



THEILER'S ENCEPHALOMYELITIS VIRUS (TMEV)

CLASSIFICATION

Family: Picornaviridae
Genus: Cardiovirus (GroupB)

- Non-enveloped, RNA virus
- Single-stranded, linear, positive-sense
- 7.4-8.1 kpb genome
- 28 nm in diameter

PREVALENCE

Natural host range of mice, rats and voles; predominantly infects mice but rare in modern laboratory colonies.

DIAGNOSIS

ELISA, IFA, RT-PCR
Virus can be shed in faeces for up to 53 days.

DISEASE/CLINICAL SIGNS

Usually asymptomatic with natural infections. Experimental infections can cause:

- Fatal encephalitis
- Flaccid paralysis of hind limbs
- Weight loss
- Inactivity
- Ruffled fur
- Hunched posture
- Demyelinating disease (strain dependent)
- Poliomyelitis
- Chronic inflammatory muscle disease

STRAINS

High-neurovirulence strains include GDVII and FA, and low-neurovirulence strains include BeAn and DA.

TRANSMISSION

Oral-faecal route



INFORMATION SHEET

INTERFERENCE WITH RESEARCH

Effects include but are not limited to:

- Interference with the study of other viral infections
- Pathologic changes in spinal cord and brain
- Induction of apoptosis in the CNS
- Induction of cytokine and chemokine expression in the CNS
- Spinal cord atrophy

DURABILITY

Resistant to:

- Chloroform
- Freezing (years)
- 4°C (several weeks)
- Acid pH

Susceptible to:

- 70% alcohol (not so effective)
- 0.3% formaldehyde (more effective)
- Bleach (more effective)
- UV radiation
- Temperatures over 50°C
- PBS, pH 7.2 at 37°C

CONTROL

The most effective way is to introduce TMEV-free mice into colonies and to maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. Extreme care to be taken by testing cell lines before use (especially due to the resistant nature of TMEV at low temperatures).

POST INFECTION

Foster-nursing newborn pups onto TMEV-negative dams and/or isolation of breeding pairs with subsequent selection of negative progeny. Caesarean derivation may also be used.

BIBLIOGRAPHY

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