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Detection and genetic characterization of Seoul Virus and other viruses borne by commensal Norway rats (*Rattus norvegicus*) in France

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Norway rats (*Rattus norvegicus*) are prevalent in urban environments, and pose a threat to public health by serving as reservoirs for pathogens that can be transmitted to humans. To identify and assess the prevalence of zoonotic or not zoonotic viruses carried by rats, a next generation sequencing (NGS) method was developed following two steps ; the first one has been dedicated to get an efficient NGS method in order to improve the number of viral reads. For this pilot study, a rat lung sample positive for Seoul virus (SEOV) and previously detected by RT-PCR was used as positive control. SEOV is an hantavirus which can be transmitted to humans primarily via inhalation of aerosolized viruses from contaminated rat urine and faeces. Whilst infected reservoir hosts are asymptomatic, human infections can lead to hemorrhagic fever with renal syndrome (HFRS), with varying degrees of clinical severity. The results of this first study were twice and have permitted (i) to define a robust protocol for viral enrichment and (ii) to obtain the first complete sequence of SEOV detected in France. Phylogenetic analysis supports the inclusion of the Lyon SEOV within lineage 7 along with SEOV strains originating from SE Asia and the previously reported French & Belgian SEOV strains (Dupinay et al, Virol J, 2014). Following on from this pilot study, the virome of a larger number of commensal rats (n=10) has been determined using viral enrichment and NGS previously defined. Results of this second study (analysis in progress) will be presented and discussed.

Biography

Michel Pepin has completed his PhD at the age of 26 years from University of Lyon and postdoctoral studies from INRA and ANSES. He is now full professor of Microbiology/Immunology and Infectious Diseases at the National Veterinary School of Lyon (now VetAgroSup).

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