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

<table>
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<tr>
<th>Research Activities with Known or Likely Infected Specimens from Humans or Animal Models</th>
<th>Assigned Biosafety Level</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 GW.  
  • Virus isolation, characterization and/or expansion  
  • Viral cultures or isolates should be transported as Category A, UN2814, “infectious substance, affecting humans”  
• 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. | BSL-3/ABSL\(^3\)\(^2\) |
| • 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 | BSL-2 with enhancements\(^3\) |
| • Molecular analysis of already extracted nucleic acid preparations  
• Analysis of specimens\(^1\) that have been inactivated by a method approved by GW Office of Laboratory Safety.  
• 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  
• Routine examination of bacterial and mycotic cultures | BSL-2 |

\(^{*}\)Please note that all proposed research with SARS-CoV-2 (COVID-19) requires review by the Institutional Biosafety Committee (IBC) and will require approval of a Standard Operating Procedure (SOP) for the research, which will be coordinated by the Office Of laboratory Safety, labsafety@gwu.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.

\(^{2}\) Animal Biosafety Level-3 (ABSL-3)

\(^{3}\) Required enhancements to standard BSL2 (BSL-2+) are outlined here: [BSL-2 (+) guidelines](#)