for enough sections to include routine morphologic evaluation, standard immunohistochemical profiling and ancillary testing for immunotherapeutic decisions. By utilizing such a processing approach, a more comprehensive, diagnostic picture can be derived from these traditionally minute tissue sources.

Biography:

Dr. Mojica is a practicing surgical pathologist and Assistant Clinical Professor with the Department of Pathology and Anatomical Sciences at the University at Buffalo. He completed his MD degree from the St. Louis University School of Medicine and is trained and board certified in both Anatomic and Clinical Pathology. He heads the immunohistochemistry section within the Kaleida Health Laboratory. He has published over 30 peer review manuscripts related to translational research and pathologic biospecimens.