# 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 USF.  
  • Virus isolation, characterization and/or expansion  
  • Recovery of viral agents in cultures of SARS-CoV-2 specimens  
  • 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  
  • Culturing patient samples in cell-based assays  
  • Serologic virus capture/binding assays  
  • Therapeutic MIC assays  
  • Live cell sorting with intact virus  
  • Genetic modification of virus  
• Use of live SARS-CoV-2 virus in animal | BSL-3/ABSL3\(^3\) | Thomas Unnasch, Ph.D.,  
  Director, USF Global Health BSL-3 facility  
  (tunnasch@usf.edu) |
| • Procedures with a high likelihood to generate aerosols or droplets  
• 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 | BSL-2 with enhancements\(^4\) | USF Biosafety Office (biosafety@usf.edu)  
  USF Biosafety Website |
| • Molecular analysis of already extracted nucleic acid preparations  
• Analysis of specimens\(^1\) that have been inactivated  
• Final packaging of specimens\(^1\) 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  
  • Performing electron microscopic studies with glutaraldehyde-fixed grids | BSL-2 | USF Biosafety Office (biosafety@usf.edu)  
  USF Biosafety Website |

*Please note that all proposed research with SARS-CoV-2 (COVID-19) requires review and approval by the USF Institutional Biosafety Committee (IBC) coordinated by the Biosafety Office, biosafety@usf.edu.*

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

\(^2\) For assistance with required import permits and export permits contact USF Biosafety Office (biosafety@usf.edu) or USF Export Control (exportcontrol@usf.edu).

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

\(^4\) Required Enhancements to standard BSL-2:

- Any procedure with the potential to generate aerosols or droplets (e.g. vortexing, cell sorting, ELISA plate washing) will be performed in a certified Class II Biological Safety Cabinet (BSC). BSC must be decontaminated with an EPA approved disinfectant for coronavirus.
- Personnel will wear a closed front gown, face shield and double pair of gloves.
- Centrifugation of specimens must be performed using sealed centrifuge rotors or sample cups.
- The use of sharps should be eliminated wherever possible.