

Application of gold nanoparticles in the catalytic growth-based detection of *Cryptosporidium parvum* oocysts

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The newly proposed biosensor mechanism is designed by using gold nanoparticles to convert and amplify the immunoreaction signal and realize a simple but sensitive detection to *Cryptosporidium parvum*. This thesis focus on the sandwich structure method combining gold nanoparticles and magnetic microbeads to carry out a homogeneous detection model. The magnetic separation is a collection and purification process. And after collecting the labeled gold seeds, a catalytic growth is conducted to give a time-and-concentration-dependent signal conversion and amplification.