

Abstract Submitted
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Noninvasive Chemical Detection of Cellular Components and Rhodamine 6G in Erythrocyte Ghost Cells¹ ANSAM TALIB, Texas AM university, DMITRI VORONINE, 1Texas AM University, 2 Baylor University, ALEXANDER ALEXANDER SINYUKOV¹, SANDRA BUSTAMANTE, Texas AM university, ALEXEI SOKOLOV, 1Texas AM University, 2 Baylor University, KENITH MEISSNER, 1Texas AM University, 2 Swansea University, MARLAN SCULLY, 1Texas AM University, 2 Baylor University, 3 Princeton University — Noninvasive detection of molecular components in biological cells is challenging due to the spectral overlap of many components. Single molecule detection in biological media is the ultimate challenge. To address the problem, we investigate the ability to detect hemoglobin (Hb) and Rhodamine 6G in erythrocyte ghost cells using fluorescence and Raman scattering. We identify the optimal conditions by varying the laser power and wavelength, and reveal the competition between spectroscopic signals from various components. Our results hold promise for developing new ultrasensitive spectroscopic techniques for single molecule biophotonics.

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