

Cell culture, technology: enhancing the culture of diagnosing human diseases

ABSTRACT

Cell culture involves a complex of processes of cell isolation from their natural environment (in vivo) and subsequent growth in a controlled environmental artificial condition (in vitro). Cells from specific tissues or organs are cultured as short term or established cell lines which are widely used for research and diagnosis, most specially in the aspect of viral infection, because pathogenic viral isolation depends on the availability of permissible cell cultures. Cell culture provides the required setting for the detection and identification of numerous pathogens of humans, which is achieved via virus isolation in the cell culture as the gold standard for virus discovery. In this review, we summarized the views of researchers on the current role of cell culture technology in the diagnosis of human diseases. The technological advancement of recent years, starting with monoclonal antibody development to molecular techniques, provides an important approach for detecting presence of viral infection. They are also used as a baseline for establishing rapid tests for newly discovered pathogens. A combination of virus isolation in cell culture and molecular methods is still critical in identifying viruses that were previously unrecognized. Therefore, cell culture should be considered as a fundamental procedure in identifying suspected infectious viral agent.

Keyword: Pathogen discovery; Recombinant protein; Transgenic cell line; Viral isolation