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Naked eye detection of *Salmonella Typhimurium* using scanometric antibody probe

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Salmonella is one of the most common foodborne pathogens, and *Salmonella* outbreaks are mostly associated with the intake of contaminated food or drink. Therefore, the rapid and sensitive on-site detection of *Salmonella* is very important. We report a naked eye detection method for *Salmonella typhimurium* using scanometric antibody probe. The antibody-attached glass substrate was treated with *Salmonella typhimurium* and the scanometric antibody probe was applied. After Ag enhancement of the probe, *Salmonella typhimurium* could be detected with the naked eye. The scanometric antibody probe was prepared by simply mixing Au nanoparticles, gold binding peptide-protein G, and antibody against *Salmonella typhimurium*. This probe can act as a signal enhancer and thus allows for an extremely simple, rapid, and efficient analysis of *Salmonella typhimurium* by the naked eye. We detected *Salmonella typhimurium* at a low concentration of 10³ CFU/ml and clearly distinguished this bacterium from other foodborne pathogens. Furthermore, we successfully detected *Salmonella typhimurium* in milk, suggesting that this method can be useful in real-life samples. Because the scanometric antibody probe can be expanded to various types of antibodies, this naked eye detection method could be employed for the detection of various types of pathogens.

Biography

Seul-Gee Hwang has expertise in cell culture engineering and bionano technology for diagnostics of infectious diseases. She recently try to develop the kit for detection of viruses using antibodies or fluorescent proteins. And also she obtained mutant viruses of H1N1 influenza A virus via evolution of virus in vitro and in vivo. She has plans to develop kits for these mutant viruses using antibody.

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