

P004 Novel ExoSERRS detection of DNA

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Highly selective and specific detection of oligonucleotide sequences of interest is of pivotal importance in the detection of genetic mutations, disease states and gaining a comprehensive understanding of the results of the human genome project. An assay has been developed, to this end, using a 3'-dye, 5'-phosphate modified oligonucleotide probe sequence coding for a Chlamydia target. Hybridisation, in the presence of target, generates the double stranded complex which is susceptible to digestion by λ -exonuclease. λ -Exonuclease acts on the 5'-phosphate probe strand digesting each nucleotide and liberating the 3'-dye label. Since the target is returned to its single stranded state it can hybridise with another probe strand rendering a double stranded complex for further digestion. By this method, more 3'-dye label is liberated and the detection signal is amplified. Subsequent treatment with silver colloid under controlled aggregation conditions results in Surface Enhanced Resonance Raman Scattering (SERRS) detection. Surface Enhanced Resonance Raman Scattering spectroscopy provides vibrational information about the chromophore being interrogated allowing sensitive and multiplexed analysis.