Develope New Infectious Disease Inspection Method and Establishing the Primer Bank

Abstract

Consensus-Degenerate Hybrid Oligonucleotide Primer (CODEHOP) PCR primers derived from amino acid sequence motifs which are highly conserved between members of a protein family have proven to be highly effective in the identification and characterization of distantly related family members. The assay was developed for the detection and identification of enterovirus (EV) RNA. A product of the expected size was successfully amplified and sequenced from the prototype EV strains appeared in Taiwan. The specificity is 100% . The VP1 RT-snPCR assay was also used to identify untypable EVs in clinical specimens. The EVs identified were Polio3、EV68.71、CB3 and Echo9. The VP1 sequences derived from the RT-snPCR products allow rapid phylogenetic and molecular epidemiologic analysis of strains circulating during the past EV seasons or from different locations around the world.

CDC defines an emerging infectious disease as either a newly recognized, clinically distinct infectious disease or a known infectious disease whose reported incidence is increasing in a given place or among a specific population. More than 36 newly emerging infectious diseases were identified between 1973 and 2003, and new emerging infectious diseases continue to be identified. According to CDC, nearly 70 percent of emerging infectious disease episodes during the past 10 years have been zoometric diseases, which are diseases transmitted from animals to humans. The West Nile virus, which was first diagnosed in the United States in 1999, is an example of a zoometric disease. The West Nile virus can cause encephalitis, or inflammation of the brain. Mosquitoes become infected with West Nile virus when they feed on infected birds, and infected mosquitoes transmit the virus to humans and animals by biting them. Other zoometric diseases include SARS, avian influenza, human monkey pox, and variant Creutzfeldt-Jakob disease (vCJD), which scientists believe is linked to eating beef from cattle infected with bovine spongiform encephalopathy (BSE) and is also called mad cow disease. Surveillance for zoometric diseases requires collaboration between animal and human disease specialists.

Disease surveillance provides information for action against infectious disease threats. Basic infectious disease surveillance activities include detecting and reporting cases of disease, analyzing and confirming this information to identify possible outbreaks or longer-term trends, and applying the information to inform public health decision-making. When effective, surveillance can facilitate (1) timely action to control outbreaks, (2) informed allocation of resources to meet changing disease conditions and other public health threats, and (3) adjustment of disease control programs to make them more effective.

This project is focus on that the pathogen (virus), which are not immigrate to Taiwan. The purpose detection method is the RT-PCRand Real-time RT-PCR,make use of the cell culture to screen the sample has the high the sensitivity ，due to the sample and time have the limited, so we have to evaluated and choice.

Key word: Enterovirus、CODEHOP-RT-PCR ； vCJD、EID、 BSE、 zoometric diseases、West Nile virus