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
- 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**

