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Effect of Equine Herpesvirus type 1 (EHV-1) infection on different components of the extracellular matrix of nasal mucosa epithelial cells

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The mucosal surfaces are important sites of entry for a majority of microorganism, and viruses in particular. Equine Herpesvirus type 1 (EHV-1) is an example of an invasive virus of the airway mucosa. An essential prerequisite for an effective host attack of the virus is to breach the epithelial cell layer and the underlying Basement Membrane (BM) barrier. In our research, nasal mucosa explants were inoculated with EHV-1 and then double immunofluorescence staining was performed to detect viral antigen positive cells as well as integrin alpha 6, laminin, collagen IV and collagen VII. The breadth of these extracellular matrix proteins was measured in Regions Of Interest (ROI) at a magnification of 200X. ROI were defined beneath non-infected and infected regions. In infected regions, the percentage of ROI were significantly decreased for integrin alpha 6 after 24 hours and 48 hours of inoculation. However, infection did not alter the percentages for laminin and collagen IV. For collagen VII, an increase in the percentage could be observed underneath EHV-1-infected plaques only at 48 hours of inoculation. In conclusion, the results revealed a substantial impact of EHV-1 infection on integrin alpha 6 and collagen VII, two important components of the extracellular matrix, which are normally associated with the basement membrane and may play a role in virus penetration to underlying tissues.

Biography

Hossein Bannazadeh Baghi is the holder of a PhD awarded to him by the Department of Virology, Parasitology and Immunology at Ghent University, Belgium. He completed his BSc and his MSc with honors and received National Awards in his home country, Iran, for being the top student in the field of Virology. Currently, he is working as an Assistant Professor in the Department of Microbiology at Tabriz University of Medical Sciences, Tabriz, Iran.

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