OCCUPATIONAL AND ENVIRONMENTAL HEALTH AND SAFETY
THE UNIVERSITY OF UTAH

FACT Sheet

Recombinant Sendai Viral Vectors

The following provides information on the use and containment of recombinant Sendai viral vectors. Investigators should use these guidelines as part of their risk assessment when planning experiments with these vectors and preparing applications to the Institutional Biosafety Committee (IBC). Note the listed containment levels are the minimum that should be employed with these vectors: some experiments, such as the expression of toxins or oncogenes, may require higher levels of containment. The appropriateness of the containment should be considered as part of the investigator's risk assessment and will be reviewed by the IBC.

NIH Risk Group	RG2 for human paramyxoviruses.
Biocontainment Level	BSL-2 Sendai virus (SeV) causes respiratory disease in rodents and sometimes swine. There is limited evidence of zoonotic transmission to humans. However, the virus is capable of infecting human cell lines (http://jvi.asm.org/content/84/22/11718.full) and is similar to human parainfluenza virus type 1. For these reasons, SeV work is usually classified as BSL-2. Recombinant constructs expressing oncogenes or toxins should be handled at BSL-2 enhanced
Infectious to Humans/Animals	Mice
Route of Transmission	SeV is responsible for a highly transmissible respiratory tract infection in mice, hamsters, guinea pigs, rats, and occasionally pigs, with infection passing through both air and direct contact routes.
Laboratory Hazards	No reported cases of laboratory acquired disease but inhalation of aerosolized droplets, mucous membrane contact, parenteral inoculation, or ingestion are possible routes of infection.
Disease	Respiratory disease. Infections of mice are usually associated with a high mortality rate although latent infections can occur.
Treatment/Prophylaxis	Antivirals may reduce shedding
Pathogenesis	The respiratory infection of Sendai virus in mice is acute. Virus may first be detected in the lungs 48 to 72 hours following exposure. As the virus

	replicates in the respiratory tract of an infected mouse, the concentration of the virus grows most quickly during the third day of infection. After that, the growth of the virus is slower but consistent. Typically, the peak concentration of the virus is on the sixth or seventh day, and rapid decline follows that by the ninth day. A fairly vigorous immune response mounted against the virus is the cause of this decline.
Replication Competent	Yes
RCV Testing	No
Disinfection	Effective disinfectants require a minimum of 20 minutes contact time. Use one of the following: • RECOMMENDED: Sodium hypochlorite (0.5%: use 1:10 dilution of fresh bleach) • 5% Phenol • 70% Ethanol or Isopropanol
Animals	ABSL-3: Animal cages must be labeled with a biohazard sign. Note there are currently no ABSL-3 suites at the University of Utah.

Sources:
http://web.stanford.edu/dept/EHS/prod/researchlab/bio/docs/Working_with_Viral_Vectors.pdf
http://www.dartmouth.edu/~ehs/biological/biosafety_docs/110_1_ibc_viral_vector_policy.pdf