

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

Research Activities with Known or Likely Infected Specimens from Humans or Animal Models	Assigned Biosafety Level	Contact for Help, Approvals & Access to Appropriate Laboratory Facilities
<ul style="list-style-type: none"> Storage and laboratory work with seed stocks, working stocks or specimens¹ with the intent to grow or use live virus. <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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 	BSL-3/ABSL3³	Not permitted at MUSC
<ul style="list-style-type: none"> Processing, aliquoting or preparing specimens¹ for research use and storage Preparation of chemical- or heat-fixed specimens¹ for microscopic analysis Nucleic acid extraction of specimens¹ for molecular analysis Preparation of inactivated specimens for other laboratory assessments Performing diagnostic tests (e.g. serology) that <u>do not</u> involve activities with the potential to propagate virus Inoculating bacterial or mycological culture media 	BSL-2 with enhancements⁴	<p>Christina Voelkel-Johnson, Ph.D. Biosafety Officer johnsocv@musc.edu</p> <p>Occupational and Environmental Safety Office Phone: 843-702-3604 OSHP manager: Jeanette Rehrig rehrig@musc.edu</p>
<ul style="list-style-type: none"> Molecular analysis of already extracted nucleic acid preparations Analysis of specimens¹ that have been inactivated by a method approved by MUSC. Final packaging of specimens¹ already in a sealed, decontaminated primary container for transport to collaborating laboratories for additional analyses <ul style="list-style-type: none"> • Specimens from suspected or confirmed cases should be transported as UN3373, “Biological Substance, Category B”² Pathologic/microscopic examination of fixed specimens¹ (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-2	<p>Christina Voelkel-Johnson, Ph.D. Biosafety Officer johnsocv@musc.edu</p> <p>Occupational and Environmental Safety Office Phone: 843-702-3604 OSHP manager: Jeanette Rehrig rehrig@musc.edu</p>

***Please note that proposed storage and testing of samples from SARS-CoV-2 (COVID-19) patients and future research with these samples requires review by the Biosafety Officer and University Risk Management and will require approval of a Standard Operating Procedure (SOP). IBC approval may also be required. Regulatory approvals for patient sample collection must be in place. MUSC is not allowing research projects involving SARS-CoV-2 (COVID-19) while under modified operation, since PPE priority is given to clinical personnel.**

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 **University Risk Management**.

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. 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.