INFORMATION SHEET

COMPATH
Your Partner in Research Facility Health Monitoring

Mouse Kidney Parvovirus (MKPV)

CLASSIFICATION

Family: *Parvoviridae*
Genus: Provisionally named *Chapparvovirus* by International Committee on Taxonomy of Viruses (ICTV).

- Non-enveloped DNA virus
- Single stranded

PREVALENCE

Moderate prevalence in both wild and laboratory mice.

DIAGNOSIS

Diagnosis through PCR on serum, urine, kidney, faecal or environmental samples. Can also be diagnosed through histopathology. As this is a newly discovered virus, there are no serology tests currently available.

DISEASE/CLINICAL SIGNS

- Intranuclear inclusion body nephropathy (IBN) in renal tubular epithelial cells
- IBN has been anecdotally reported by veterinary pathologists both immunocompetent and immunodeficient mice for over 40 years in Australia and the United States
- Clinical disease has only been reported in immunocompromised mice
- Depending on immune dysfunction, disease can progress from mild IBN to intranuclear inclusions, tubular degeneration and necrosis. Infection can progress into chronic renal failure. This has only been reported in severely immunocompromised mice models including Rag-/-, SCID-/- and NSG models.

TRANSMISSION

Current research suggests that MKPV is transmitted through urine and faeces. Soiled bedding sentinels can be used to monitor colony animals, as early as two weeks post exposure to dirty bedding.

INTERFERENCE WITH RESEARCH

- Parvoviruses replicate in cells undergoing active division
- Intranuclear inclusion bodies nephropathy
- Causes kidney failure

CONTROL

MKPV is a newly characterised pathogen, so the pathobiology has not been fully described. However, we do know the following;

- MKPV can be transmitted through contact with biological material from infected sources as well as contaminated cell lines and tumours
- MKPV has been detected in wild mice, so they can act as a reservoir. Keeping colony mice contained in IVC and prohibiting contact with any wild mice
- Routine health monitoring of colony animals, soiled bedding sentinels or exhaust air dust filters

POST INFECTION

Caesarean derivation or embryo transfer can be used to effectively re-populate valuable colonies. Separation of cages and use of filter-top containers are effective. Depopulation should be considered where colonies can be easily replaced.

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BIBLIOGRAPHY

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[2]Ben Roediger *et al* (2018) "An Atypical Parvovirus Drives Chronic Tubulointerstitial Nephropathy and Kidney Fibrosis.' Cell Vol. 175 pg 530-543

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