

Standard Operating Procedure SARS-CoV-2 Inactivated Virus

Purpose

To outline the steps required to safely handle inactivated SARS-CoV-2 and to describe the process for safe disposal of waste generated by working with this material. All inactivated virus should be considered potentially infectious.

Prior to Beginning Work

All staff working with Containment Level 2 biological receive research specific training by the PI, and complete Biosafety training in addition to all other EHS safety training.

Personal Protective Equipment Requirements

1. Wear appropriate personal protective equipment (PPE) when handling SARS-CoV-2 or performing sections of this protocol:
 - a. Mask
 - b. Nitrile gloves
 - c. Lab coat or gown
 - d. Safety glasses
2. All handling of virus must be performed inside a biosafety cabinet.

Materials and Equipment

- PPE
- Yellow biowaste bin
- Autoclave/biohazard bags
- Pipettes and pipette tips
- 1% sodium hypochlorite solution
- Beaker for pipette tip disposal
- Biosafety cabinet

Any breach of the skin (scratch, cut, wound) needs to be protected from contact with virus. Cover open wounds, cuts, scratches, and grazes with waterproof dressings and gloves. If you exhibit any open wounds in areas that cannot be covered by dressings or clothing, re-evaluate work in process. If aerosols may be created, a full-face shield should be worn.

Procedure

All pipette tips used in this procedure should be discarded into a beaker containing 1% sodium hypochlorite solution and let it sit for 30 minutes.

1. Decontamination of BSC; refer to BSC standard operating protocol.
2. Handle virus in BSC while wearing full PPE.
3. After handling virus, and ensuring tips are disposed of, treat any liquid waste with a 1% sodium hypochlorite solution. Allow the solution to stand for at least 30 minutes before rinsing solution down the drain.
4. Wipe down surfaces with 1% sodium hypochlorite and 70% ethanol.
5. Discard gloves into yellow biowaste bin.
6. Wash hands with soap and water.

It should be noted that in step 2, the handling of the virus will only entail performance of antigen and antibody assays which based on the government of Canada's biosafety advisory¹ states that biosafety level 2 is appropriate. We will mix the virus with an antibody and allow it to incubate while inside the BSC and observe for agglutination of the virus and antibody. Unlike many biologists who may be lysing the virus, extracting, concentrating it, etc. (which may be perceived as dangerous), we are NOT doing this, we are strictly doing an antigen and antibody assay.

References

- 1) <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/biosafety-directives-advisories-notifications/novel-coronavirus-january-27.html>