



## PNEUMOCYSTIS CARINII

### CLASSIFICATION

Order: *Pneumocystidales*

Family: *Pneumocystidaceae*

Genus: *Pneumocystis*

- Fungus
- Cyst Form – fungal spore like structure (4-8µm)
- Trophic form – predominant morphological form found in lungs, pleomorphic single cells (2-8µm)

### PREVALENCE

The estimated prevalence of *Pneumocystis carinii* in laboratory rat populations is greater than parvoviruses, and is the most common disease in these animals.

### DIAGNOSIS

PCR, histopathology

### DISEASE/CLINICAL SIGNS

*P. carinii* is now recognised as the causative agent of interstitial pneumonia in lab rats, previously referred to as Rat Respiratory Virus (RRV). Infected immunodeficient rats present with wasting, ruffled fur, hunched posture, leading to breathing difficulties, cyanosis and subsequent death. Immunocompetent rats will present with less severe symptoms.

### STRAINS

*P. carinii* only infects rats; other *Pneumocystis species* may infect mice, rabbits, guinea pigs, ferrets, dogs, cats, humans and non-human primates.

### TRANSMISSION

Transmission is via the animal to animal contact, possibly via aerosol and fomites also. Shedding persists indefinitely in immunodeficient animals and immunocompetent rats may clear the infection within 8 weeks.

### INTERFERENCE WITH RESEARCH

Effects include but may not be limited to:

- Morbidity and mortality of immunodeficient animals
- Latent infection

# INFORMATION SHEET



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- Alteration of pulmonary architecture – lung lesions
- Evidence of interstitial pneumonia

Interference with immunological studies  
Significant interference with respiratory-based research

## DURABILITY

The stability and persistence of *P. carinii* cysts in the environment is unknown.

## CONTROL

Maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. Limit animal and human contact with infected animals due to the potential of transmission.

## POST INFECTION

Rederivation can be used to repopulate rodent colonies and strict protocols for barrier colonies. *P. carinii* infections may be treated with Trimethoprim/Sulfamethoxazole given in drinking water, but antibiotic resistance is likely to develop.

## BIBLIOGRAPHY

Fox, J.G., Barthold, S.W., Davisson, M.T., Newcomer, C.E., Quimby, F.W., Smith, A.L. 2007. The Mouse in Biomedical Research, Second Edition, Volume Two, pp. 524-525

Stringer, J.R. 1996. Pneumocystis carinii: What is it, exactly? Clinical Microbiology Reviews, 9(4): 489-498

Waggie K. et al, Manual of Microbiologic Monitoring of Laboratory Animals, Second Edition, 1994, Pp 205-208