Specific examples of interference to research caused by infectious agent exposure are viewable at http://www.lal.org.uk/pdffiles/GVSOLAS.pdf.

MAV-1 (FL), nonenveloped, polytropic.
urine, feces, nasal secretions.
naturally asymptomatic; experimentally fatal, multisystemic, prolonged viruria.
thymic involution; foci of endothelial and epithelial necrosis with hemorrhage, and type A intranuclear inclusions in renal tubules, adrenal cortex, also spleen, intestine, brain, salivary glands, myocardium.
.polyoma virus, cytomegalovirus.
rare multisystemic infection, neonatal encephalitis, SCID or nude enteritis; model for adrenal necrosis.

MAV-2 (K87), nonenveloped, enterotropic.
feces.
none, enterotropic, runting in sucklings, recover.
runting may occur; intranuclear inclusions in small intestinal and cecal mucosal epithelium.
antiserum to MAV-2 reacts with MAV-1, use MAV-2 antigen in serological tests; intranuclear intestinal inclusions are pathognomonic.
moderate prevalence, rare suckling runting.

neonatal or immunocompromised mice, viremic, dissemination to pulmonary vascular bed results in sudden onset of dyspnea, death; none in mice >18 days, resistance.

intranuclear inclusions in vascular endothelium of jejunum, ileum, lung, liver; pulmonary congestion, edema, hemorrhage, atelectasis, alveolar septal thickening.

MAV-1, MCMV, or polyoma virus-associated multisystemic infection with intranuclear inclusions.

low natural prevalence.

Polyomavirus, Papovavirus; “many tumors”, especially salivary gland tumors, experimentally develop in neonates <24 hours old parenterally administered high titers of oncogenic strains of virus, similar to SV40, BK and JC viruses.

intranasal urine, environmentally stable, but inefficient transmission can be broken by husbandry practices.

natural infection rare; neonatal inoculation of nasal mucosa to submandibular salivary gland to lung, then dissemination especially kidney with high mortality; persists in lungs and kidneys; cleared in older mice; nude mice develop multisystemic wasting, paralysis associated with demyelination progressive multifocal leukoencephalopathy, and vertebral tumors; tumors of uterus and bone.

nude mice develop multifocal inflammation and necrosis, tumor formation; multiple tissues affected including bronchial, renal pelvic, ureteral epithelium; oligodendroglia with demyelination, intranuclear inclusions.

nude wasting – MHV, *Pneumocystis carinii*, Sendai, PVM; intranuclear inclusions – K virus, adenovirus, MCMV.

minimal, rare, contamination of transplantable tumors; prevalence may increase with use of polyoma middle T (Py V-MT) transgene.

variable, genotype dependent; includes neoplasia, but most MuLV sequences are not oncogenic, instead encode strain-specific characteristics, e.g., demyelination (with LDV in C58 and AKR), dilute color (DBA), hairlessness (HR); endogenous proviruses given gene designations, e.g., AKR mice endogenous proviruses are designated *akv-1, akv-2, akv-3,* etc.; restriction genes e.g., *fv-1, fv-4* and receptors influence evolution of recombinant pathogenic isolates, in addition, numerous intracisternal A particles (IAP), virus-like 30s RNA sequences (VL30), murine retrovirus-related DNA sequences (MuRRS), tRNA glutathione-like sequences (GLN), murine repeated virus sequences on Y chromosome (MuRVY), early transposons (ET).

Mouse mammary tumor viruses; exogenous MMTV-S, (standard), “milk factor”, Bittner agent; 100% all mice harbor multiple copies of endogenous MMTV except perhaps “Lake Casitas” mice.

MMTV-S in milk, saliva, semen, eliminated by fostering, intentionally maintained in model strains (C3H/HeJ, C3H/HeOuJ); 0-4 copies of endogenous provirus transmitted genetically, given gene designations (*Mtv-1, -2, -8*, etc.).

MMTV-S associated mammary tumors; varied reintegration consequence; e.g., *Mtv-29* functions as a super-antigen in SJL mice, stimulates T-cell cytokine expression, resulting in B-cell lymphoma; thymic lymphoma in GR mice.

mammary neoplasia (C3H) or B-cell lymphoproliferative disease (SJL) or thymic lymphoma (GR) depending on strain; does not rely on recombinatorial events for oncogenesis, but instead direct insertional activation of proto-oncogenes.

– zoonotic hazard; aerosol, contact with infected urine; no clinical disease in rats; also naturally infects *Peromyscus* mice; 2 major lineages, (HFRS) Hemorrhagic Fever and Renal Syndrome in humans with fever, thrombocytopenia, myalgia, headache, petechiae, retroperitoneal and renal hemorrhage; (HPS) Hantavirus Pulmonary Syndrome in humans with fever, pulmonary edema, shock; Bunyviridae.

Citrobacter rodentium, cocc-bacillus, (formerly *C. freundii*, strain 4280), transmissible murine colonic hyperplasia (TMCH).

contaminated food, bedding, orofecal, direct, low contagiousness; selectively colonizes surface mucosa of cecum and colon within 4 days; locus of enterocyte attachment and type III secretion system facilitate attachment; translocated intimin receptor; recovered mice are refractory to reinfection; no carrier state.

runted, lose weight, sticky, unformed feces; low mortality, often recover within 2 months; permanent rectal prolapse possible.

thickened descending colon devoid of feces; marked colonic crypt hyperplasia (Th-1 response, IL-12, γIFN, TNFα, elevated keratinocyte growth factor), basophilic epithelial cells; inflammation and erosion possible among infants of some strains; hyperplasia followed by excessive goblet cells and cryptal cysts (mucin and cellular debris), normal mucosa within 2 months.

MacConkey agar, but in 2-3 weeks can no longer isolate; enteritis in young – rota, reo, MHV, MAV-2; in older mice – Tyzzer’s, *Salmonella*; rectal prolapse - *Helicobacter*

rare, no carrier state, transient, low contagiousness, low mortality, runting and rectal prolapse.

Escherichia coli, coliform typhlocolitis, common intestinal organism; but atypical, non-lactose fermenting isolate.

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Tyzzer's, *Citrobacter, Helicobacter, Escherichia.*

multifocal necrosis and venous thrombosis with leukocyte infiltration in liver, spleen, Peyer's patches, mesenteric lymph nodes; focal hepatic granulomas as hallmark lesion; intermittent shedding.
culture mesenteric lymph nodes; Tyzzer's, MHV, ectromelia virus, *Helicobacter, Pseudomonaus*.
depopulate, interspecies transmission, zoonotic.

Pasteurella pneumotropica – gram-negative coccobacillus; commensal, common intestinal and nasopharyngeal isolate from healthy mice; subclinical, often seron

Corynebacterium bovis – “coryneform hyperkeratosis”; diffuse hyperkeratotic dermatitis of nude mice; transmitted by fomites, direct, or topical administrations; asymptomatic transient infection in immunocompetent strains, other nudes like source; high morbidity; orthokeratotic, hyperkeratotic epidermal hyperplasia; ddx: hyperkeratosis-associated with low ambient humidity.

Corynebacterium hoffmani – frequent opportunistic isolate in BALB/c conjunctivitis; ddx: *P. pneumotropica*.

Staphylococcus aureus – gram-positive, coccoid bacterium, common inhabitant of skin, mucous membranes, nasopharynx, intestine; asymptomatic; nude – periorbital abscess, furunculosis and folliculitis around muzzle, lacrimal & prepucial gland abscesses; B6 – contributes to ulcerative dermatitis, secondary to acariasis; pruritic with self-excoriation; readily identifiable bacteria, botryomycotic granules, Splendore-Hoeppli material, especially

Myobia – head, eyelids, neck, shoulders; *Myocoptes* – all over body, primarily inguinal, abdominal.