Defense Announcement

Performing digital staining of tissue samples imaged by FTIR spectrometer in high magnification mode

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(Abstract/Summary)

Histopathology, the examination of the molecular and microscopic structures, is essential in tissue analysis and disease diagnosis. It involves the use of dyes and stains to illustrate morphology and the chemical composition of tissue samples. Even though it is an accurate clinical practice, it relies heavily on human interpretation of the tissue and its chemical staining process brings some limitations in histopathologic examinations. FTIR spectroscopic imaging, on the other hand, has claimed groundbreaking success in the characterization of tissues and cells, but is yet to provide a practical pathologic examination of biopsy specimens. In an attempt to build a bridge between the modern spectroscopic imaging techniques and current clinical research and activities, digital staining aims to make a rapid and quantitative solution available, and provides promising molecular and morphological information for pathology. In this work, we perform digital staining of tissue samples on FTIR spectroscopic images, acquired in high magnification mode.