

Abstract

Nanoparticles can be used in biomedical disciplines as carriers for transport of diagnostic as well as therapeutic substances into cells. Variety of different shapes, sizes and different compositions are used experimentally. Despite the discoveries already made in this area, the exact nature of the interaction between a nanoparticle and a cell has not been fully understood yet. The objective of this thesis is to provide the knowledge about possibilities of utilisation and aspects influencing the interaction between the cell membrane and several types of nanoparticles: liposomes, gold nanoparticles and virus-like nanoparticles. The comparison shows that generalisation of the mechanism of nanoparticle entry into the cell is problematic, although it seems that the spherical nanoparticles with the diameter of 50 nm provide the most efficient entry.