A novel Multiplexed diagnosis system for autoimmune disease

의은정, 박진승, 권구철, 이지원*
고려대학교
(jwlee@korea.ac.kr*)

Abnormal concentrations of certain marker proteins often indicate the presence of various diseases. However, current diagnosis methods only allow detection when protein levels become higher than critical threshold concentrations. More sensitive methods that allow for early detection of protein markers could potentially revolutionize physician treatment of various diseases and increase patient survival rates. Anti-AG1 antibody and anti-AG2 antibody are present many years before the diagnosis of AD and are well-known autoantibodies usually detected in the sera of the patients with AD. The objective of this study was to detect autoantibodies in sera from patients with AD. We confirmed through TEM image analysis that the chemeric protein nanoparticles formed particles with nano-scale diameter. The chemeric protein nanoparticles helped orient the AG1 and AG2 in a specific way on the surface at high densities, thereby enhancing sensitivity for the protein marker of interest. With this chemeric protein nanoparticles, the detection limit was enhanced as compared to the conventional ELISA assays. We expect this chemeric protein nanoparticles to form similar highly sensitive diagnostic assays for a variety of other protein markers.