

University of Hawaii Institutional Biosafety Committee (IBC) Viral Vector Policy

January, 04

All research involving viral vector expression systems must be registered by completing the BSP-3 form “Registration of Experiments for Recombinant DNA Molecules (r-DNA) for Laboratory Use.” This includes those vectors that are not normally believed to pose a risk to human health. It is important that the information included on the registration form be detailed and complete. This information will be used by the Institutional Biosafety Committee and the Occupational and Environmental Health Safety Office to assign the appropriate handling precautions.

The following table shows the prescribed precautions for working with three commonly used vectors. Understand that the precautions outlined below are the minimal requirements for working with each agent. Those systems, which express genes that expand the host range of the vector, or increase the hazard of the virus beyond wild-type, may necessitate higher containment practices and facilities.

<i>Viral Vector</i>	<i>Hazard(s)</i>	<i>Biosafety Level; Animal Biosafety Level</i>	<i>Additional Precautions</i>	<i>Animal Handling (IACUC and LAS approval required)</i>	<i>Transport / Waste Issues</i>	<i>Spills, (Wearing PPE): see Emergency Response Guide</i>
Adenovirus	Droplet, aerosol, injection	BSL-2; ABSL-2 Special considerations for transgenes, ex., toxins, oncogenes, elements that alter host range, immune suppressors, etc.	All work done in BSC; Negative pressure lab preferred; Cuffed lab gown/gloves; EHSO-BSP approved lab audit; SOPs developed and available; Biohazard sign on door	Viruses must be screened for replication competence before injection of animals. SOPs developed and available for animal handling. Special handling of bedding and cages for 48 hours post injection of animals; Incineration or autoclaving of bedding; Incineration of carcasses; LAS assigned signage on cages and doors; Housing approved by LAS	Transport specimens in a secondary, sealed container; All waste autoclaved or incinerated by laboratory staff familiar with precautions	Alert people in immediate area of spill; Allow aerosols to settle; absorb spill with paper towel/lab diaper; expose to 10% bleach for 20-30 minutes; Use paper towels to wipe up spill; Clean spill area with fresh towels soaked in 10% bleach; Place towels in autoclave bag and decontaminate in autoclave. Notify Biological Safety (63197)

<i>Viral Vector</i>	Hazard(s)	<i>Biosafety Level; Animal Biosafety Level</i>	Additional Precautions	Animal Handling (IACUC/LAS approval required)	<i>Transport / Waste Issues</i>	Spills, (Wearing PPE): see Emergency Response Guide
Vaccinia	Aerosol, droplet, injection	BSL-2; ABSL-2 Special considerations for transgenes, ex., toxins, oncogenes, elements that alter host range, immune suppressors, etc. MVA strains encouraged for use	All work done in BSC; Negative pressure lab preferred; Cuffed lab gown/gloves; EHSO approved lab audit; SOPs developed and available; Biohazard sign on door; Consult with Occupational Medicine physician for a medical evaluation regarding vaccination. (Note: use of MVA strains does not require vaccination)	Special handling of bedding and cages post injection of animals; SOPs developed and available for animal handling. Incineration of bedding and carcasses; Workers handling or decontaminating bedding or cages must consult with Occupational Medicine Physician for a medical evaluation regarding vaccination Incineration or autoclaving of bedding; Incineration of carcasses; LAS assigned signage on cages and doors; Housing approved by LAS	Transport specimens in a secondary, sealed container; All waste autoclaved or incinerated by laboratory staff familiar with precautions and who have been evaluated by Occupational Medicine Physician for vaccination.	Alert people in immediate area of spill; Allow aerosols to settle; absorb spill with paper towel/lab diaper; expose to 10% bleach for 20-30 minutes; Use paper towels to wipe up spill; Clean spill area with fresh towels soaked in 10% bleach; Place towels in autoclave bag and decontaminate in autoclave. Notify Biological Safety (63917)

<i>Viral Vector</i>	<i>Hazard(s)</i>	<i>Biosafety Level; Animal Biosafety Level</i>	Additional Precautions	Animal Handling (IACUC/LAS approval required)	<i>Transport / Waste Issues</i>	Spills, (Wearing PPE): see Emergency Response Guide
Retrovirus	Injection, splash to face	BSL-2; ABSL-2 Special considerations for transgenes, ex., toxins, oncogenes, elements that alter host range, immune suppressors, etc.	Sharps precautions emphasized; Full face protection if working outside BSC; EHSO approved lab audit; SOPs developed and available; Biohazard sign on door with agent specified; <i>All work with lentiviruses must be done in a BSC</i>	Work with amphotrophic viruses must be screened for replication competence before injection of animals. Incineration or autoclaving of bedding; Incineration of carcasses; LAS assigned signage on cages and doors; Housing approved by LAS.	Transport specimens in a secondary, sealed container; All waste autoclaved or incinerated by laboratory staff familiar with precautions	Alert people in immediate area of spill; Allow aerosols to settle; absorb spill with paper towel/lab diaper; expose to 10% bleach for 20-30 minutes; Use paper towels to wipe up spill; Clean spill area with fresh towels soaked in 10% bleach; Place towels in autoclave bag and decontaminate in autoclave. Notify Biological Safety (63197)
Lentiviruses		BSL-2 facilities; BSL-3 work practices; <i>ABSL-2 facilities; ABSL-3 work practices</i>				
Other viral vectors <i>Ex., Baculovirus, Adeno-associated virus, Simliki</i>		Use minimum requirements for Adenovirus	Use minimum requirements for Adenovirus	Use minimum requirements for Adenovirus	Use minimum requirements for Adenovirus	

Abbreviations:

LAS: Laboratory Animal Services (Sylvia Kondo, DVM, Director; (956-4444)

PPE: Personal Protective Equipment

BSC: Biological Safety Cabinet

EHSO: Environmental Health and Safety Office (956-8660)