Abstract

Current laboratory diagnostic methods for Legionelosis include bacteria isolation or culture method, paired serum antibody assay, urinary antigen detection, and polymerase chain reaction (PCR) method. The culture method is quite difficult to perform because of the properties of Legionella genus, while the antibody titer detection involves a rather long rising time of several weeks, which makes the method unpractical and not suitable for clinical diagnosis. The detection of antigen in urine is basically a good method for its simplicity and fastness, but its use is limited to detect L. pneumophila serogroup 1 only. The PCR method needs no bacterium particles and can be carried out swiftly. It deems to be the best choice of laboratory methods so far.

In this study, we acquired several primers reported previously by other laboratories. They include Lp, which is a gene of unknown nucleic acids; Lmip, the so-called macrophage infectivity potential, encode 24-KD surface protein; and LEG, a special nucleotide sector of 16S rRNA. To test the accuracy of their claims and application to clinical samples, we made use of 11 species of Legionella genus and 31 species of other clinical important pathogens.

In our findings, Lmip has species specificity for L. pneumophila and LEG has genus specificity for Legionella. In each case we obtained the expected bands only when Legionella species was assayed but not any of the other pathogens. Our results suggest that PCR with anyone of the tested primers can all be used to diagnose and confirm Legionellosis.

Recently, a new real-time PCR kit using the same primer of 16S rRNA has been developed and become available on the market. This kit employs a light-cycle assay and is able to rapidly detect Legionellosis with small volume to deal with. From now on, this real-time PCR will certainly complement the regular PCR and hopefully result in a breakthrough development in Legionellosis diagnosis.

Keywords：Legionella；PCR reaction；Primers