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Core washing of needle biopsy specimens with micro fluidics: A novel approach to meet the increasing demands of ancillary testing on small specimens

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An emerging problem pathologists are encountering is the receipt of vanishingly small core biopsy specimens and the increasing demands for molecular testing on them. Current tissue management requires traditional processing approaches to arrive at a point where a diagnosis can be made on morphologic grounds. However, even with judicious planning, examination of hematoxylin with eosin and immunohistochemically stained sections can lead to the depletion of these very small pieces of tissue leaving nothing left over for molecular analysis. We have recently discovered that exfoliated cells can be recovered from core needle biopsies prior to their routine processing to create formalin fixed paraffin embedded specimens. A wash step recovers cells which we believe are dislodged by the trauma associated with the mechanical procedure of performing this type of biopsy. Management of these cells using a microfluidic platform presents a novel paradigm capable of extending the diagnostic utility of the core needle biopsy allowing for recovery of high molecular weight DNA, proteins and the possibility of other cellular constituents. Cytopathologic evaluation of these cells is integral to the success of this platform. A prototype working model is introduced with a discussion of the attributes this approach delivers relative to conventional pathologic specimen processing.

Biography

Wilfrido D Mojica is a Surgical Pathologist and Assistant Clinical Professor with the Department of Pathology at the University of 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 is the Director of the Immunohistochemistry Laboratory within the Kaleida Health Laboratory. He has published over 25 peer reviewed manuscripts related to translational research and pathologic biospecimens.

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