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IIT-G discovers RNA-destroying function of p30 protein in African Swine Fever Virus

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To understand infection mechanisms and develop control strategies



Indian Institute of Technology Guwahati (IIT-G) researchers have investigated the biochemistry of the African Swine Fever Virus (ASFV) protein, focusing on understanding the biochemical processes of infection to devise effective control strategies.

Prof. Sachin Kumar and his research scholars including Satyendu Nandy, Nilave Ranjan Bora, and, Shubham Gaurav, have studied the proteins found in the outer membrane (capsule) of ASFV, with a particular focus on the p30 protein.

This protein plays a crucial role in the attachment of the virus to host cells by binding to specific receptors on the cell surface and facilitating the merging of viral and cell membranes. Membrane proteins also help viruses evade detection by the host cell's immune system.

Understanding the biochemistry behind these processes enhances our knowledge of how viruses infect cells and can guide the development of treatments and vaccines that target these points of entry.

It is notable that the research group has also completed technology transfer to roll out the first recombinant vaccine for Swine Fever Virus in the recent past.

The researchers had previously identified specific regions on the p30 protein, called epitopic domains, that can activate the immune system in the host. These domains are important because they help the immune system recognize and respond to the virus, potentially aiding in developing ways to fight the infection.

Recently, the researchers studied this protein in greater detail to understand its other functionalities, particularly its RNase-like activity.

Understanding how the p30 protein in ASFV affects host cell RNA helps illustrate how the virus manipulates cellular functions to survive and spread. This insight could inform future research into therapies that target these viral mechanisms, potentially leading to new ways to combat ASFV infections.