

Abstract Submitted  
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**Differentiation of benign epithelia, prostatic intraepithelial neoplasia and, stromal region of prostate biopsies using Raman spectroscopy**  
HOUBEI DAI, JAGDISH THAKUR, RATNA NAIK, Wayne State University, FAZLUL SARKAR, WAEL SAKR, Karmanos Cancer Research Institute, GREG AUNER, ALEX CAO, ABHILASH PANDYA, Wayne State University, VAMAN NAIK, University of Michigan-Dearborn — A pilot study was performed to differentiate the benign epithelia (BE), prostatic intraepithelial neoplasia (PIN) and, stromal regions from deparaffinized prostate needle biopsies using Raman spectroscopy. Raman spectra were collected from six deparaffinized prostate tissues and all the three regions showed different Raman spectral features that may represent unique Raman signatures of these regions. One of the unique features observed in these spectra is that the ratio of the two peak heights at  $1449\text{ cm}^{-1}$  and  $1338\text{ cm}^{-1}$  is constant with different values for BE and PIN. While the peak at  $1338\text{ cm}^{-1}$  is quite weak in the stromal regions. Multivariate statistical methods clearly separated the spectra from three different regions of the tissues into three distinct groups. This study demonstrates the feasibility of using deparaffinized tissue biopsy samples for the diagnostic purpose.

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