

Human-to-human transmission of Andes hantavirus modeled in the Syrian hamster

Tuesday, 10 October 2023 12:00 (15 minutes)

Hantavirus induced cardiopulmonary syndrome (HCPS), a sporadic yet lethal zoonotic disease, is caused by Andes virus (ANDV, species *Andes orthohantavirus*), which is prevalent in South America. Historically, ANDV spillover was thought exclusive of human exposure to aerosolized infectious particles released from the excreta and/or secretions of a natural reservoir (i.e. wild rodents). However, increasing cases of human-to-human transmission have been reported in the last years. Unfortunately, very scarce information exists about this mode of transmission. Syrian hamsters are the only animals that can recapitulate human pathogenesis of ANDV-HCPS and have been critical to study different aspects of this pathology. However, neither shedding nor transmission has ever been investigated in this animal model. Here, we inoculated hamsters with ANDV and routinely sampled oral and rectal mucosa and opportunistically urine. During the experiment we exposed naïve animals to inoculated animals by direct contact to assess potential ANDV transmission and to compare patterns of infection, shedding and disease progression between cohorts. ANDV-RNA was detected via all routes sampled from infected animals of both cohorts, to similar titers, and the virus was transmitted efficiently to >40% of the naïve animals. Furthermore, we detected a transmission chain event and chronic shedders. Overall characteristics of infection and disease between infected animals did not differ between cohorts.

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Hantavirus, Hantavirus pulmonary syndrome, Syrian hamster, Human-to-human transmission

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Postdoc

Junior Scientist Status

No, I am not a Junior Scientist.

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