

## Synthesis of gold nanoparticle stabilized by self-assembled tyrosine-rich peptide for redox catalysts

이남훈, 이상명, 이대원†

강원대학교

(stayheavy@kangwon.ac.kr†)

Generally, peptides can be used to form self-assembled nanoparticles owing to their unique characteristics by amino acid residues. In addition, depending on the peptide sequence, self-assembled nanoparticle can be fabricated distinctive nanoparticles with various metal ions. Particularly, various types of metal ions, gold ions (or gold nanoparticles) have received considerable attentions for various applications owing to their unique properties. Here, we explain the gold nanoparticle stabilized by self-assembled tyrosine-rich peptide (YC<sub>7</sub>@AuNP), because tyrosine can facilitate electron transfer and catalytic efficiency in biological systems. To form various types of YC<sub>7</sub>@AuNP, we changed the peptide and gold ion concentrations and the morphologies and optical properties of YC<sub>7</sub>@AuNPs were characterized. Finally, we evaluated and optimized catalytic reaction efficiency of YC<sub>7</sub>@AuNP for application of redox catalysts using the *p*-nitrophenol reduction and TMB oxidation mechanism. We believe that YC<sub>7</sub>@AuNP can be used for the various catalytic reactions and are suitable catalytic materials for diverse redox reactions in biological systems.