Laboratories that work with SARS-CoV-2 genetic materials, amplify SARS-CoV-2 genes, or perform molecular cloning of SARS-CoV-2 genes, must adhere to strict protocols to prevent spreading these materials to lab spaces and personnel. *Nucleic acid residue in an individual's nasal passage may trigger a laboratory-associated positive COVID-19 test result - this can cause public health directed isolation of the individual and temporary shutdown of the lab*.

Standard practices that can be followed to help eliminate amplicon contamination in research labs:

Equipment and workspace

- Aerosol producing procedures should be performed in setting that contain generated aerosol. Examples of aerosol generating activities include liquid transfer steps and open containers/removing lids.
    - Use aerosol-tight rotors and safety buckets. Load and unload centrifuge cups inside biosafety cabinets.
    - Be wary of plate-sealing film. Removing the film can generate an aerosol.
    - Do all work with open containers containing SARS-CoV-3 genetic material in a biosafety cabinet.
    - Avoid the use of clean benches or PCR hoods, which blow air at the user or back into the room with filtering – always use a biosafety cabinet with proper filtration.
- Ensure that any vacuum equipment is fitted with a HEPA filter.
- Setup work zones so that workflow is unidirectional moving from pre-amplification to post-amplification environments. Shower after being a post-PCR workspace and before testing.

Performing experiments and experimental design

- Ensure cultures that contain cloned SARS-CoV-2 genes are sealed before placing them on shaking incubators.
    - Work with cultures that contain cloned genes from SARS-CoV-2 inside a certified biosafety cabinet, though the work may not pose a biological risk to the researcher.
    - Use shake flasks with vented cap closures (e.g., a 0.22µm (PTFE) hydrophobic membrane), rather than aluminum foil, which still allow air exchange but decrease the potential of contamination.
- Use aerosol resistant tips for all pipetting tasks.
- When possible, use different amplicon from or codon variants of amplicons used in diagnostic assays.
- For transport – place materials into a sealed primary container. Place the primary container into a secondary container which has been cleaned with bleach. The secondary container should contain appropriate absorbent materials in the event of a leak or spill.

Cleaning and disposal

- Clean bench areas daily with fresh 10-20% fresh bleach solutions (0.5-1% sodium hypochlorite) to eliminate amplicons. Contact time is important - leave surfaces wet for 10 minutes.
    - Dilute bleach breaks down rapidly. Make fresh bleach solutions daily, ensure containers are labeled for the contents and date. Note: other specialty cleaners are available and may need to be considered to clean certain instruments or laboratory equipment.
    - Ethanol and isopropanol will not remove amplicons!
- Add bleach to cultures contains SARS-CoV-2 genetic material in a BSC and let sit for at least 30 minutes before disposal.
- Do not overfill biosafety disposal containers.
- Dispose of amplified material as soon as possible.
- Seal biosafety disposal bags as soon as they are ready for destruction.

Personnel protection

- Test first! Personnel should schedule their regular surveillance test for SARS-CoV-2 before starting work in the lab for the day. Shower after leaving the lab.
- Do not leave the lab wearing PPE or take PPE home for laundering. All PPE should be laundered through campus laundry programs.
- Change gloves frequently and do not wear gloves out of the lab.
- Masking is required on campus. Use clean, lab-only medical masks that stay in the lab and are disposed of at the end of the workday.
    - Use face shields for work with cultures or volumes of plasmid DNA.
    - Use a clean lab coat, gloves, and safety glasses.
- Do not bring personal items into the lab – including cell phones, pens, tablets, and other devices which may go back to personal workspaces or homes!
- Be conscious of touching lab notebooks. It is very difficult to decontaminate DNA introduced to lab notebooks.