



SARS-CoV-2 Biosafety and Biocontainment Research Guide

	Activities/Materials Examples	IBC-Related Actions	Biosafety Requirements
BSL-3 Lab research activities involving the handling of the SARS-CoV-2 virus or aerosol-generating procedures with viable clinical specimens or tissues known to contain the virus	<ul style="list-style-type: none">Virus isolation in cell cultureInitial characterization of viral agents recovered in cultures of SARS-CoV-2Processing of large volume specimens known to contain the virusFACS/High Speed Cell Sorting	<ul style="list-style-type: none">Restricted activity. Contact Biosafety Officer (BSO) directly for information.	<ul style="list-style-type: none">Operational BSL-3 lab with personnel who have completed BSL-3 lab training through a recognized program and have been deemed proficient by experienced BSL-3 laboratorians in conjunction with the BSO and BSL-3 Facility Director.
BSL-2 with Enhancements Aerosol-generating lab activities with viable/unfixed clinical specimens from known or strongly suspected COVID+ individuals	<ul style="list-style-type: none">Centrifugation, vortexing or pipetting of viable clinical specimens (i.e. blood components, nasal swabs, sputum) collected from known or strongly suspected infected patients for research purposes.Concentration of environmental samples known or suspected to contain infectious virus or viral RNA (i.e untreated wastewater)	<ul style="list-style-type: none">Submit IBC protocol or amendment including any permits, SOPS and associated IRB protocols through NUgrant.	<ul style="list-style-type: none">Facilities & biocontainment practices will be commensurate with those outlined in the UNL Biosafety Guidelines and the EHS SOPs on Biocontainment Levels, Working in a Biosafety Cabinet, Autoclave Operation and Use.
BSL-2 Lab research activities with materials that <u>only</u> involve direct handling of <u>non-viable/fixed</u> clinical specimens from COVID+ individuals	<ul style="list-style-type: none">Using automated instruments and analyzersStaining and microscopic analysis of fixed smearsExamination of bacterial culturesPathologic examination and processing of formalin-fixed or otherwise inactivated tissuesMolecular analysis of extracted nucleic acid preparationsFinal packaging of specimens for transportUsing inactivated specimens, such as specimens in nucleic acid extraction bufferPerforming electron microscopic studies with glutaraldehyde-fixed grids	<p>If activities will be carried out in a UNL lab research space, then submit an IBC amendment or new protocol including the following details:</p> <ul style="list-style-type: none">What materials will be received and from whom (if recombinant or pathogen-related synthetic RNA/DNA, detail the genetic elements and how they will be used)What activities will take place, for what purpose, and for how longWhere the activities will take placeWho will be doing the workIdentify any aerosol-generating procedures (centrifugation, sonication, etc.) and what measures will be taken to contain aerosols (i.e., carrying out procedures in a biosafety cabinet).	<p>UNL research labs and associated activities that need to carry out activities under BSL-2 conditions need the following:</p> <ul style="list-style-type: none">An approved registration with the IBCPersonnel who have completed EHS biosafety training and the PI/lab supervisor has documented their proficiency at carrying out technical procedures under BSL-2 conditions.Lab space that is:<ul style="list-style-type: none">restricted access and physically separated from carpeted areas and food/drink areas;free of fabric furniture, plants and animals not associated with research;equipped with and handwashing sink in the space and an eyewash in close proximity;equipped with a method for biowaste decontamination;equipped with a BSC, centrifuge with sealed rotors or any other containment equipment as determined through biorisk assessment.
Risk assessment grid based on: <ul style="list-style-type: none">CDC's FAQ about Laboratory Biosafety and SARS-CoV-2CDC/NIH Biosafety in Microbiological and Biomedical Laboratories, 5th ed.ABSA "Considerations for Handling Potential SARS-CoV-2 Samples"			