



PNEUMONIA VIRUS OF MICE

CLASSIFICATION

Family: Paramyxoviridae
Subfamily: Pneumovirinae
Genus: Pneumovirus

Enveloped, RNA Virus
Linear, single-stranded, negative sense
15-16 kbp genome
100nm in filamentous form, 80-200nm diameter in spherical form
Replicates in cytoplasm

PREVALENCE

PVM has a natural host range of mice, rats and hamsters. The overall prevalence worldwide has decreased in rodent colonies in recent years. PVM has been reported more frequently in rats and hamsters than mice. Reports have also been made of antibody titres found in guinea pigs and rabbits, but without isolation of the virus.

DIAGNOSIS

ELISA, IFA

It should be noted that no single diagnostic test can detect the infection during all phases.

DISEASE/CLINICAL SIGNS

Under natural conditions, infection is acute and restricted to respiratory epithelium in immunocompetent mice (virus titres peak at day 5, decline from day 6, and are undetectable on or after day 10).

Asymptomatic in euthymic animals.

Chronic pneumonia, progressive pulmonary consolidation and death in athymic (nu/nu) mice.

Pathologic lesions have not been reported in naturally infected mice or rats.

Experimental infection has resulted in mild rhinitis, interstitial pneumonia, ruffled fur, emaciation and lethargy.

Virus distribution is determined by the amount of virus (or volume of the inoculum in experimental studies).

STRAINS

All PVM strains are considered antigenically homologous; the number of strains is not known.

TRANSMISSION

Low transmissibility.

Probably spread by direct contact with infected respiratory secretions.

Aerosol transmission does not appear to be significant.

INTERFERENCE WITH RESEARCH

Effects MAY include:

- Alteration of pulmonary architecture
- Interference with immunological studies
- Significant decreases in weight in some strains of rats
- Evidence of interstitial pneumonia on histological examination
- Hydrocephalus in neonatal mice after intracerebral inoculation

INFORMATION SHEET



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DURABILITY

Labile (likely to change state) at 56°C for 30 minutes.

Susceptible to:

- Room temperature
- Environment outside of host

CONTROL

Maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. The normal pattern of infection is focal enzootic in mice and active infection only lasts approximately 9 days, thus breeding pairs may be isolated and selection of those that remain serologically negative can be used to repopulate a colony.

POST INFECTION

Caesarian derivation and barrier maintenance eliminate and prevent PVM infection. Seropositive breeding pairs that have recovered from acute infection can produce seronegative progeny.

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ComPath

101 Blacks Road Gilles Plains SA 5086

Phone: +61 8 8218 4617 | Email: info@compath.com.au

www.compath.com.au