

Simple Analysis for Interaction between Nanoparticles and Biomimetic Cell-Membrane

김영훈*
광운대학교 화학공학과
(korea1@kw.ac.kr*)

Some cytotoxicity studies for the interpretation of the interaction between nanoparticles and cells are non-mechanistic and time-consuming. Therefore, non-biological screening methods, which are faster and simpler than in-vivo and in-vitro methods, are required as alternatives to current cytotoxicity tests. Here, we proposed a simple screening method for the analysis of the interaction between several AgNPs (bare-, citrate-, and PVP-coating) and dye-containing vesicles acting as a biomimetic cell-membrane. The interaction between AgNPs and vesicles could be evaluated readily by UV-vis spectra. Absorbance deviation in UV-vis spectra revealed a large attraction between neighboring particles and vesicles. This was confirmed by DLVO theory and DMF (dark-field microscopy) analysis. This proposed method might be useful for analyzing the cytotoxicity of nanoparticles with cell-membranes instead of in vitro or in vivo cytotoxicity tests.