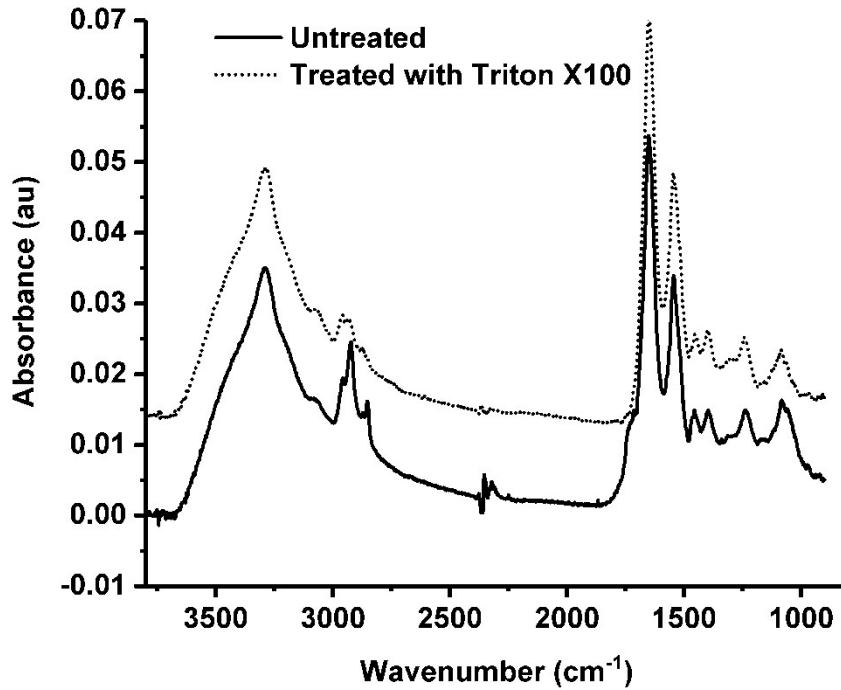


**Supplementary Figure S1.** Overview of sample area in an AFM Height map after AFM-IR measurements.



**Supplementary Figure S2.** FTIR spectra of single Detroit 551 fibroblast cells adherent and fixed on CaF<sub>2</sub> optical windows. Solid line: fixed cells before treatment with Triton X-100. Dotted line: fixed cells after 1h treatment with Triton X-100. The main difference between the two samples is the decrease in the contribution from phospholipid absorption bands, around 1740 cm<sup>-1</sup>, 2855 cm<sup>-1</sup> and 2920 cm<sup>-1</sup>, following treatment with Triton X-100. This is expected because of the solubilizing action of Triton on cellular membranes.