

Lactate Dehydrogenase Elevating Virus

Host species

- mouse (*Mus musculus*, *Mus caroli*) (Rowsan 1980)

Organotropism

- polytropic strains: liver, spleen, lymphnodes, testistissue
- neurovirulant strain: LDV-C: central nervous system, anterior horn neurons leptominges
- mucosal barrier to viral transmission

Clinical disease

- life long asymptomatic, low level viremic persistence
- immunosuppressed AKR and C58 strain: poliomyelitis with fatal paralysis
- mice are infected by mechanical transfer of tissues or serum from infected animals
- natural transmission between cagemates is rare

Morbidity and mortality

- morbidity and mortality are very low
- morbidity and mortality depend on host strain, immunodeficiency and presence of murine retro viruses

Zoonotic potencial

- none

Important notice

- Detection of LDV: measuring LDH levels in mouse plasma PCR-assay (van der Logt et al 1994)

Interference with research

Oncology

- enhancement of tumor growth (Mc. Donald 1983, Isakov and Feldmann 1981)
- suppression of chemically induced mouse lung tumorigenesis (Theiss et al 1980) and foreign body tumorigenesis (Brinton-Darnell-M 1977)
- Contamination of transplantable tumors (Nicklas et al 1993, Isakov et al 1981, Riley et al 1978)
- interactions with oncogene murine retro viruses: ecotropic murine leukemia virus (Anderson et al 1995, Inada et al 1993, Inada 1993, Inada et Yamazaki 1991, Contag and Plagemann 1989, Contag and Plagemann 1988)

Infectiology

- impaired resistance to bacterial infection (Bonventre et al 1980)

Immunology

- stimulation of B-lymphocyte-activation (Bradley et al 1991, Coutelier et al 1990) and systemic alteration in lymphocyte circulatory pattern (Mongini 1978)
- elevation of immunoglobulin isotype blood levels IgG2a (Hovinen et al 1990, Li et al 1990, Coutelier et al 1986, Coutelier and Van Snick 1985, Cafruny and Plagemann 1982)
- contaminant of monoclonal antibodies (Nicklas et al 1988)
- induction of interferon production (Lussenhop et al 1982, Nicklas et al 1988, Koi et al 1981, Evans and Riley 1968, Lagwinska et al 1975)
- influence on immunogenic function of macrophages and macrophage-dependent immunresponse (Isakov et al 1982, Ritzi et al 1982)
- enhancement of natural killer cell activity (Koi et al 1981) and elevation of cytotoxic T-lymphocytes (Even et al 1995)
- reduction of autoantibody production (Verdonck et al 1994, Hayashi et al 1992)
- suppression of cell mediated immunresponses; inhibition of cytokine production IL-4, IL-1 (Monteyne et al 1993, Hayashi et al 1991)

Physiology

- changes in hemopoiesis after tumortransplantation (Motycka et al 1981, Viktora et al 1981)
- suppression of development of glomerulonephritis in autoimmune NZB-mice (Kameyama and Hayashi 1994, Hayashi et al 1993)
- decrease of incidence of diabetes in NOD-mice (Takei et al 1992) and reduction of streptozotocin-induced diabetes mellitus in CD-1-mice (Hayashi et al 1994)
- changes in clearance capacity for several enzymes and proteins (Winkelhake et al 1978, Hayashi et al 1988, Hayashi et al 1992, Nakayama et al 1990, Brinton et Plagemann 1983)
- increase of serum lactate dehydrogenase level and other enzymes (Brinton 1982)
- mucosal barrier to LDV transmission exists (Cafruny and Hovinen 1988, Cafruny et al 1991, Broen et al 1992)

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