

Book of abstracts

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## PCR prevalence of rodent-borne Ljungan virus across Europe

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Since its discovery in Swedish bank voles (*Myodes glareolus*) in the 1990s (Niklasson et al., 1999), interest in the Ljungan (picorna-)virus (LV) has grown as a result of a suggested association of the virus with some human pathologies, and because serological and neutralization tests have confirmed that humans are exposed to LV (38% in Jääskeläinen et al., 2013). LV infection induces fetal malformations and diabetes-like symptoms in laboratory mice, and since LV also causes disease in some wild rodents, it may have a role in small mammal cycles. Hence, LV epidemiology is potentially of global interest. Although LV has been noted in single populations of several rodent species in Denmark, the USA, Germany, Italy, Finland and the UK (Johansson et al., 2003; Hauffe et al., 2010; Kallies, 2010 and references therein; Jääskeläinen et al., 2013; Salisbury et al., 2014), this is the first systematic screening of LV across the EU, especially in the bank vole, but also in other small mammals, including shrews and commensal species. In all, 15 different species from nine European countries were sampled as part of the EU FP7 project EDENext. Using an LV-specific RT-PCR method (Donoso-Mantke et al., 2007), 1509 liver samples stored at -80°C were screened for LV, including 831 bank voles. All amplified fragments were sequenced for confirmation. LV-positive samples were found in all countries with significant sample sizes, and in most species, including house mice, but not black rats. Overall PCR prevalence in bank voles was about 16% (range 0-50% per population). We added eight new species to the list of LV hosts, including the red squirrel (*Sciurus vulgaris*), and a number of voles and shrews. Our study suggests that LV has a wide geographical and host distribution.

References: Niklasson B et al. 1999. *Virology* 255:86-93; Jääskeläinen AJ et al. 2013. *J Med Virol* 85:2001-8; Johansson ES et al. 2003. *J Gen Virol* 85:837-44; Hauffe HC et al. 2010. *J Wildl Dis* 46:262-6; Kallies R. 2010. *Diss Freie Universität Berlin*; Salisbury AM et al. 2014. *Arch Virol* 159:547-51; Donoso Mantke O et al. 2007. *J Virol Methods* 141:171-7.