Early Detection of Antibodies against Various Structural Proteins of the SARSAssociated

周志銘

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摘要.

Abstract

Severe acute respiratory syndrome (SARS), a new disease with symptoms similar to those of atypical pneumonia, raised a global alert in March 2003. Because of its relatively high transmissibility and mortality upon infection, probable SARS patients were quarantined and treated with special and intensive care. Therefore, instant and accurate laboratory confirmation of SARS-associated coronavirus (SARS-CoV) infection has become a worldwide interest. For this need, we purified recombinant proteins including the nucleocapsid (N), envelope (E), membrane (M), and truncated forms of the spike protein (S1-S7) of SARS-CoV in Escherichia coli. The six proteins N, E, M, S2, S5, and S6 were used for Western blotting (WB) to detect various immunoglobulin classes in 90 serum samples from 54 probable SARS patients. The results indicated that N was recognized in most of the sera. In some cases, S6 could be recognized as early as 2 or 3 days after illness onset, while S5 was recognized at a later stage. Furthermore, the result of recombinant-protein-based WB showed a 90% agreement with that of the whole-virus-based immunofluorescence assay. Combining WB with existing RT-PCR, the laboratory confirmation for SARS-CoV infection was greatly enhanced by 24.1%, from 48.1% (RT-PCR alone) to 72.2%. Finally, our results show that IgA antibodies against SARS-CoV can be detected within 1 week after illness onset in a few SARS patients. Copyright 2004 National Science Council, ROC and S. Karger AG, Basel