

Abstract

Influenza is an acute respiratory virus infection with the symptoms including fever, head-ache, paining muscle, tiredness, snivel, sour-throat, cough, and so forth. The severity of influenza is the rapid epidemic, wide-spreading, and the severe complications such as bacillary and viral pneumonia. The influenza virus contains the S antigen, an soluble antigen with stable immunity. They are classified into A, B, and C types according to their immune property. A and B are the types relatively often take place. A type is highly concerned because it is apt to break out.

The multi-channel influenza immunosensor proposed in this project is a sensor with two types of antibody immobilized individually to make the simultaneous determination of two types of influenza virus possible. The home-made circuit and operation system has been modified to fit the purpose of virus detection. The monoclonal antibodies of A and B influenza virus has obtained and immobilized on the gold surface of the quartz crystal electrode after optimization of the immobilization process. The electrodes for A and B influenza virus were then integrated into the modified circuit and multi-channel operation system to complete the proposed sensor system.

A sensor able to detect more items simultaneously is possible to be constructed according the model system completed in this project. The multi-channel sensor system constructed in this study is considered as applicable to the clinical analysis and the management of epidemic disease.

Keywords : piezo-electric quartz crystal, immunosensor, influenza, monoclonal antibody, multi-channel detection