Development of Label-free Raman Assessment of Metastatic Bone
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Bone metastasis has a significant pathological impact in the form of bone fracture risks that are caused by chronic bone loss and degeneration. The goal of this study is to evaluate bone quality by Raman spectroscopy, which enables assessment and differentiation between non-cancerous and cancerous specimens. Besides spectral analysis of bone constituents and of the key biomarker in cancer identification, namely, the phosphate constituent, we also present representative confocal Raman maps of their distributions. The statistically significant number of spectra considered in this study validates the accuracy of our analysis from both perspectives: that of spectroscopic measurements and that of a statistical approach.

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