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The Discovery of the Lyon IARC Polyomavirus: A Zoonotic Pathogen with Oncogenic Potential in Humans and Cats?

Inhalt

The Lyon IARC polyomavirus (LIPyV), discovered in 2017, was detected as the fourteenth human polyomavirus in saliva and skin samples of healthy individuals (Kamminga et al. 2023). LIPyV exhibits a transforming effect on human primary cells, suggesting potential oncogenic properties (Venuti et al. 2022). LIPyV has also been detected in fecal samples from cats suffering from diarrhea (Li et al. 2021; Fahsbender et al. 2019). The detection of specific antibodies targeting the major structural protein of LIPyV (LIPyV-VP1) in both feline and human serum samples points towards possible zoonotic transmission (Kamminga et al. 2023).
While documented in France, the USA, Finland, and the Netherlands, LIPyV has not yet been reported in Germany. The research project aims to detect and isolate LIPyV in cats in Germany and to determine the prevalence of specific antibodies in human and feline serum samples. Another key objective is to explore a potential association between LIPyV39;s detection and specific disease symptoms including brain tumors.
To address these questions, a comprehensive screening of feline and human samples is planned. A specific indirect enzyme-linked immunosorbent assay (ELISA) against the LIPyV-VP1, as well as a specific real-time polymerase chain reaction (qPCR) for LIPyV, are currently under development. Virus-positive samples will be further characterized using next-generation sequencing and will subsequently be isolated in a cell culture.

Keywords

polyomavirus, zoonosis, cat, human, Germany, ELISA, qPCR, PCR,

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Yes, I am a Junior Scientist.

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