Supplementary information

Hyperspectral Chemical Imaging of Single Bacterial Cell Structure by Raman Spectroscopy and Machine Learning

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Sub-diffraction Raman Imaging on single cells of E. coli
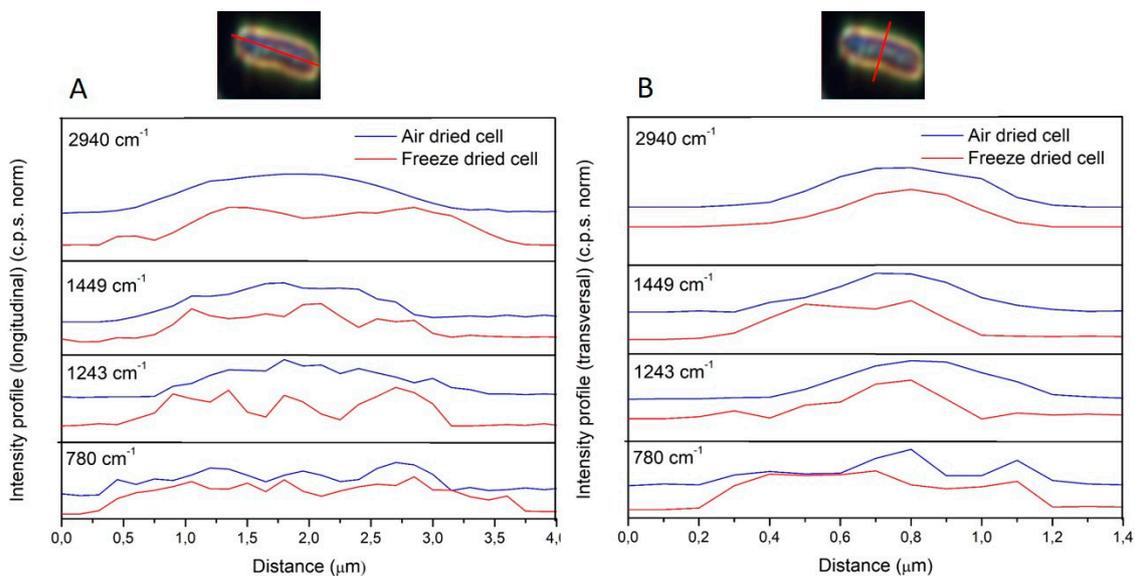
Figure S1. A) Intensity profiles across the cell extracted from the air dried and the freeze dried bacterial cells of the 4 characteristic peaks at 2940, 1449,1243 and 780 cm^{-1}. **A)** longitudinal section; **B)** transversal section.
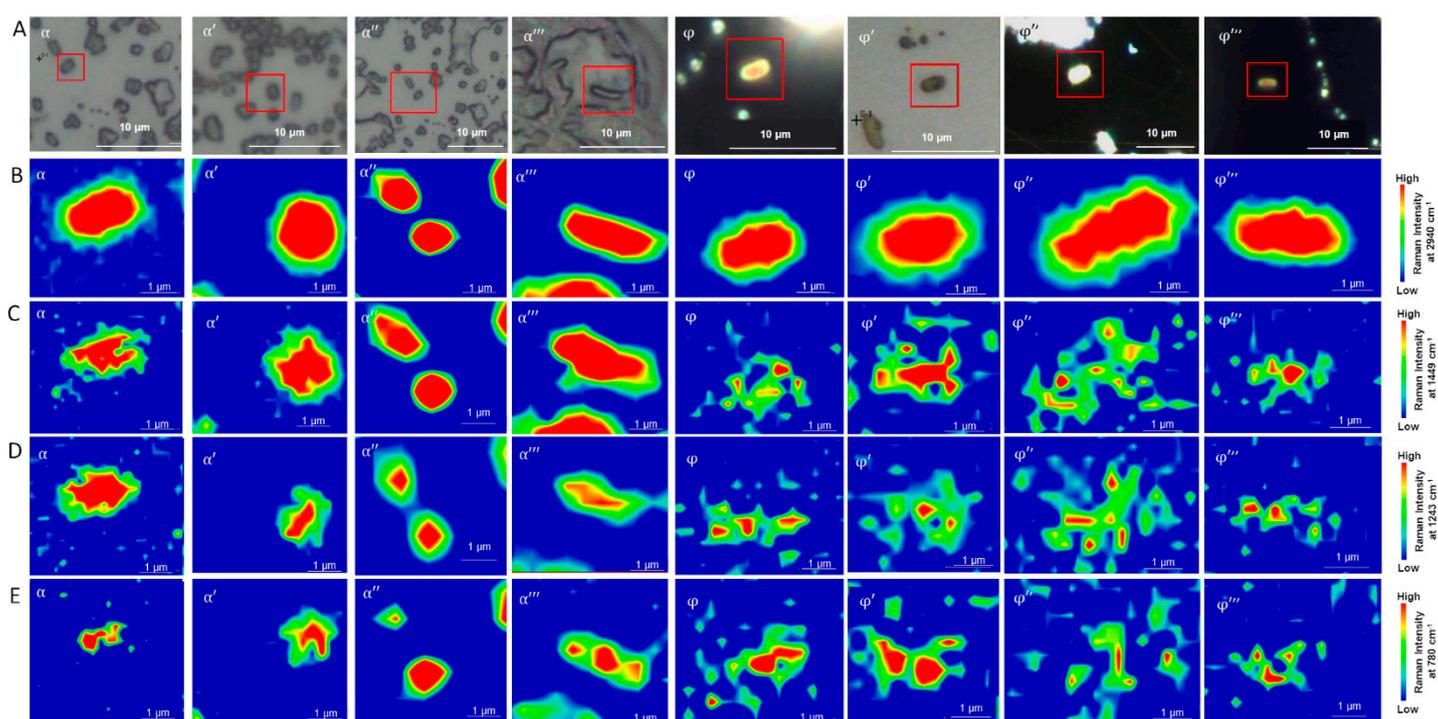
Figure S2. A) Confocal Microscope images of samples of *E. coli* spotted on a gold surface taken with a 100× microscope objective. **B)** Chemical Raman maps obtained on single bacterial cells, the color scale is based on the intensity of the Raman signal at 2940 cm^{-1} of generic biomaterial; **C)** Chemical Raman maps at 1449 cm^{-1} representing cell membrane; **D)** Chemical Raman maps at 1243 cm^{-1} representing nucleic acids; **E)** Chemical Raman maps at 780 cm^{-1} representing nucleic acids; **(α)** air dried cells, **(φ)** freeze dried cells.