IDENTIFYING THE DIFFERENCES IN CONJUGATED VS. NON-CONJUGATED BIOMOLECULES IN CANCER RESEARCH USING VIBRATIONAL SPECTROSCOPY

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Biomarkers are critical tools employed in cancer research, as diagnostic implements in the early detection of cancer. Successful bioconjugation is vital for improving the sensitivity and specificity in which it requires for the early detection of ovarian cancer. This study aims to understand the bioconjugation process by studying molecular interactions with Raman and FT-IR spectroscopies. In each bioconjugation stage, we explore the molecular structure change by analyzing the vibrational signature of molecular bond to improve the coupling efficiency. Specifically, this study is looking at the differences after successful coupling of amine coated iron particles with glutaraldehyde and avidin and glutaraldehyde.