Effect of nanoparticles size, shape and ligand density on nanoconjugated EGF induced apoptosis and the cellular mechanism behind it.

Here we study nanoparticle-cell interactions and its underlying cellular processes. We target Epidermal Growth Factor (EGF) receptor (EGFR), i.e. a cell membrane receptor overexpressed in many cancer cell lines, to induce apoptosis. It has been shown that EGF can induce apoptosis in EGFR overexpressing cell lines. Our goal is to investigate the effect of nanoconjugation, i.e. binding EGF to nanoparticles, on apoptosis. The influence of nanoparticle size, shape, and EGF surface density on apoptosis is being studied. We have also shown that ROS generation and glutathione depletion is the reason for apoptosis and our next goal is to find the mechanism behind the nanoconjugated EGF-induced apoptosis.