Guidelines for Research Involving Viral Vectors: Adenovirus

Adenovirus. Adenoviruses are non-enveloped, linear double-stranded DNA viruses and are a common cause of upper and lower respiratory tract infections. Adenoviral vectors (viral vectors are viruses that are specifically used to introduce exogenous DNA into host cells) have a high

surfaces at ambient temperatures. Even after treatment with ether or chloroform, they can still be infective.

Laboratory Practices

Biosafety Level 2 practices and facilities must be used for activities involving adenoviruses/viral vectors.

- Biohazard signs and labels must be displayed in areas and on equipment where adenoviruses are used and stored. This includes, but is not limited to, laboratory entrance doors, biological safety cabinets, incubators, refrigerators, and freezers.
- Use a biological safety cabinet (BSC) (a.k.a., tissue culture hood) for manipulations that can generate aerosols, such as pipetting, harvesting, infecting cells, filling tubes/containers, and opening sealed centrifuge canisters. If a procedure cannot be done in a BSC and only on an open bench, use a plastic shield to prevent exposure through inhalation or splashing.
- Use aerosol containment devices when centrifuging. These include sealed canisters that fit in the centrifuge bucket, covers for the centrifuge bucket, heat sealed tubes, or sealed centrifuge rotors. Rotors should be removed and opened inside a BSC. Centrifuge tubes should be filled and opened in a BSC.
- Vacuum lines must be protected with liquid disinfectant traps and 0.2 micron filter.

Personal Protective Equipment

Personnel protective equipment (PPE) includes, but is not limited to

- Disposable gloves (nitrile, latex, etc.)
- Lab coat when working in laboratory. Remove when leaving.
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- Any special handling requirements of soiled bedding/cages.

ABSL-2 carcasses are considered biohazardous and are incinerated.

*Deviation from using a Class II BSC must be approved by the IBC and/or IACUC Committee

Animal use requests are made to the Institutional Animal Care and Use Committee (IACUC).

A complete copy of USA's Animal Biosafety (ABS) Guidelines can be found at: https://southalabama.edu/departments/research/compliance/animalcare/animal.biosafety.guidelines.pdf

Recombinant Adenoviral Research

Protocols involving recombinant adenoviral vectors must be approved by the Institutional Biosafety Committee (IBC).

Employee Exposure

Eye exposure: Rinse eyes with eyewash for at least 15 minutes.
Skin exposure: Cleanse the affected skin area immediately with surgical disinfectant soap, diluted Clorox (0.05%) or other approved disinfectant.
Report Incidents and Seek Treatment: Report actual or suspected exposure incidents to your supervisor immediately. An online incident report must be completed within 72 hours of the incident. This form can be found at: https://jagasp2.southalabama.edu/incident/logon.aspx
If possible, identify and secure the offending sample to contain its biohazardous content and to allow for testing if necessary.

Disinfectants

Disinfectants should be allowed a minimum of 20-30 minutes contact time. Use one of the following:

- Sodium hypochlorite (use 1:10 dilution of fresh bleach)
- 5% Phenol

Note: Alcohol is not an effective disinfectant against adenovirus.

Decontamination

Autoclave cultures for 30 minutes at 121°C or 250°F (15 lbs per square inch of steam pressure). Disinfect work surfaces using an effective germicide (see above). This may be followed by an alcohol wipe to lessen the corrosive nature of the germicide.

Transport Requirements

Materials must be appropriately contained and labeled for transport within the University. Shipping infectious substances, diagnostic specimens, and/or shipping with dry ice off-campus require training and certification. See Shipping and Packaging Biological Materials posted on the USA Biosafety training website for additional information.

Information and References

University of Iowa Environmental Health and Safety
https://ehs.research.uiowa.edu/adenovirus-and-adenoviral-vectors