Tokyo University of Agriculture and Technology
Institute of Global Innovation Research

グローバルイノベーション研究院　公開セミナー
Institute of Global Innovation Research Open Seminar

Investigating the mechanism of RNA genome packaging of Rift Valley Fever Phlebovirus

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ABSTRACT

Rift Valley fever phlebovirus (RVFV), a bunyavirus, causes a disease that is endemic in sub-Saharan Africa and can emerge in explosive, mosquito-borne epidemics that decimate herds of sheep and cattle, resulting in enormous economic losses. In humans, RVFV infection may cause hemorrhagic fever, encephalitis, and retinal vasculitis. Many different mosquitoes, including several species native to North America, are competent vectors for RVFV transmission. The introduction of RVFV into other regions, including North America, would likely cause panic in the general population, and the effects on livestock could have a devastating economic impact. The lack of availability of licensed vaccines or anti-RVFV reagents for use in humans or domestic animals is of great concern. RVFV carries a tripartite, single-stranded, negative-sense RNA genome. One of the essential steps in virus replication and dissemination is the packaging of viral genome into virus particles, however, the mechanisms of viral RNA packaging in RVFV and other bunyaviruses are largely unknown. Insight into the underlying rules and mechanisms that govern the packaging of viral RNA genome into RVFV particles is valuable for understanding the regulation of virus replication, virus evolution, and the pathogenesis of the virus. This knowledge is also critical for the development of antiviral drugs that can inhibit infectious virus production or for the development of a live- attenuated vaccine strain. Our data demonstrated that a direct interaction of a viral envelop protein, Gn, with the viral RNA segments is the primary factor that influences the packaging efficiencies of viral RNAs into RVFV particles. Our recent data also suggest importance of viral nucleocapsid protein for co-packaging of viral RNAs. We hope that these data will clarify the fundamental mechanisms that drive viral RNA packaging in RVFV and other bunyaviruses, with the overall goal of informing the design of novel antivirals and vaccines.

■会場／Venue

東京農工大学 府中キャンパス
　新4号館　4階　451号室
Room 451, 4th Fl., New Building 4 ,
Fuchu Campus, TUAT

■共催／Co-Organized by

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