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Review Article

The Structure and Mechanism of Spike Protein, as Well as its Role in Numerous Viral Diseases

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ABSTRACT

A spike protein is a protein that builds a huge spike that ejects from an enveloped virus's membrane. The spike protein is the only virus membrane protein that enables the virus to penetrate through the cell. Spike Protein has three potential methods of action. Most common viral illnesses have relatively similar virus structures, which are predominantly made up of dimers or trimers of the spike glycoprotein, as well as analogous mechanisms of host cell invasion. The purpose of this paper is to explore the structure of the spike protein and its cell invasion method. The prevalence of spike protein in distinct viruses, as well as their similar invasion mechanisms, are also highlighted in the paper. We observed that many infectious viruses have very identical structures, predominantly constituted of spike glycoprotein, as well as similar processes of invasion into host cells. There are diverse sorts of pathogenesis that have been identified, especially those relating to host cell contamination and the means wherein the infection spreads and produces disease. The Spike protein must be operational for the virus to penetrate the host organism, and variations in the protein's activation techniques are thought to have an influence in viral pathogenesis. Vaccines struggle to prevent the transmission of all virus variants due to variances in the spike protein in different viral versions, as well as modifications in them. More research into the structure of spike glycoproteins, as well as the creation of more effective vaccines to inhibit spike protein invasion and infection, are required.

Keywords: ACE 2, CD147 receptor, Coronavirus, Omicron variant, Spike protein.

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