

## Gold nanoparticles-based colorimetric detection of amplified nucleic acids

정예립, 정철희, 박현규\*

KAIST

(hgpark@kaist.ac.kr\*)

We describe here a development of a direct and simple colorimetric detection method to identify PCR-amplified nucleic acids using thiolated primers and unmodified gold nanoparticles. We find that amplified nucleic acids by thiol-modified primers are attached to gold nanoparticles quickly and prevent strong aggregation caused by salt solution addition. Also we examine that the resistance to salt-induced aggregation increases proportional to the length of PCR products. As a result, DNA of a pathogen (*Chlamydia trachomatis*) amplified by PCR can be successfully detected. The color of the gold nanoparticles mixed with this PCR product remains red while that mixed only with human genomic DNA changes from red to blue. Since this assay enables rapid and convenient detection of amplified-DNA just with the naked eye, it could markedly reduce the time and expense to verify nucleic acids.