Rapid and precise identification of foodborne pathogens using antibody conjugated magnetic
nanoparticles coupled with MLPA–CE–SSCP

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Foodborne illness is a serious problem in public health and food industries. The conventional culture method is known as the most reliable technique, however, it takes 2~3 days. Therefore, recently many researchers have focused towards the rapid detection methods.

Here, we developed a rapid pathogen detection system using antibody conjugated magnetic nanoparticles (Ab–MNPs) coupled with stuffer–free MLPA–CE–SSCP. The pathogens were concentrated by Ab–MNPs and analyzed with MLPA–CE–SSCP. As a result, the 1 cfu/ml of *S. enteritidis* were successfully detected in 100 ml of samples within 10 hours. These results indicate that Ab–MNP with MLPA–CE–SSCP system has considerable potential in clinical diagnosis and food safety.