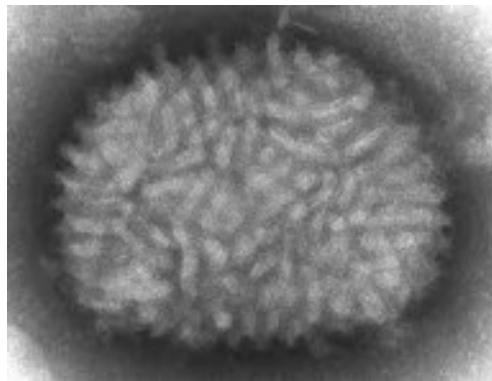


## Guidelines for Working with Vaccinia Virus and Other Orthopoxviruses

### Background Information

Vaccinia virus is the prototype of the genus *Orthopoxvirus* which contains poxviruses that infect humans: variola virus (causes smallpox in humans only), monkeypox virus and cowpox virus. There are multiple strains of vaccinia virus that have different levels of virulence for humans and animals.

“Standard” vaccinia virus was used historically as a vaccine to immunize humans against smallpox. [The Centers for Disease Control and Prevention \(CDC\)](#) is the only source of vaccinia vaccine; the CDC can provide the vaccine to protect certain laboratory and health-care personnel whose occupations place them at risk for exposure to vaccinia and other closely related Orthopoxviruses, including vaccinia recombinants. Vaccinia vaccine is not available to the public. The ability of the vaccinia virus to replicate in human cells presents a risk for serious human infection.



**Vaccinia virus**

Vaccinia virus is a large, complex, enveloped virus belonging to the poxvirus family.

### Procedures for Laboratory Use of Vaccinia Viruses

All laboratory personnel who directly handle cultures or animals contaminated with standard non-attenuated vaccinia virus, recombinant vaccinia viruses or other similar orthopoxviruses that infect humans, must follow Biosafety Level 2 (BSL-2) and Animal Biosafety Level 2 (ABSL-2) practices and procedures.

Appropriate personnel protective equipment (PPE) required for handling vaccinia:

- Laboratory coat
- Gloves
- Eye protection

For complete descriptions of BSL-2 and ABSL-2 please see [Biosafety in Biomedical and Microbiological Laboratories \(BMBL, 6th edition\)](#).

### Exposure Protocol

Each person who will be working with vaccinia viruses needs to know the procedures to follow in case of exposure to vaccinia virus:

- If eye exposure, irrigate with water from an eyewash for 15 minutes
- If skin exposure, wash thoroughly with soap and water
- Seek medical help.

## Employees

The employee must choose a treating doctor from the list of physicians in the [Workers' Compensation Healthcare Network](#). Arrangements have been made through Concentra Medical Center so that the employee does not incur any out-of-pocket expense. For convenience, an employee may report to one of the following closest locations:

[Concentra Medical Center](#) (south) and [Concentra Medical Center](#) (north)

When checking in at the clinic, the individual should indicate that he/she is an employee of the University of Texas at Arlington (UTA) and present the [Notification of a Work-Related Injury or Occupational Disease](#) (CO-EHS-F403) along with the [Workers' Compensation Pharmacy Information](#) (CO-EHS-F404).

## Students

Students can choose: UTA Health Services, ext. 2-2771 or 817-272-2771, Concentra Medical Center (see above), or a treating doctor of their choice.

- When seeking medical advice, it is important for the treating physician to know potential occupational exposure to vaccinia virus may have occurred.
- UTA will not be responsible for payment of any medical bills or other conditions that may arise due to the exposure to this agent.

## Reporting

### Employees

The affected employee is required to complete the [Employee's Report of Work-Related Injury or Occupational Disease](#) (CO-EHS-F401) and the [Workers' Compensation Network Acknowledgement](#) (CO-EHS-F404). The affected employee's supervisor must complete [Supervisor's Report of Employee Work-Related Injury or Occupational Disease](#) (CO-EHS-F402) and give a copy of the [Notice of Network Requirements for UT System](#) to the employee. These forms must be submitted within 24 hours of reporting the incident exposure to the UTA Environmental Health & Safety Office (EH&S) via fax at 817-272-0273. The originals should be sent to EH&S via campus mail at Box 19257. If the employee seeks medical attention, [Notification of a Work-Related Injury or Occupational Disease](#) (CO-EHS-F403) should be given to the medical provider.

### Additional Information

If there are any questions, contact the Workers' Compensation Claims Analyst in EH&S at 817-272-5563.

### Students

The supervisor or Principal Investigator (PI) overseeing the student's coursework or research should submit an [Injury/Illness Reporting Form for Students & Visitors](#) (CO-EHS-F414) to EH&S via email to [ehsafety@uta.edu](mailto:ehsafety@uta.edu) or via fax to 817-272-2144 within 24 hours from notification of the incident exposure. The original should be mailed to EH&S via campus mail at Box 19257.

The student is required to complete the [Injury/Illness Reporting Form for Students & Visitors](#) (CO-EHS-F414) within 24 hours of reporting the incident exposure. The original should be mailed to EH&S via campus mail at Box 19257.

### Additional Information

If there are any questions, please contact EH&S at 817- 272-2185.

### **Important Information for Laboratory Personnel Handling Vaccinia Virus or Sharing a Facility Where Vaccinia Is Used**

To prevent cases of laboratory-acquired vaccinia virus infection:

- Sharps use should be avoided as inoculation injuries carry a much higher risk of transmission of infection.
- Areas of broken skin are also vulnerable and those with skin abrasions or pre-disposing skin conditions should refrain from working with the virus if there is potential for the broken skin to be exposed to it.
- It is possible for one infected area to contaminate and infect another (e. g., finger to eye).
- Vaccinia and other pox viruses have the capacity to survive for considerable periods in dried material. Survival in solutions can be for several weeks. Live virus can also be isolated from solid surfaces and fabric for as long as two weeks after contamination.
- Good containment and general control measures, as well as laboratory procedures such as hand washing and cleaning of surfaces after use should suffice to remove the risk of transmission of virus. However, it is important that all personnel working with vaccinia, or sharing a facility where such work is undertaken, are aware of the risks of working with this type of virus and can recognize the signs and symptoms of the disease.
- Pictures of vaccinia virus infections (CDC): <https://www.cdc.gov/smallpox/clinicians/vaccine-adverse-reaction-images.html>

### **Information for All Workers Directly Handling Vaccinia**

Workers handling vaccinia virus should regularly inspect the skin of their hands and forearms and cover any cuts, scratches, or areas of defective skin with waterproof dressings before putting gloves on. Skin and eyes should be inspected daily while working with vaccinia virus. Gloves should be worn during all procedures involving vaccinia. Individuals directly handling vaccinia must get advice from a medical professional if they have any reason to think that their immunity may be reduced—for example by pregnancy, high dose steroid treatment or chemotherapy, or human immunodeficiency virus (HIV) infection.

### **In Summary**

- Always follow good laboratory practices.
- Always follow the containment and control procedures of your laboratory.
- Pay attention to hand washing and avoid touching your mouth or eyes when in the laboratory.
- Ensure that spillage/decontamination procedures are in place and are used.
- Regularly decontaminate ALL surfaces and equipment that have come in contact with the virus.
- Laboratory coats must be autoclaved before being taken to be washed.
- Consider the possibility of vaccinia exposure if you develop a skin or eye lesion, e.g., a persistent blister or sore. Report any blisters, vesicles, or conjunctivitis to the PI/laboratory supervisor.

Revised 8-9-2023