# Biosafety Program for Animal Biosafety Level 2 Facility at University of California San Francisco

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# Introduction

- **Graduate programs only at the University of California, San Francisco (UCSF)**
- **Animal research plays an important role in biomedical research for understanding the mechanisms of diseases and development of effective treatments**
- **Approximately 600 labs using biological materials (BUA), over 500 animal (IACUC) protocols**
- **Two types of Animal Biosafety Level 2 (ABSL2) facilities at UCSF:**

  **1) ABSL2 rooms- Risk Group 2 biological agents, NHP, Sheep**

  **2) ABSL2 viral shedding rooms- Risk Group 2 viral vectors**

# Animal Use at UCSF

- **Approval must be obtained from IACUC before animal research may begin**
- **Use of biological agents on animals must be approved by IBC and IACUC**
- **All UCSF employees/researchers who have contact with animals are required to participate in health surveillance program**
- **Types of ABSL2 rooms:**
  - **ABSL2 viral shedding rooms - Risk Group 2 viral vectors**
  - **ABSL2 rooms - Risk Group 2 biological agent, NHP, Sheep**

# Challenges

**How to minimize the hazard/risk and work safely with animals administered with hazardous materials is a big challenge to occupational and safety professional.**

# UCSF Safety Program

- Multiple departments to implement institutional health and safety programs:
  - –Environment Health and Safety (EH&S)
  - –Institutional Animal Care and Use Committee (IACUC)
  - –Laboratory Animal Resource Center (LARC)
  - –Occupational Health Services (OHS)
- Provides safety guidelines for all individuals who are involved in the care and use of research animals
  - Hazards and risks
  - Educational and preventive programs

# Biosafety at Animal Facilities

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# Overview of UCSF Biosafety Program

- As a voting member of IACUC, Biosafety officer (BSO) attends IACUC meetings to evaluate use of hazardous biological, chemical, and radioactive materials on animals.
- Standard Operating Procedures (SOPs)*
- Annual classroom Safety training for animal care staff*
- Personal Protective Equipment (PPE) requirement*
- Signage*
- Engineering controls and safety equipment
- Joint inspections with IACUC
- ABSO as safety specialist for LARC and manages the use of hazardous materials

# Safety Training For Animal Care Staff

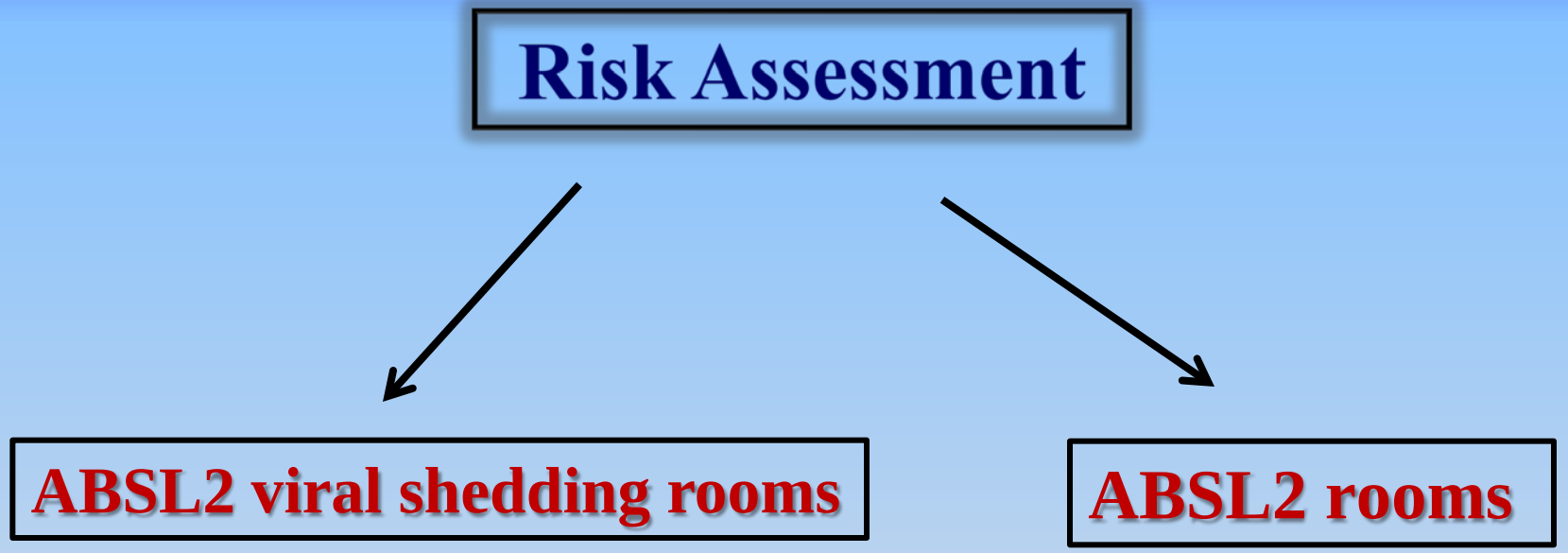
- **Annual in-person training**
  - **Hazards and risks**
  - **Exposure controls**
  - **Biosafety**
  - **Chemical,  Radiation, Fire and Life Safety**
  - **Entrapment danger (bulk autoclaves, rack washers)**
  - **Ergonomics**

# Safety Training For Researchers

- **Depends on biological materials and species used, researchers are required to complete biosafety-related trainings:**

**-Laboratory Safety Training for Researchers**
**-Bloodborne Pathogens Training**
**-Biosafety Training**
**-Herpes B Virus Training**
**-Q fever Training**

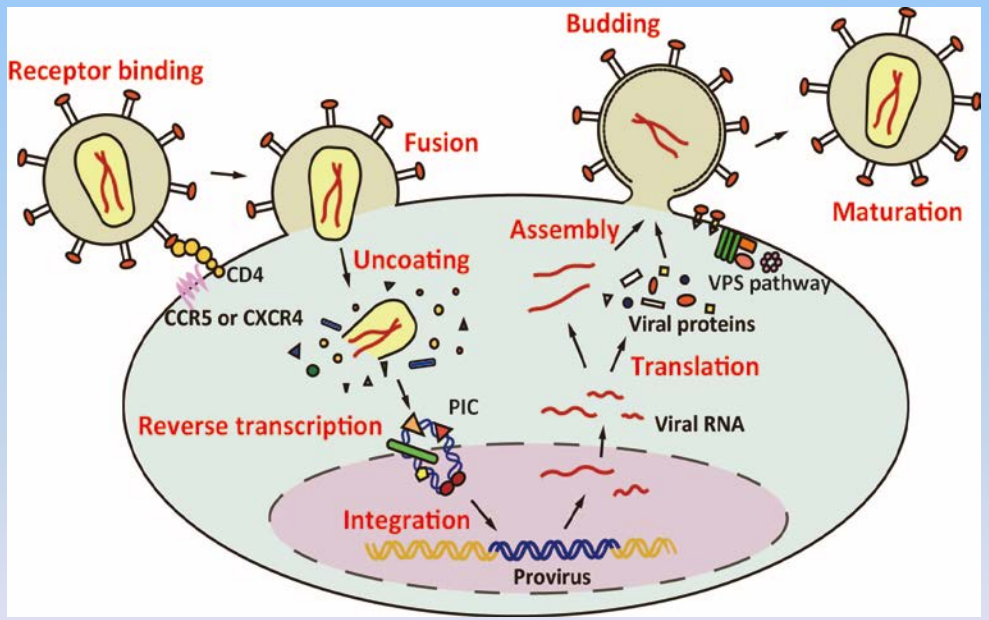
# ABSL2 Rooms at UCSF

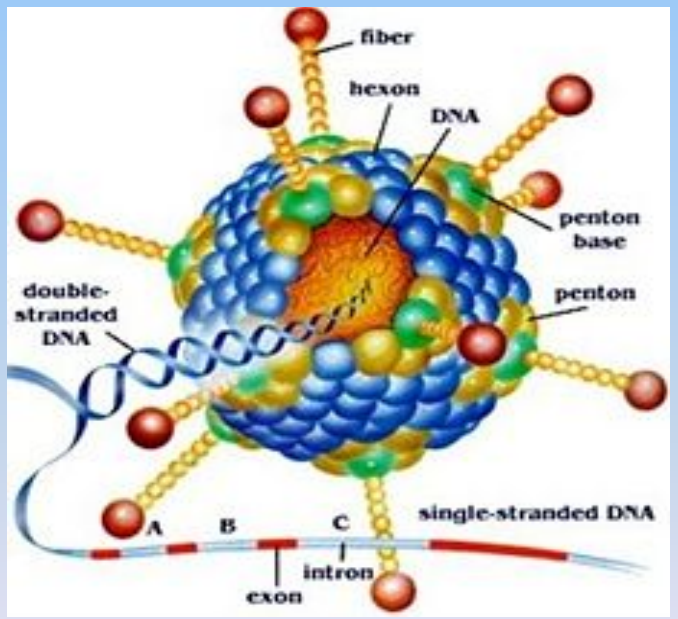


# ABSL2 Requirements & Practices

- **ABSL2 room must be approved by LARC and EH&S**
- **ABSL2 sign must be posted on door**
- **Access available to approved personnel only**
- **Users and LARC staff must complete specific training(s)**
- **Additional PPE depends on risk assessment**
  **-Outer PPE must be removed before exiting ABSL2 room (if double PPE is required)**

# ABSL2 viral shedding facility



# ABSL2 Viral Shedding facility

## Type 1: ABSL2 Viral Shedding facility

- **Use of lentivirus, adenovirus and other risk group 2 (RG) 2 viral vectors on animals.**

- **Contact the LARC supervisor PRIOR to beginning work**
- **Label cage cards with biohazard labels**
- **House animals in ABSL2 Viral Shedding facility for 48 hours post-injection**
  - **Lab personnel only will care for animals during this period**
- **After 48 hour viral shedding period, lab personnel place animals in clean cages, decontaminate cages with 10% bleach, and remove biohazard labels**
- **Return animals to regular housing area after the above procedures are completed.**

***-Follow all ABSL2 requirements and practices when working at ABSL2 Viral Shedding facility (http://www.ehs.ucsf.edu/using-risk-group-2-viral-vectors-rodents-absl2-viral-shedding-facility-0).***

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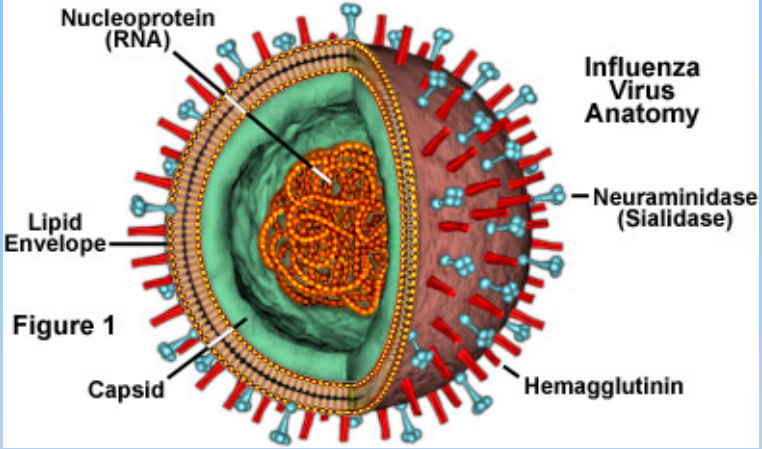
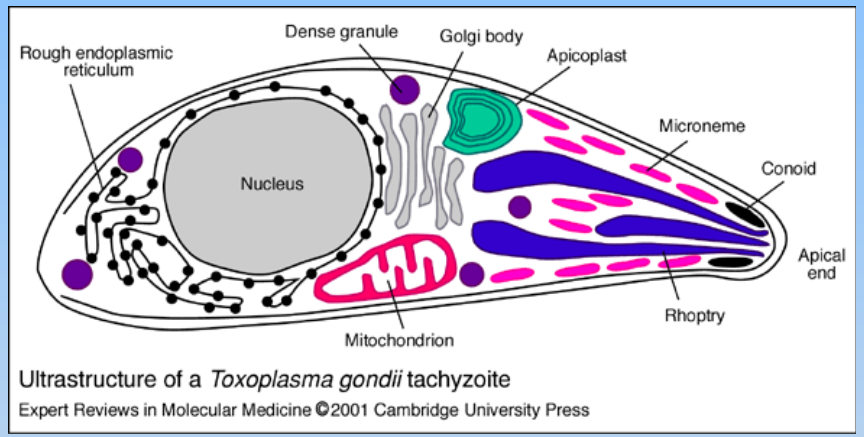
# ABSL2 Viral Shedding Requirements & Practices


- **Label cage(s) with a biohazard label**
- **Use Biosafety Cabinets for procedures involving manipulation of infectious agent(s)**
- **Employ anesthesia and restraint devices for manipulation of infectious agent on animals**
- **Follow SOP**
  - **Dispose of animal bedding and infectious agents as biohazardous waste**
  - **Dispose of animal carcasses as pathological waste**
- **Follow PPE requirements**

# ABSL2 facility




# ABSL2 facility

- **Another type of ABSL2 facility includes the use of other RG2 infectious agents (e.g. S. aureus, influenza virus, etc.), primary human cells, or human tissue in animals.**
  - **Contact LARC supervisor PRIOR to beginning work**
  - **Label cage cards with biohazard labels, enter name of RG2 infectious agent(s) and date of administration**
  - **Use biosafety cabinets for procedures involving manipulation of infectious agent(s)**
  - **During the entire experimental period, animals must be housed only in ABSL2 rooms. LARC staff will provide husbandry care**
  - **Wear double PPE. Outer PPE must be removed before exiting ABSL2 rooms**

***-Follow all ABSL2 requirements and practices when working at ABSL2 facility (http://www.ehs.ucsf.edu/ucsf-procedures-using-infectious-agents-rodents-absl2-facilities)***

# ABSL2 Requirements & Practices


- **Label cage(s) with a biohazard label**
- **Use Biosafety Cabinets for procedures involving manipulation of infectious agent(s)**
- **Employ anesthesia and restraint devices for manipulation of infectious agent on animals**
- **Follow SOP**
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# Institutional Collaborations

- **BSO attends IACUC meetings**
- **LARC veterinarian attends Institutional Biosafety Committee (IBC) meetings**
- **Safety Consideration meetings:**
  - **Higher-risk, complicated, or unusual animal projects are subject to a Safety Considerations meeting**
  - **Attendees: scientists, animal facility staff, BSO, IACUC, and OHS**
  - **Project details and risk assessment**
  - **Special conditions: Occupational health concerns, medical surveillance**

# Conclusions

- **The implementation of the safety program for designated ABSL2 facilities at UCSF provides researchers and animal care staff a better understanding of risks and hazards involved in animal research with risk group 2 biological materials.**

- **Collaborations between Biosafety group, IACUC, LARC, and OHS ensure a safe working environment for animal care staff and laboratory personnel.**

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