Supplementary Information

Change in the microenvironment of breast cancer studied by FTIR imaging

S. Kumar[1], C. Desmedt[2], D. Larsimont[3], C. Sotiriou[2] and E. Goormaghtigh[1]

[1]*Laboratory for the Structure and Function of Biological Membranes, Center for Structural Biology and Bioinformatics, Université Libre de Bruxelles*

[2]*Breast Cancer Translational Research Laboratory, Institut Jules Bordet, Brussels, Belgium;*

[3]*Department of Pathology, Institut Jules Bordet, Brussels, Belgium;*

Email: egoor@ulb.ac.be

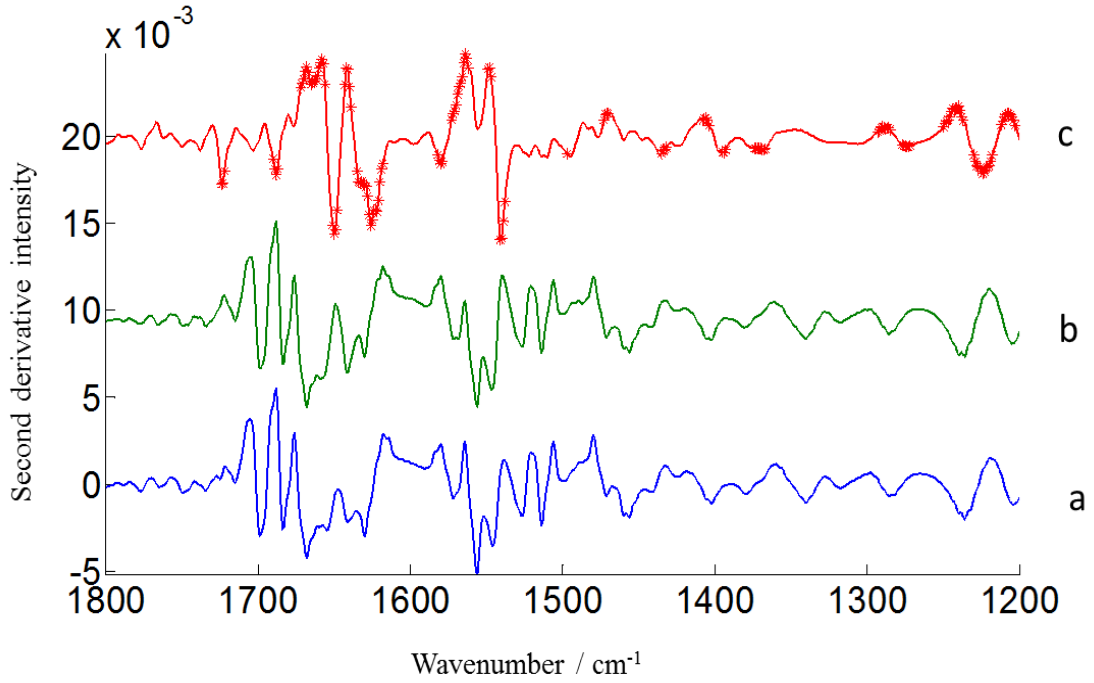
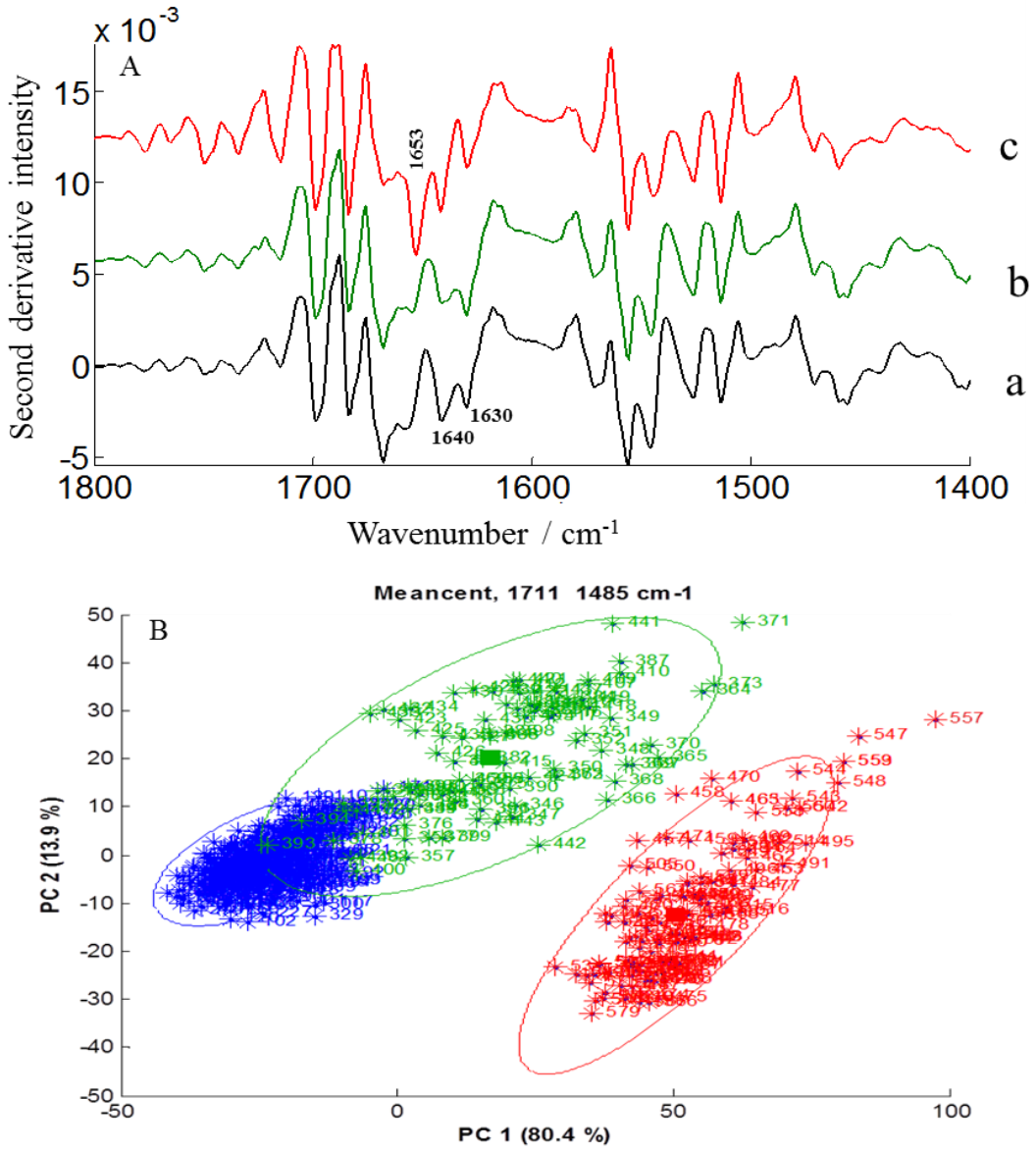
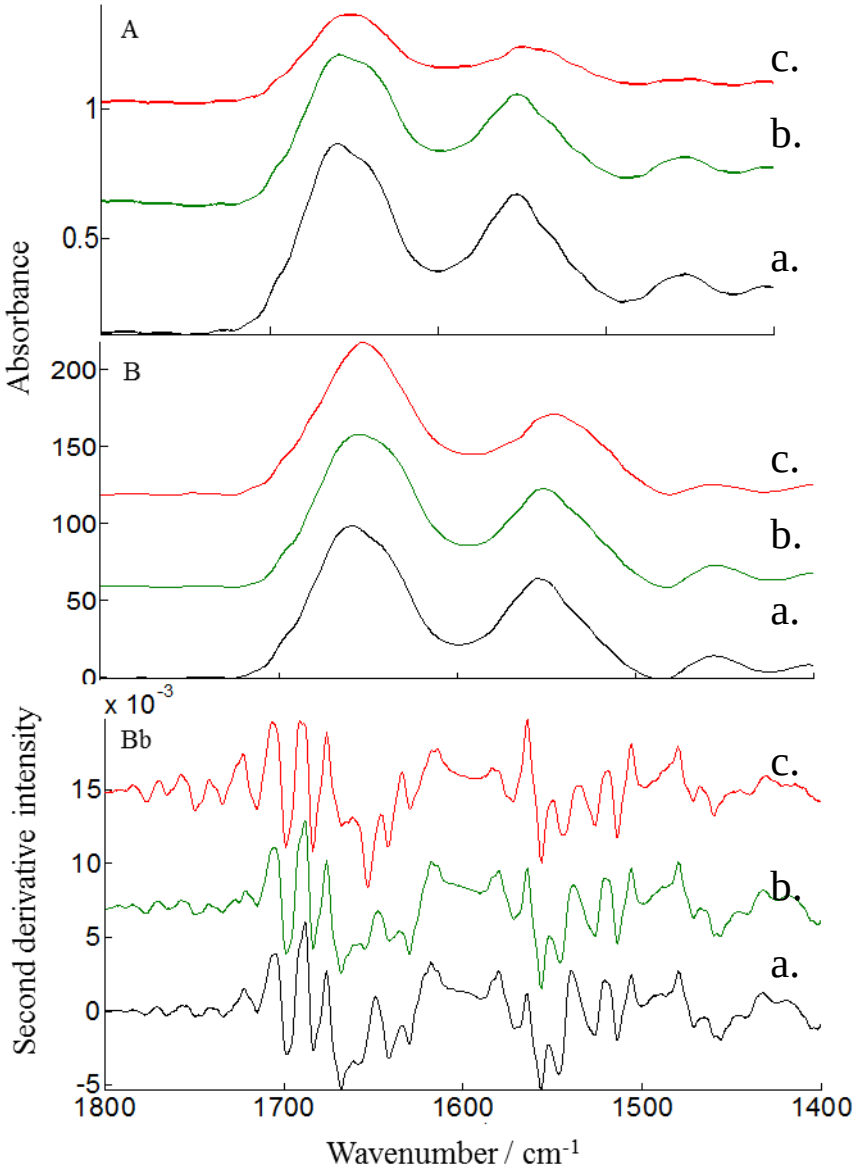


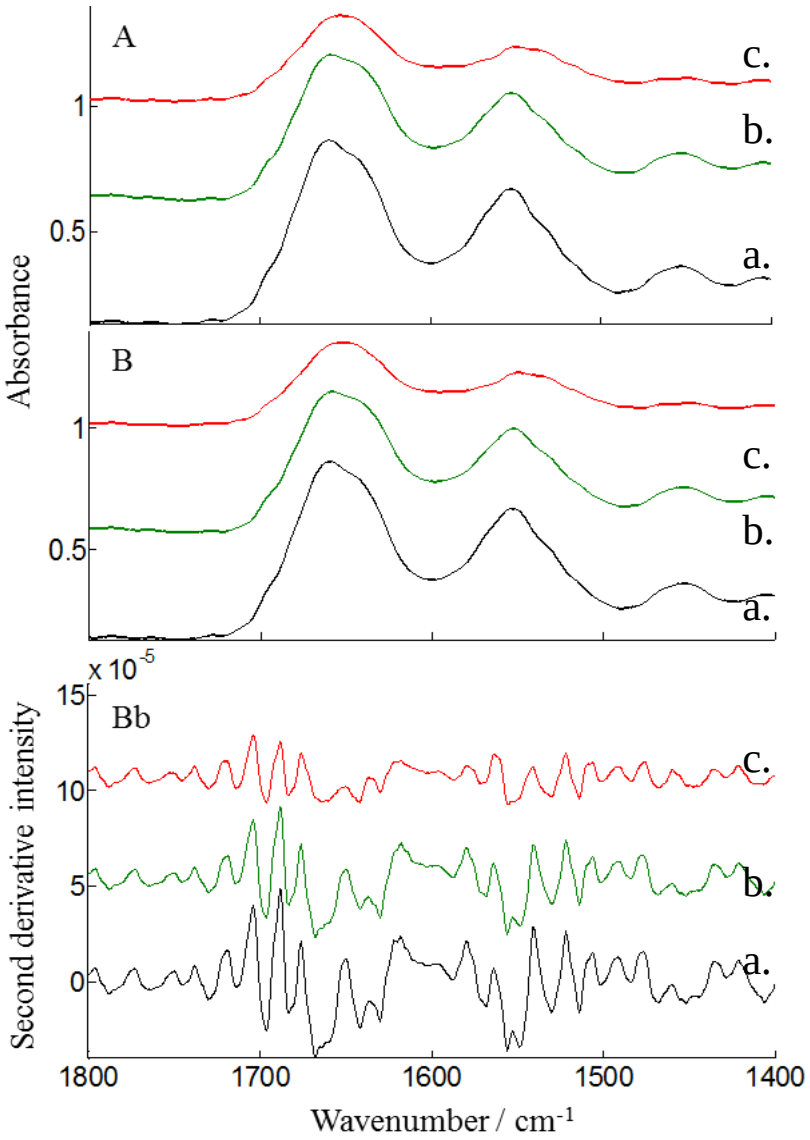
Figure S1: Mean second derivative spectra taken from the areas a and b indicated in Figure 1C, corresponding to far-from-tumor collagen (spectrum a, mean of 6400 spectra) and close-to-tumor collagen (spectrum b, mean of 800 spectra) in the 1800-1200 cm^{-1} spectral range. Spectrum c is the difference spectrum b – spectrum a. A student t-test was computed with the entire dataset at every other wavenumber with a significance level of $\alpha = 0.01\%$ and a Bonferroni correction for multiple comparisons. Each red star indicates a statistically significant difference between the means.



S2 (A) Mean second derivative spectra taken from the three areas indicated in Fig. 1C (a, b, c) between 1800 and 1400 cm^{-1} corresponding to collagen far-from-tumor (a, mean of 6400 spectra), close-to-tumor (b, mean of 800 spectra) and to the cells present inside the tumor region (c, mean of 1000 spectra). (B) PCA score plot of all the spectra from the three areas (a, b, c of Fig 1C), respectively are in blue, green and red. A subset of respectively 345, 105 and 135 randomly selected spectra is plotted in the PCA score plot.



S3 A. Mean raw absorbance spectra from the three areas indicated in Fig. 1C (a, b, c) presented between 1800 and 1400 cm^{-1} corresponding to collagen far-from-tumor (a, mean of 6400 spectra), close-to-tumor (b, mean of 800 spectra) and to the cells present inside the tumor region (c, mean of 1000 spectra). B. same spectra after water vapor subtraction, baseline correction and scaling (see Materials and Methods). C. Second derivatives of the same processed spectra.



S4 A. Mean raw absorbance spectra from the three areas indicated in Fig. 1C (a, b, c) presented between 1800 and 1400 cm^{-1} corresponding to collagen far-from-tumor (a, mean of 6400 spectra), close-to-tumor (b, mean of 800 spectra) and to the cells present inside the tumor region (c, mean of 1000 spectra). B. same spectra after resonant Mie scattering correction (see Materials and Methods). C. Second derivatives of the same processed spectra.