



a) Higher magnification bright field TEM image of A549 cells incubated at 4 °C for 30 min with a 100 μg/ml of silica nanoparticles .

b) Si $L_{2,3}$ -edge, energy filtered (EF-) TEM elemental map confirming the penetration of the silica NPs into the cell alongside dispersion along the membrane (bright regions correspond to Si-rich areas)

c) P $L_{2,3}$ -edge, EF-TEM elemental map distinguishing the cell from the resin support (again bright regions correspond to P-rich areas)

EF-TEM elemental maps were recorded using the standard three window technique described in Brydson, Electron Energy Loss Spectroscopy, BIOS: Oxford, (2001).