Supplementary Figure 1: Validation of *biobeam* with analytical solutions. a) Plane wave scattered by three solid spheres ($\lambda=500\,nm$, $r=2-2.5\,\mu m$, refractive index contrast $m=1.05$), b) Comparison of analytical solution (Mie calculus) versus *biobeam* simulation. c) Error percentage of near field distribution as a function of single sphere radius $r$ ($\Delta n = 0.05$) and refractive index contrast $\Delta n$ ($r=2.5\,\mu m$). d) Top: Phase function of analytically tractable coated spheres as cell models ($m=1.02/1.04$, $r=5\mu m/4\mu m$) shows high accuracy up to approximately 0.5 radians. Bottom: size dependent scattering efficiency of the same sphere architecture and its inverse.