Detecting pathogenic viruses by multiplexed-target fragment analysis

Genomics

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Infectious diseases present significant global health problems. In this poster, we describe a simple workflow where multiple amplicons from pathogenic viruses can be analyzed in a single reaction using fragment analysis. We provide suggestions for designing amplicons, including a process control target that can be spiked into reactions, and performing in silico analyses to characterize the potential cross-reactivity with other pathogens and strains that will be covered by the assay. We illustrate, using amplicons for SARS-CoV-2, that the LOD and dynamic range can be similar to other methods. Finally, we used these guidelines to design a multianalyte panel that can detect thirteen different respiratory pathogens in a single reaction. In general, a fragment-analysis-based, target multiplexed approach using capillary electrophoresis gives investigators another tool for analyzing the presence of pathogenic organism sequences using a method that is rapid, simple, and sensitive.