



PIXE images of Ti accumulation in HT29-MTX monoculture cross-sections. PIXE spectra of the whole area (A-B) clearly showing a Ti-peak in TiO_2 -NP exposed cells. Distribution of P (C-D), K/Ca (E-F), Ti (G-H), showing the cell delineation (P and K/Ca) and regions where TiO_2 -NP are accumulated (Ti). Superimposition of K/Ca and Ti distribution images (I-J), showing that the Ti-rich regions are inside the cells, close to the apical pole (opposite to the transwell), and not adhering to the cell surface. PIXE analyses were performed on HT29-MTX cells not exposed to NPs (A-I), or exposed to $50 \mu\text{g/mL}$ of TiO_2 -NPs for 24 h (B-J).