Immobilization of cysteine-tagged multimer-protein G on amine functionalized Fe_3O_4@SiO_2

최홍경[1,2], 안치영[1,2], 이진형[1], 김중배[2], 장정호[1,*]
[1]한국세라믹기술원; [2]고려대학교
(jhchang@kicet.re.kr*)

This work reports the immobilization of monomer, dimer, trimer, tetramer (multimer) protein G onto amine functionalized magnetic silica nanoparticles for self-orientation and immobilization of antibody. The surface of the magnetic silica nanoparticles was modified with 3-aminopropyl-trimethoxysilane (APTMS) to chemically link to multimer protein G. The conjugation of amine on the MNPs to cysteine tag in multimer protein Gs was performed using a sulfo-SMCC coupling procedure. The binding efficiencies of mono-, di-, tri- and tetramer were 77%, 51%, 43%, 20% respectively. The bound of multimer protein Gs was characterized by using ATR FT-IR, and transmission electron microscopy (TEM), and UV-VIS spectrophotometer test. Afterward mouse IgG, model antibody, was immobilized on the nanoparticle through multimer protein Gs. The multimer protein Gs bound magnetic silica nanoparticles was found to be a more suitable tool for a sensitive immunosensor.