

Use of Lentivirus & Lentiviral vectors

Purpose:

To provide guidance for the use of Lentivirus & Lentiviral vectors in the laboratory and animal facility environment. HIV (Human Immunodeficiency Virus), SIV (Simian Immunodeficiency Virus), and FIV (Feline Immunodeficiency Virus) are all examples of lentiviruses.

Guidance Information:

Several factors should be considered when working with vectors, including potential to generate RCV (replication competent virus), number of essential genes that have been deleted from the vector, nature of the transgene insert, host range, and vector titer and total amount of vector.

Precautions:

1. Personal Protective Equipment (PPE) Required: Lab coat, gloves (standard nitrile or latex) and safety glasses. When working outside of containment, an N95 respirator* and goggles may be required. *Respirator use requires medical clearance and fit testing through Occupational Medicine.
2. Laboratory: BSL-2 is required for administration and handling of lentivirus. A BSC (biosafety cabinet) or full mucosal protection is required anytime there is a risk of aerosolization.
3. Animal housing and bedding/wastes:
 - a. Animals should be housed in microisolator or similar containment caging.
 - b. A biological safety cabinet (BSC) is needed when opening cages and handling animals.
 - c. ABSL2 signage is required to be posted on the housing and procedure room when this material is present.
 - d. Cage labels are required on each individual cage containing the biohazard symbol and "Agent, end date (if applicable) and disposal method". Cage labels are removed or crossed out when special handling time has ended. *Cage labels available at www.ehs.wisc.edu
 - e. Decontamination of animal waste, caging and any other contaminated equipment is required before disposal. Autoclaving or a suitable chemical disinfectant is used prior to disposal into standard waste streams. Caging must be either bagged into biohazard bags for transport to the autoclave or must remain sealed during transport and at all times prior to autoclaving. It is recommended that cage racks be treated with disinfectant prior to removal from animal room.

References:

“NIH Guidelines for Research Involving Recombinant and Synthetic Nucleic Acid Molecules”, National Institutes of Health, current edition.

<https://osp.od.nih.gov/policies/biosafety-and-biosecurity-policy#tab2/>

“Viral Vector Biosafety in Laboratory Animal Research”, Collins, et al., 2017.

<https://pubmed.ncbi.nlm.nih.gov/28662750/>

“Biosafety in Microbiological and Biomedical Laboratories”, Centers for Disease Control and Prevention, current edition. <https://www.cdc.gov/labs/bmbl/index.html>