

# Rat Polyomavirus 2 (RPyV2 – *Rattus norvegicus* polyomavirus 2)

## Background

- Double-stranded, non-enveloped, epitheliotropic DNA virus, revealed by deep sequencing<sup>1</sup>

## Prevalence

- IDEXX laboratories (North America) report a prevalence of 32% in North American immunocompetent rat research colonies.<sup>1</sup>

## Significance

- A novel rodent polyomavirus
- Isolated from an immunodeficient rat colony in 2017<sup>1</sup>
- Can affect nude or SCID rats

## Disease

- Only been reported in immunodeficient rat colonies (nude or SCID rats)
- Emaciation, dyspnoea (may involve coinfection with *Pneumocystis carinii*) and hunching<sup>1</sup>
- Chromodacryorrhea
- Histopathology and viral inclusions in the salivary glands, exorbital lacrimal glands, Harderian glands, reproductive epithelium as well as respiratory epithelium.<sup>1,2,3</sup>
- Rats with low fecundity<sup>1</sup>
- Maternal and pup mortality<sup>1</sup>

## Transmission

- Direct contact via respiratory and salivary secretions
- Faecal-oral<sup>1</sup>
- Sexual transmission<sup>1</sup>
- Short-lived shedding in immunocompetent rats and extended shedding in immunodeficient rats<sup>1</sup>
- Potential for transmission from experimental inoculation

## Isolation and Diagnosis

- Serology for immunocompetent rats<sup>1</sup>
- Faecal PCR for immunocompromised rats

## Screening

- Immunocompetent rats will seroconvert within 2 weeks of infection and show no clinical signs<sup>1,2</sup>

## Prevention and Control

- Effective vermin control, especially of wild rats
- Immunodeficient rats should be sourced from unaffected suppliers
- Quarantining protocols
- Decontamination of all incoming materials which may be in contact with rats
- Faecal PCR can be performed on immunodeficient rats
- Environmental testing can be considered – exhaust air dust samples or sampling of rooms if open cages are used<sup>4</sup>
- **At Cerberus Sciences we can offer Rat Polyomavirus 2 PCR; we cannot offer serology at this time.**

## Reading

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