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Network “Rat-borne pathogens”: Searching for pathogen co-infections

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The Norway rat *Rattus norvegicus* is an important reservoir of zoonotic pathogens, such as orthopox virus (OPV) and *Leptospira*, but also for agents of no or unknown zoonotic potential. In addition, in Norway rats human pathogens have been detected, but rats are most likely not involved in their transmission, but may serve as a sentinel, e.g. for extended spectrum ß-lactamase (ESBL)-producing enterobacteriaceae.
In a recent survey, Norway rats originating from five European countries were investigated for *Leptospira* spp., *Rickettsia* spp., OPV, and rat polyomavirus (ratPyV). *Leptospira* DNA was detected in 60 of 420 rats and *Rickettsia* DNA was found in three of 369 rats. PCR-based typing resulted in the identification of *Leptospira interrogans* and *Rickettsia helvetica*, respectively. RatPyV DNA was detected in 103 of 421 rats. In contrast, OPV DNA was detected in none of the rats, and OPV-specific antibodies in only three of 388 rats. The frequency of single *Leptospira* and ratPyV infections and co-infections was, independent of sex, higher for adults compared to juveniles/subadults and higher at rural sites compared to urban areas.
Study results indicate a broad geographical distribution of *Leptospira* DNA in rats within Europe underlining the need to further investigate transmission routes and population dynamics leading to increased prevalence in rural habitats. Furthermore, the potential influence of ratPyV on the susceptibility to infections with other pathogens should be investigated in future studies.