OCCUPATIONAL AND ENVIRONMENTAL HEALTH AND SAFETY
THE UNIVERSITY OF UTAH

FACT Sheet

Recombinant Epstein-Barr Viral Vectors

The following provides information on the use and containment of recombinant Epstein-Barr 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 Epstein-Barr virus, frequently referred to as EBV, is a member of the herpesvirus family and one of the most common human viruses. EBV are enveloped, icosahedral viruses with a double stranded linear DNA genome.
Biocontainment Level	BSL-2
Infectious to Humans/Animals	Yes
Route of Transmission	Ingestion, accidental parenteral injection, droplet exposure of the mucous membranes, inhalation of concentrated aerosolized materials.
Laboratory Hazards	Accidental needlestick is a mode of transmission within research laboratories. Accidental ingestion of viral contaminated materials and inhalation are other routs of transmission. Note that cell lines are often immortalized by transformation with EBV.
Disease	The virus is found worldwide, and most people become infected with EBV sometime during their lives, most commonly causing infectious mononucleosis - acute viral syndrome with fever, sore throat, splenomegaly and lymphadenopathy. A few carriers of this virus may develop Burkitt's lymphoma or nasopharyngeal carcinoma. EBV is a transforming virus and is often used to produce immortalized cell lines and cause lymphoma in various animal models.
Treatment/Prophylaxis	No specific treatment
Replication Competent	Usually no but there is the potential for recombination with a latent viral infection.
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-2: Animals must be injected in a Biological Safety Cabinet. Animals will be maintained at ABSL-2 for the duration of the study. All bedding, waste and animals infected with EBV shall be treated as biohazardous. After all animals are removed from their primary enclosure immediately autoclave or treat with chemical disinfectant. After disinfection, dump the cage contents and begin cleaning the cage for re-use. All waste must be decontaminated by autoclaving or chemical disinfection prior to disposal. Animal carcasses must be placed in autoclave bags and be designated for infectious waste disposal. All necropsies must be performed in a designated room using animal BSL-2 practices and procedures. Animal cages must be labeled with a biohazard sign.

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