

Rotavirus (Epidemic Diarrhoea of Infant Mice)

Prevalence

Very common. Most common agent detected by serology in Australian mouse colonies. Mouse strain of rotavirus does not infect rats. There is a rat strain of rotavirus which is antigenically distinct from mouse rotavirus and which is extremely rare in laboratory colonies. The rat strain is considered zoonotic

Diagnosis

Serology, Lesions (extremely transient, only seen in neonates), RT-PCR. Use of antigen detection kits on faeces not advisable due to false positive reactions attributable to some feed components.

Screening

All colonies; Quarterly (Commercial breeding colonies may wish to screen more frequently due to prevalence of this agent in Australia)

Disease

All ages susceptible to infection. Disease only evident in neonates (< 14days old). Diarrhoea during the first two weeks of life is the only consistent sign of disease. Disease is related to mucosal epithelial turnover kinetics. Infection progresses from duodenum – jejunum – ileum – colon.

Strains

Serotypic and genomic differences have been noted between different isolates with no evident difference in disease patterns.

Transmission

Orofaecal, fomites. Extremely contagious.

Duration

Infants shed high concentrations of virus in faeces from 2 – 10 days post infection. Transient viremia and viruria possible. Animals older than 17days shed lower concentrations of virus for 2 – 4 days with possible shedding of low levels of virus beyond this. SCID mice become persistently infected.

Durability

Unstable at –20, 4 and 37°C. Not resistant to environmental conditions.

Comment: Family Reovirus. Double stranded RNA virus.

Significance

Low. May affect results of studies using infant mice or where neonate gut is target organ.

Control

Pathogen exclusion. Regular health monitoring of supplier sub-populations, transport in filter boxes, quarantine at receiving institution with serology testing 2 weeks post arrival. Maintenance under strict barrier protocol.

Post infection. Caesarean rederivation, embryo transfer (SCID) or burn out selecting seronegative progeny as breeding stock post isolation (recommendations vary from 3 – 12 weeks) of individual breeding pairs in micro-isolators. Strict husbandry protocols and efficient barrier conditions are essential for success.

