

# Lactate Dehydrogenase Elevating Virus (LDEV, LDV)

Family: Arteriviridae

## Prevalence

- Affects mice
- Common in wild mice but rare in laboratory animals

## Significance

- Low significance for mice study
- Highly significant for transplantable tumour research, viral oncology, and immunology
- LDEV will interfere with several organ functions, thus making infected animals unsuitable for research

## Disease

- Enveloped arterivirus. Single strand of RNA virus
- LDV infection is sub-clinical:
  - Infection results in lifelong viremia
- LDV affect immune responsiveness and certain enzymes in the plasma including the enhancement or suppression of tumorigenesis
- Clinical signs are elevated Serum LDH (hepatic, cardiac and erythrocytic isoenzymes)
- In certain strains (AKR and C58):
  - If immunosuppressed - Paralytic syndrome may occur:
    - Result of the interaction of ecotropic murine leukaemia virus with the LDEV

## Transmission

- Inefficiently transmitted by direct contact
- Transmission by infected tumours, cell lines, serum, or same needle inoculation
- Natural transmission via bite wounds or sexual contact
- In the first week of infection, virus excreted in faeces, urine, saliva, milk and transplacentally

## Isolation and Diagnosis

- Preferred- RT-PCR assays recommended for the detection of LDV infection
- Serum LDH activity measured by serologic diagnosis such as ELISA:
  - Although ELISA can be an alternative diagnostic method, it does demonstrate difficulties with antigen-antibody complexes and B-cell polyclonal activity
  - Shows poor specificity and low sensitivity
  - Give false-negative results

### Strains

- Susceptible strains of mice include AKR and C58

### Screening

- Not suitable for research
- At least, prior to the introduction of new animals

### Duration

Persistent.

### Durability

- Can be stored in plasma at -70degrees indefinitely, not at 4 degrees
- Infected plasma or faeces maintains infection for only 24 hours at room temperature

### Prevention and Control

- Screening of all Mouse-derived biological products prior to their introduction
- If a colony is infected, and it is a long-standing infection, then vertical transmission should not be an issue:
  - Embryo transfer or hysterectomy rederivation should be effective
- LDV is inactivated by lipid solvents, detergents, and acid pH
- Virus in tumour stocks can be eliminated by passage through nude rats

### Reading

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