

April 22-23, 2019  
Athens, GreeceArch Clin Microbiol 2019, Volume:10  
DOI: 10.4172/1989-8436-C1-018

# BUNYAVIRUS: A GROUP OF ANCIENT, BUT NEWLY DEFINED VIRUS

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**B***unyavirales* order is one of the largest groups of RNA viruses, including more than 350 members distributed among ten families according to the latest International Committee on Taxonomy of Viruses (ICTV) report. Some of them can cause disease in humans, including highly pathogenic Crimean-Congo hemorrhagic fever virus (CCHFV) in the *Nairoviridae* family; the Rift Valley fever virus (RVFV), the severe fever with thrombocytopenia syndrome virus (SFTSV) in the *Phenuiviridae* family; Lacrosse virus and Oropouche virus in the *Peribunyaviridae* family and several hantaviruses such as Hantaan virus, Sin Nombre virus, Andes virus in the *Hantaviridae* family. Only vaccines for HTNV and SEOV have been developed in Asia. And no specific drugs are available against these contagious Bunyaviruses. The glycoproteins (Gn and Gc) on the Bunyaviruses play an important role in particle entry into the target cells. They are also the major antigens which arise neutralizing antibodies in human body against the infection. This research focuses on the structural and functional studies of the envelope proteins of RVFV and SFTSV and fished the neutralizing antibodies from the RVFV infected patients' PBMCs using the recombinant glycoproteins and then explored the neutralizing mechanisms based on the antigen-antibody complex structures. These studies provide potential specific drugs against RVFV and also provide the detailed information of epitope of the antigen, thereby paving way on the vaccine development.

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