

Mouse Adenovirus (MAdV-1, MAdV-2, MAV)

Classification

DNA virus, nonenveloped

Family

Adenovirus

Affected species

Mice

Frequency

Rare in laboratory mice.

Transmission

There are two strains of mouse adenovirus: MAdV-1 and MAdV-2. MAdV-1 is transmitted through direct contact with urine, feces, or nasal secretions. MAdV-2 infects the intestinal tract and is excreted for at least 3 weeks in immunocompetent mice. Seroconversion to MAdV-2 is noted in some rat colonies, but this is probably a different virus.

Clinical Signs and Lesions

Immunocompetent adult rodents infected naturally with MAdV-1 or MAdV-2 do not exhibit clinical disease. Clinical signs may be seen with experimental inoculation of suckling mice, or experimental inoculation of either virus into immunodeficient animals. A feature of either virus is prominent Type A intranuclear inclusions. In MAdV-1, these may be seen in the adrenal gland, while in MAdV-2, they occur in the distal small intestine and cecum. No lesions are seen in rats experimentally infected with MAdV-2.

Diagnosis

Both MFIA™/ELISA and IFA may be used to diagnose MAV infections in mice or rats. Antiserum to MAdV-1

will cross-react with MAdV-2, but the reverse is not true. Most diagnostic laboratories use a combined antigen for detection.

Interference with Research

MAdV-1 has been reported to increase susceptibility to *E.coli*-induced pyelonephritis.

Prevention and Treatment

Proper control of housing, materials, and personnel entry, and exclusion of wild mice will prevent adenoviral infections of research colonies. Rederivation of affected colonies through aseptic hysterectomy or embryo transfer is an efficient means of eradication of MAV. MAV remains stable in the environment for approximately 2 months at 40°C, 2 weeks at ambient temperature, and one week at 37°C. Oxidizing disinfectants should be used for decontamination of facilities and any equipment that cannot be autoclaved.

References

Baker DG. *Natural Pathogens of Laboratory Animals: Their effects on research*. Washington, D.C.: ASM Press; 2003. 385 pp.

Fox JG, Anderson LC, Lowe FM, and Quimby FW, editors. *Laboratory Animal Medicine*. 2nd ed. San Diego: Academic Press; 2002. 1325 pp.

Fox J, Barthold S, Davisson M, Newcomer C, Quimby F, and Smith A, editors. *The Mouse in Biomedical Research: Diseases*. 2nd ed. New York: Academic Press; 2007. 756 pp.

Percy DH, Barthold SW. *Pathology of Laboratory Rodents and Rabbits*. Ames: Iowa State University Press; 2007. 325 pp.