|  |  |  |
| --- | --- | --- |
| PI: |  | C:\Users\chips.CAMPUS\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\BZS5U11S\Biohazard_symbol_(red).svg[1].pngBiosafety Level 1 |
| Agent(s): | Adeno-associated virus, AAV |
| Date SOP Created: |  |

*Instructions: Insert specific details pertaining to your research and delete irrelevant procedures; contact EH&S at 642-3073 or OLAC at 642-9232 as needed for assistance.*

|  |  |
| --- | --- |
| Hazard Information | *Work with adeno-associated virus and other recombinant DNA agents handled at biosafety level 1 require a BUA and may only be performed in reserved, pre-approved locations on campus. See* [*http://ehs.berkeley.edu/biosafety*](http://ehs.berkeley.edu/biosafety) *or contact EH&S at 642-3073 for authorization and biosafety training prior to beginning work.*  AAV cultures are not known to cause disease in humans or animals; however, they should be handled as potentially infectious material due to the possibility of recombination to form wild type virus.  Avoid direct contact with skin and mucous membranes of the eyes, nose and mouth. No food or drink is allowed in the lab. Remove gloves and wash hands carefully before leaving. Please note, the highest risk of human infection is via accidental parenteral injection; careful handling and disposal of sharps is required. Deposit used sharps directly into a rigid sharps container. **NEVER** recap needles. Hazards of aerosol exposure are unknown.  Hazards specific to your vector and route of administration: |
| Personal Protective Equipment (PPE) | when working in a biosafety cabinet:  Lab coat  Gloves  when working with animals:  Disposable gown  Gloves  when working outside a biosafety cabinet include:  Eye protection  Surgical mask or face shield  *Additional PPE specific to your research:* |
| Preparation | *List procedures used. Be specific about the physical form (solid, liquid, etc.) and locations for work (bench top, fume hood, biosafety cabinet), and personal protective equipment (PPE) to be worn when handling the material.*  Viral vectors will be purchased/obtained from *(List provider)*. Package will be kept intact with shipping documentation and/or maintained in double containment with proper labeling, including PI name and contact information.  *Other specific preparation steps (with location):* |
| Transportation | Virus will be carried in an easily decontaminated, leak-proof, secondary container labeled with material, PI name and contact information to NAF 120F, LSA 640, or Minor 599E *(choose location or list approved location)*. |
| Use | While working in NAF 120F, LSA 640, or Minor 599E *(choose location or list approved location)* with virus, the following PPE must be worn: **Disposable Gown, Gloves, Face Shield.**  *Description of infection procedures:*  *Example: “We will use helper-virus free, 3 vector cotransfection for virus packaging. pHelper (carrying adenovirus-derived genes) and pAAV-RC (carrying AAV-2 replication and capsid genes), which together supply all of the trans-acting factors required for AAV replication and packaging in the AAV-293 cells. AAV culture supernatant will be injected into mouse brain using stereotaxic injection apparatus.”* |
| Disposal and Disinfection If unsure, contact EH&S at 642-3073 to determine disposal procedures. | * Decontaminate all work surfaces and equipment with 70% ethanol or 10% bleach. * All used sharps must be immediately placed into a rigid sharps container. DO NOT recap needles. When 2/3 full, these containers should be placed in a red barrel for disposal as biohazardous waste. * All potentially contaminated lab debris should be collected in a red biohazard bag in a rigid container within NAF 120F, LSA 640, or Minor 599E *(choose location or list approved location)* for disposal as biohazardous waste. * Any waste ethanol, if not absorbed, should be decanted from solid waste and disposed as chemical waste, see [*http://ehs.berkeley.edu/hazardous-materials*](http://ehs.berkeley.edu/hazardous-materials) for guidance. * Infectious liquid waste, including excess suspended virus, will be treated to create an overall 10% bleach solution for 30 min, and may then be drain disposed. * After infection, cages may be returned directly to standard ABSL1 housing but the cage card (obtain from OLAC) must be labeled to indicate the agent, date of administration and contact information. The investigator will use the already-established yellow "Investigator Will" cards and check the box for cage change and indicate the date that the cage change will occur (must be at least 72 hours post infection). Cages and bedding must be treated with 10% bleach or NPD prior to returning to OLAC for cage washing. OLAC may resume immediate care of animals after cage change. |
| Spill Response and Emergency Procedures | Susceptibility to disinfectants: - 1% sodium hypochlorite, 2% glutaraldehyde, 0.25% sodium dodecyl sulfate...10% bleach appears to be the most appropriate disinfectant for AAV  *Disinfectant to be used:*  Injury: If eye or skin contact occurs, wash affected areas with copious amounts of water for 15 minutes and IMMEDIATELY seek medical advice. If inhaled, move individual to fresh air and IMMEDIATELY seek medical advice, call 911. [Rescue breathing, CPR may be needed.] If swallowed, seek IMMEDIATE medical advice.  Report the incident to your supervisor and the Occupational Health Clinic at 2-6891 for follow up.  Medical attention during normal business hours: Tang Center Urgent Care (2-3188 or 3-7197); after hours go to urgent or emergency care: Alta Bates Hospital at 2450 Ashby (204-4444). |
| Hazard Communication (signs, cage cards, etc.) | All researchers handling this material must read and sign this document.  Animals injected with AAV may be immediately returned to standard ABSL1 housing for resumption of OLAC care with no further precautions required, but the cage card should indicate the vector name and date of injection.  EH&S and an OLAC veterinarian must review and date this SOP prior to starting this work within an animal facility. During injections this SOP must be posted in a plastic sleeve on the door of NAF 120F, LSA 640, Minor 599E *(choose location or list approved location)* to notify OLAC staff and other personnel. |
| Unique Instructions | Coordinate use of NAF 120F, LSA 640, Minor 599E *(choose location or list approved location)* with the OLAC Facility Manager.  *Other unique procedures:* |
| Additional Information or References | Refer to applicable protocols and authorizations, e.g. the lab’s Biohazard Use Authorization, MAUP/eProtocol, SDS available at <http://ehs.berkeley.edu/hazardous-materials/safety-data-sheets-formerly-msds>, your lab’s chemical hygiene plan, or contact your supervisor or EH&S at 642-3073 for further guidance.  Useful additional information:  <http://www.stanford.edu/dept/EHS/prod/researchlab/bio/docs/Working_with_Viral_Vectors.pdf>  [*http://www.phac-aspc.gc.ca/msds-ftss/msds84e-eng.php*](http://www.phac-aspc.gc.ca/msds-ftss/msds84e-eng.php)  *Other required protocols or references:* |

|  |  |  |
| --- | --- | --- |
| **Print Name (last, first)** | **Signature** | **Date Plan Reviewed** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

PERSONNEL SIGNATURES

EH&S Review (Name/Date):­ 642-3073

OLAC Representative Review (Name/Date): 642-9232