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Commensal rodent pathogens

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Rodents are the most speciose mammalian group, encompassing some ~2300 species. This great diversity is associated with a correspondingly significant pathogen diversity, including Seoul virus, lymphocytic choriomeningitis virus (LCMV), rat hepatitis E virus, *Leptospira* spp. and *Streptobacillus moniliformis*. Commensal rodent species such as Norway rats (*Rattus norvegicus*) and house mice (*Mus musculus*) are particularly important pathogen reservoirs because of their close association with humans. Here, we present the results from several rodent pathogen studies from Europe and the Middle East. We describe the prevalence and diversity of rodent-borne pathogens in urban areas, and present case studies from zoos in Germany. In Iran we detected the presence of eight different pathogens, several of which being zoonotic, and multiple coinfections. We were also able to detect several mutations of the *Vkorc1* gene in these rats, which is responsible for resistance to anticoagulant rodenticides. In German zoos we describe the potential spill-over of *Francisella tularensis* and LCMV from wild rodents to captive monkeys. Furthermore, we describe the re-emergence and persistence of LCMV in a mouse population in Germany and the potential for spill-over events in zoos. These studies highlight the need for continued pest rodent management and surveillance, and the potential risk these animals pose for the emergence and re-emergence of zoonotic pathogens.

Keywords

rodents, ecology, LCMV, rat hepatitis E virus, Germany, zoos

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Professional Status of the Speaker

PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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