### SARS-CoV-2 (COVID-19) Research Laboratory Biosafety Guidelines

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<th>Research Activities with Known or Likely Infected Specimens from Humans or Animal Models</th>
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| • Storage and laboratory work with seed stocks, working stocks or specimens\(^1\) with the intent to grow or use live virus at Duke.  
  • Virus isolation, characterization and/or expansion  
  • Viral cultures or isolates should be transported as Category A, UN2814, "infectious substance, affecting humans" \(^2\)  
  • Use of live SARS-CoV-2 virus in functional assays:  
    • Plaque/Focus Forming Unit assays  
    • Serologic virus capture/binding assays  
    • Therapeutic MIC assays  
    • Live cell sorting with intact virus  
  • Use of live SARS-CoV-2 virus in animal  
  • Processing, aliquoting or preparing specimens\(^1\) for research use and storage  
  • Preparation of chemical- or heat-fixed specimens\(^1\) for microscopic analysis  
  • Nucleic acid extraction of specimens\(^1\) for molecular analysis  
  • Preparation of inactivated specimens for other laboratory assessments  
  • Performing diagnostic tests (e.g. serology) that do not involve activities with the potential to propagate virus  
  • Inoculating bacterial or mycological culture media  
  • Molecular analysis of already extracted nucleic acid preparations  
  • Analysis of specimens\(^4\) that have been inactivated by a method approved by Duke Biological Safety.  
  • Final packaging of specimens\(^4\) already in a sealed, decontaminated primary container for transport to collaborating laboratories for additional analyses  
    • Specimens from suspected or confirmed cases should be transported as UN3373, "Biological Substance, Category B  
    • Pathologic/microscopic examination of fixed specimens\(^1\) (e.g. formalin-fixed tissues or glutaraldehyde-fixed grids).  
    • Routine staining and microscopic analysis of fixed smears  
    • Routine examination of bacterial and mycotic cultures  | BSL-3/ABSL3\(^3\) | Scott Alderman, MS, CBSP  
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\*Please note that all proposed research with SARS-CoV-2 (COVID-19) requires review by the Biological Safety Division of OESO and will require approval of a Standard Operating Procedure (SOP) for the research. In addition, some research will also require approval by the Institutional Biosafety Review Committee (IBRC) and/or the Institutional Biosafety Committee (IBC), which will be coordinated by OESO-Biological Safety Division. For details, email biosafety@duke.edu.

\(^1\) Specimens are defined as, but not limited to, blood, serum, plasma, tissues, feces, urine, sputum, mucosal swabs or washes/secretions collected from any species.

\(^2\) For assistance with required import permits and export licenses contact Duke Office of Export Controls (export@duke.edu; 919-613-6800).

\(^3\) Animal Biosafety Level-3 (ABSL-3)

\(^4\) Required enhancements to standard BSL2:

- Any procedure with the potential to generate aerosols or droplets (e.g., flipping open snap-cap tubes, pipetting, vortexing, cell sorting, ELISA plate washing) should be performed in a certified Class II Biological Safety Cabinet (BSC). BSC must be decontaminated with an EPA approved disinfectant for coronavirus.

- If a BSC is unavailable for aerosol or droplet generating procedures, a combination of PPE (lab coat, gloves, and mucous membrane and respiratory protection such as a N95 respirator with a faceshield, safety glasses, or goggles) along with equipment (e.g. splash guards, sealed centrifuge rotors, and/or gasketed centrifuge caps) must be implemented. N95 users must be adhere to the Respiratory Protection Policy.

- The use of sharps should be eliminated wherever possible. When the use of sharps is unavoidable, strict sharps safety measures must be followed.