

Mouse Thymic Virus (MTV, MTLV)

Family: Herpesviridae

Prevalence

- Mainly affects mice
- Common in wild mice but extremely rare in laboratory mice

Significance

- Significance likely to be low
- Infection of neonates <10days result in immunosuppression and lesion of thymic necrosis:
 - Weaker infection of neonates in splenic and lymph node necrosis
- In animals >10days, infection is asymptomatic

Disease

- Enveloped DNA virus
- Natural infections are subclinical
- MTV infects the salivary glands initially and persists as a chronic infection
- In some strains, MTV may cause autoimmune disease
- Chronic immunosuppression can develop in animals infected prior to 10 days of age
- MTV causes transient lymphoid necrosis in thymus, spleen, and lymph nodes of neonatal mice

Transmission

- Virus secretion via saliva with persistence in the salivary glands causing chronic, asymptomatic infection:
 - Possibly via milk as well
- Transmitted through direct contact, not by transplacental route
- Low transmissibility between cage mates

Isolation and Diagnosis

- Serology diagnosis of MTV made by fluorescent immunoassay (IFA)
- PCR on tissues
- Histology (intranuclear inclusion bodies) of thymus in young animals

Strains

- BALB/C and A strand mice:
 - No B6, C2H, DBA/2 mice

Screening

Regular screening via serology IFA testing as deemed necessary by the individual institutions.

Duration

- Persistent
- Virus inoculation in newborn mice detected MTV in thymus at day 3, day 7 (max titre peak), virus disappears by day 14:
 - Macroscopic necrosis begins at day 7, most severe within day 10-14

Durability

- Infectivity of MTV is destroyed by 20% ether treatment for 2 hrs at 2°C and/or heat treatment for 30 minutes at 50°C
- Contamination is reduced by storage at -60°C for short periods

Prevention and Control

- Pathogen exclusion:
 - By exclusion of wild mice and quarantine and screening of new mice
- Periodic health monitoring testing
- Isolation of infected breeding pairs might reduce virus

Reading

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