LYMPHOCYTIC CHORIOMENINGITIS VIRUS

CLASSIFICATION

Family: *Arenaviridae*
Genus: *Arenavirus*

- Enveloped, RNA virus
- Circular, negative ï sense, single ï stranded
- 10-14 kb genome
- ~ 50-300 nm diameter (average 110-130 nm)

PREVALENCE

Wild mice are considered the principal reservoir hosts. While rare, LCMV can also be found in laboratory mice and hamsters, and to a lesser extent, rabbits, rats and guinea pigs.

DIAGNOSIS

ELISA, IFA, RT-PCR

DISEASE/CLINICAL SIGNS

Clinical signs vary greatly depending on the strain of virus, strain of mouse and age of mice at time of infection. Two typical clinical patterns include:

- Persistent tolerant infection, which follows in-utero or neonatal infection, and can result in growth retardation and eventually emaciation and some deaths. Lifelong viraemia and shedding of virus occurs.
- Acute infection ï when infection is acquired after the first week of life ï is characterised by viraemia but no shedding of virus. Infected mice either die or eliminate the virus, often without showing signs of the disease.

Natural infections in hamsters are generally considered subclinical. Experimental LCMV infections in hamsters have resulted in persistent viraemia and reduced litter sizes, as well as developing progressive glomerulonephritis.

STRAINS

Not known ï at least 6 strains are used commonly for experimental infection of mice.

TRANSMISSION

Only mice and hamsters are known to transmit the infection. Transmission is via exposure of mucous membranes and broken skin to infectious urine, saliva and milk, and possibly also via ingestion. In addition, both transovarian and transuterine transmission occur in mice.

Hamsters transmit the virus to humans.

INTERFERENCE WITH RESEARCH

Effects include but are not limited to:

- Different expression of alpha/beta interferons
- Severe depression of humoral and/or cellular immunity in mice
- Induction of transient bone marrow aplasia
- Proliferation of polyclonal cytotoxic T lymphocytes stimulation

DURABILITY

Sensitive to:

- Lipid solvents
- Detergents
- Disinfectants
- pH values below 5.5 and above 8.5

CONTROL

Maintain regular health monitoring of supplier sub-populations and strict protocols for barrier colonies. Exclude wild mice from facility. Extreme care to be taken by testing transplantable tumours and cell lines before use.

POST INFECTION

The most effective way to eliminate LCMV is to cull all infected animals and obtain clean replacement stock.

BIBLIOGRAPHY

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