



CILIA-ASSOCIATED RESPIRATORY BACILLUS (CAR)

CLASSIFICATION

Poorly characterised due to difficulty in isolation and culture. The bacterium remains unclassified as of 2006.

- Gram-negative bacteria
- Filamentous, rod-shaped
- Non-spore forming
- Motile

PREVALENCE

More commonly found in rats, but has also been found in mice. Natural infections have not been reported in hamsters or gerbils. CAR bacillus has been reported to occur only in conventional animal facilities, and not barrier-maintained or hysterectomy-derived mice and rats. In conventional rabbit facilities, there have been reports of over 90% prevalence of antibodies to CAR bacillus. Due to this high prevalence, it is suggested that rabbits are most likely the natural reservoirs of the bacterium.

DIAGNOSIS

ELISA, IFA, Histopathological examination (epithelial surfaces e.g. nasal passages, larynx, trachea, middle ears).

Experimental infections in mice can be inapparent. Mice may not show lesions or detectable organisms by staining, and seroconversion may take up to 8 weeks after inoculation. It is not known whether such infections occur naturally.

DISEASE/CLINICAL SIGNS

The following has been reported in natural infections of CAR bacillus:

- Hunched posture
- Lethargy
- Rough coat
- Severe bronchiolectasis
- Pulmonary abscesses

In affected airways, the following has been observed:

- Accumulation of lymphocytes and plasma cells
- Luminal neutrophilic exudate
- Epithelial hyperplasia



INFORMATION SHEET

Lesions formed are due mainly to accumulation of pus in the airways.

Findings have shown that CAR bacillus is generally found as a co-pathogen with *M. pulmonis* in rats, and Sendai virus in mice.

STRAINS

Recent studies suggest that CAR bacillus isolated from rats and rabbit may be different strains. In mice, isolates of rat origin may be more virulent than those of rabbit.

Several laboratories have obtained isolates of CAR bacillus since 1988, and have been given strain designations. These have not been characterised extensively and the number of strains that exist is not known.

It should be noted that the host range of CAR bacillus is restricted according to the host of origin. Isolates from mice and rats are infective and pathogenic for both species. Rabbits and guinea pigs inoculated with mice or rat strains of CAR bacillus showed a serological response, but no histological evidence of infection or disease was detected. Similarly strains isolated from rabbits did not infect mice or rats.

TRANSMISSION

The main route of spread is via direct contact or contaminated fomites. Airborne transmission is not of great significance. Cage-to-cage transmission can occur from possible sources such as contaminated bedding, feed, or caging.

INTERFERENCE WITH RESEARCH

Infection with CAR bacillus interferes mainly with studies of the respiratory system.

DURABILITY

Limited information is available, but procedures used for *M.pulmonis* should be equally applicable.

CONTROL

Maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. Exclude wild rodents from facility. House animals in filter-top cages.

POST INFECTION

Replacement of animals, or where it is not feasible to do so, caesarean derivation is possible.

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