Abstract

There was a major outbreak of Enterovirus infection in Taiwan in 1998. After the outbreak, Taiwan CDC has established surveillance system to monitor the trend of EV infections. Most EV infections only cause mild clinical symptoms in susceptible hosts; however there are still some children may result in severe or even fatal cases. As a result of it, it creates great panic and anxiety in our society, especially for the parents with young children. Therefore the early detection of EV infection not only can provide the background information to the medical doctors taking care of the sickness but also the epidemiological data to the health authority controlling the further spreading of the disease. In this study, we developed a rapid detection system, one single tube real-time RT-PCR quantitative assay, to identify EV infections. The primers and probes were designed according to the most constant nucleotide sequences located on the 5' end and 3'end noncoding region of EV genome. The specific probes were labeled with reporter dye, FAM and quencher dye, TAMRA on their 5' end and 3' end respectively. By detecting the excitation fluorescent reporter dye of probe in RT-PCR reaction , the sensitivity and specificity would be increased greatly for detection the pathogens in the short time. The dynamic range of this assay encompassed at least 7 orders of magnitude (101 ~107). It is useful in the mass screening of specimens. Any enteroviral titer within 101 ~107 copies RNA can be detected immediately after real-time RT-PCR reaction ; the conventional way of detecting the presence of PCR products after PCR reaction is not necessary. In aspect of enterovirus species analysis , the epidemic enterovirus strains including EV71 , CA16 etc. could be detected and analyzed with single tube real-time RT-PCR quantitative system.

Keywords：enterovirus；real-time；RT-PCR