

Detection of Antibodies Recognizing Puumala Virus Nucleocapsid and Glycoprotein Peptides in NE Serum

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Abstract

© 2016, Springer Science+Business Media New York. Nephropatia epidemica (NE), a mild form of hemorrhagic fever with renal syndrome (HFRS), is an endemic zoonosis in the Republic of Tatarstan, Russia. Humans become infected by inhaling an aerosol contaminated with Puumala virus, a member of genus Hantavirus. NE diagnosis is based on detection of anti-hantavirus antibodies using ELISA. Antibodies to hantavirus nucleocapsid (N) protein are detected early in the course of infection, suggesting that this viral protein is the most immunogenic. Several epitopes were previously identified on N protein as well as glycoproteins of Puumala viruses endemic in Europe. However, there is limited knowledge about Puumala virus N protein antigenic epitopes in NE patients in the Republic of Tatarstan. The aim of the present study is to identify N protein and glycoprotein epitopes which induce a humoral immune response in NE cases. Analysis of NE serum using an array of overlapping N protein and glycoprotein peptides identified the most immunogenic epitopes, which can then be used for developing Puumala virus-specific vaccine.

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Keywords

ELISA, Hemorrhagic fever with renal syndrome, Nucleocapsid protein, Peptides

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