

# Corynebacterium bovis

## Prevalence

- Rare in Australia. It has been reported to be a common pathogen in athymic nude mouse colonies, JAALAS 2012 51(2):189-198.<sup>3</sup>

## Significance

- Increased toxicity of chemotherapeutic agents. Decreased growth of tumour transplants in nude mice.

## Disease

- Immunocompetent animals have transient infections.
- Immunodeficient animals may develop Coryneform hyperkeratosis with diffuse scaling of the skin which on histology is characterised by orthokeratotic hyperkeratosis and epidermal hyperplasia.

## Diagnosis

- For symptomatic cases:
- Bacterial culture of oral swabs and skin / skin lesions with PCR as a confirmatory test. Culture/PCR of faeces may be done as well.
- As *C. bovis* is a slow growing bacterium on bacterial culture plates, plates are incubated for an additional 24 hours (total 72 hours), which is longer than the standard 48 hour incubation period.
- Faecal PCR may be used for clinical animals or those with exposure to an infected group.

## Strains

- B6, BALB/c, DBA/2, C3H/HeN and Swiss mice develop low-level transient infections.
- SCID mice develop scaly lesions. Immunocompromised hairless/nude mice are fully susceptible.

## Screening

- For asymptomatic cases:
- Bacterial culture of skin, enteric and oropharyngeal flushes / swabs.
- Skin or Faecal PCR
- Exhaust Air Dust PCR
- PCR: false negatives may be common.

## Transmission

- Direct contact with infected mice or humans. Aerosol.
- Widespread environmental contamination, including airborne dispersal and resistance to desiccation.

## Reading

1. **American Association for Laboratory Animal Science.** 2012. Abstracts of Scientific Presentations 2012 AALAS National Meeting Minneapolis, Minnesota.
2. **Barthold SW, Griffey SM, Percy DH.** 2016. Pathology of Laboratory Rodents and Rabbits. 4th ed. Ames: Wiley Blackwell.
3. **Burr HN, Wolf FR, Lipman NS.** 2012. *Corynebacterium bovis* Epizootiologic Features and Environmental Contamination in an Enzootically Infected Rodent Room. JAALAS **51**:189–198.
4. **National Research Council (US) Committee on Infectious Diseases of Mice and Rats.** 1991. Infectious diseases of mice and rats. National Research Council.
5. **Fox JG, Barthold SW, Davisson MT, Newcomer CE, Quimby FW, Smith AL.** 2007. The Mouse in Biomedical Research. 2nd ed. Burlington: Elsevier.