

Isolation attempts of neurotropic rustrela virus

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Until recently, rubella virus (RuV; *Rubivirus rubellae*), exclusively infecting humans, was the only known virus of the genus Rubivirus (family: *Matonaviridae*). In 2020, two relatives of RuV were discovered in Africa and Europe: ruhugu virus (RuhV; *Rubivirus ruteetense*), the closest relative of rubella virus, found in oral swabs of presumably healthy bats, and rustrela virus (RusV; *Rubivirus strelense*) detected in brain tissue from diverse neurologically diseased mammals at several zoos in northern Germany. Recently, it was also published that the so-called staggering disease in cats is most likely caused by RusV. However, the zoonotic potential of those viruses remains unclear.

Unfortunately, several attempts to isolate RusV, including electroporation of various cells with RusV RNA, inoculation of diverse cell lines with homogenized RusV-positive brain material or co-culturing cells derived from experimentally infected RusV-positive animals with a number of neuronal or non-neuronal cells were unsuccessful.

Next attempts for rescue and isolation of RusV will include the generation of a set of recombinant rubi-like viruses by establishing a pipeline for reverse genetics and subsequent infection experiments with brain organoids and rodent-derived brain slices. This will allow further characterization of viral tropism and molecular pathogenesis and provide important insights into this newly discovered neurotropic RNA virus and its potential for zoonotic transmission.

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Professional Status of the Speaker

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