

## Detection of Single Nucleotide Polymorphism Using Selective Aggregation of Gold Nanoparticles

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We report a detection of single nucleotide polymorphism using selective aggregations of gold nanoparticles. Target DNAs have three different types of single nucleotide polymorphism patterns. Their specific sequences were made up of target bases: thymine, cytosine and the mixture of both bases. We designed two different types of probe DNAs that are perfect complementary to the target DNA sequence with thymine or cytosine. Target DNA solutions were denatured in water bath and the probe DNA was added to the denatured target DNA solution. If the probe DNA was perfect complementary to target DNA, the mixture was hybridized. At the optimal salt concentration, gold nanoparticles selectively aggregated for the hybridized DNA due to a decrease in the colloidal stability. Aggregation of gold nanoparticles resulted in solution color change, which enabled detection of specific types of single nucleotide polymorphism by naked eye.