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Comparative Characterization of Borna Disease Virus 1 Field and Laboratory Isolates in the Rat Model

Inhalt

The Borna disease virus 1 (BoDV-1) causes fatal encephalitis in animals and humans. Currently, five phylogenetic clusters (Clusters 1–5) are distinguished for BoDV-1. A characteristic feature is their distinct geographic distribution, as the individual clusters are closely associated with specific endemic areas in Germany as well as neighboring regions of Austria, Switzerland, and Liechtenstein. For some of these clusters, there are corresponding isolates that have been passaged multiple times in the past, both in cell culture and in various animal species. These are referred to as laboratory strains.

To identify differences between laboratory strains and relatively recently isolated field strains, and to uncover any differences that might exist between the individual clusters, a total of twelve different strains/isolates were characterized in the rat model. For this purpose, six neonatal or adult rats per isolate were inoculated intracerebrally, and the animals were monitored over a study period of up to eight weeks.

Two isolates, which differed most significantly in terms of their clinical presentation, were also characterized in greater detail using additional routes of infection and over a longer period of time.

The comparative characterization of field and laboratory isolates of BoDV-1 helps identify differences in virulence and pathogenesis. It thereby improves the validity of experimental animal models and the usability of the knowledge gained for natural infections.

Keywords

Borna, Virus, neurotropic, Pathogenesis

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Professional Status of the Speaker

Senior Scientist

Junior Scientist Status

No, I am not a Junior Scientist.

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