

Pneumonia Virus of Mice (PVM)

Classification

RNA virus, enveloped

Family

Paramyxoviridae

Affected species

Mice, rats, cotton rats, gerbils, guinea pigs, and rabbits

Frequency

Rare in laboratory mice and rats; uncommon in wild mice (this may vary from population to population).

Transmission

PVM is transmitted by aerosol and by direct contact with respiratory secretions. PVM is not as infectious as some other paramyxoviruses.

Clinical Signs and Lesions

None in immunocompetent mice. In immunodeficient mice, a progressive interstitial pneumonia with wasting is seen. In immunodeficient mice, PVM infection may be complicated by concurrent *Pneumocystis* infection. In rats, no clinical signs are seen, but microscopic lesions include interstitial pneumonitis and an acute, multifocal, nonsuppurative vasculitis.

Diagnosis

Diagnosis is usually made by serology (ELISA, IFA, MFIA™), and PCR is also available.

Interference with Research

In immunocompetent animals, PVM is unlikely to interfere with research. The possibility exists, however, that some changes in the lung may be induced by PVM,

even in immunocompetent animals. In immunodeficient animals, the progressive wasting disease associated with pulmonary dysfunction shortens lifespan and renders these animals unsuitable for research. In addition, they may serve as reservoirs of infection for other animals (not just mice) in the facility.

Prevention and Treatment

Wild mice may serve as a reservoir of PVM infection and access of wild rodents to the animal facility should be controlled. Regular serologic testing of resident animals and quarantine of suspect incoming animals is advised. Concerning infected animals, appropriate measures will depend on their value and the possibility of replacing them. In general, total depopulation, thorough cleaning of all aspects of the animal room, and restocking are recommended. Hysterectomy rederivation and embryo transfer have proven successful in eradication of PVM. In immunocompetent animals, the cessation of breeding and spread of infection ("burn-out") has also been effective, but should be attempted only with careful consideration and complete control of the affected animal facility. The transmission of PVM can be limited by the use of cages with filter covers, reduction of staff movements, and by strict measures of housing and care.

References

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