

## **Biological Agent Reference Sheet (BARS)**

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**BIOLOGICAL AGENT REFERENCE SHEET**  
**Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)**

CHARACTERISTICS	
<i>Morphology</i>	SARS-CoV-2, also known as 2019-nCoV, is a $\beta$ Coronavirus of the group 2B with at least 70% similarity in genetic sequence to SARS-CoV. SARS-CoV-2 is a new Coronavirus responsible for causing the outbreak of Coronavirus disease first detected in December 2019 (COVID-19).
<i>Growth conditions</i>	Serial passage in 5-6 week old mice. In vitro propagation in Vero cells.
<i>Sources</i>	BEI resources

HEALTH HAZARDS	
<i>Host Range</i>	Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. Analysis of the genetic tree of the SARS-CoV-2 indicated it originated in bats, but whether the virus jumped directly from bats or whether there was an intermediary animal host is not, yet, known.
<i>Modes of Transmission</i>	Inhalation and contact with contaminated surfaces. Person-to-person happens among close contacts (about 6 feet), spread is thought to occur mainly via respiratory droplets produced when an infected person coughs or sneezes
<i>Signs &amp; Symptoms</i>	Illnesses have ranged from people with mild symptoms to people being severely ill and dying. Symptoms can include: Fever, Cough, Shortness of breath.
<i>Infectious Dose</i>	No data available
<i>Incubation period</i>	2-14 days

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	None available
<i>Vaccines</i>	None available
<i>Diagnosis</i>	Real-Time Reverse Transcriptase (RT)-PCR for use with upper and lower respiratory specimens.
<i>Treatment</i>	None available. Supportive treatment only.
<i>Surveillance</i>	COVID-19 is a reportable disease in the USA
<i>Emory Requirements</i>	Report all exposures. Complete the health questionnaire and follow occupational health requirements if exposure were to occur

LABORATORY HAZARDS	
<i>Laboratory Acquired Infection (LAIs)</i>	No LAIs have been reported for SARS-CoV-2. However, four LAIs have been reported for SARS-CoV.
<i>Sources</i>	SARS-CoV-2 RNA has been detected in upper and lower respiratory tract specimens, blood, stool.

BIOLOGICAL CONTAINMENT	
<i>BSL2+</i>	Processing of human samples potentially infected with SARS-CoV-2; BSL2+ means BSL2 containment with BSL3 practices and PPE. Lab specific procedures (SOPs) will outline specific containment, practices and PPE. <b>Surgical mask is required.</b>
<i>BSL3</i>	Isolation, initial characterization, and propagation of SARS-CoV-2; <b>N95 respirator or CAPR/PAPR is required.</b>
<i>ABSL3</i>	Animal work is conducted in an ABSL3 facility. Use a filter top cage on either a ventilated or non-ventilated cage rack for work with rodents.

REFERENCES	
<i>CDC</i>	<a href="https://www.cdc.gov/coronavirus/2019-nCoV/index.html">https://www.cdc.gov/coronavirus/2019-nCoV/index.html</a>
<i>WHO</i>	<a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019">https://www.who.int/emergencies/diseases/novel-coronavirus-2019</a>
<i>PubMed</i>	<a href="https://discovery.ucl.ac.uk/id/eprint/10090633/1/1-s2.0-S1201971220300114-main.pdf">https://discovery.ucl.ac.uk/id/eprint/10090633/1/1-s2.0-S1201971220300114-main.pdf</a>
<i>Canadian Pathogen Form</i>	<a href="https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html">https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment.html</a>

SPILL PROCEDURES	
<i>Small</i>	Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply an EPA approved disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before disposal and cleanup of spill materials. Report spill in the H.O.M.E system.
<i>Large</i>	Contact Emory's Biosafety Officer (404-727-8863), the EHSO Office (404-727-5922), or The Spill Response Team (404-727-2888).

EXPOSURE PROCEDURES					
<i>Mucous membrane</i>	Flush eyes, mouth or nose for 15 minutes at eyewash station.				
<i>Other Exposure</i>	Wash area with soap and water for 15 minutes.				
<i>Reporting</i>	Immediately report incident to supervisor. Exposures are reported in H.O.M.E. via PeopleSoft. Emory HR website > Self-Service > Workplace Health> Report				
<i>Medical Follow-up</i>	<table border="0"> <tr> <td><b>7am-4pm (OIM):</b> 404-686-8587</td> <td><b>After Hours: OIM NP</b> 404-686-5500 PIC# 50464</td> </tr> <tr> <td colspan="2"><b>Yerkes: Safety Officer</b> O: 404-727-8012      M: 404-275-0963</td> </tr> </table>	<b>7am-4pm (OIM):</b> 404-686-8587	<b>After Hours: OIM NP</b> 404-686-5500 PIC# 50464	<b>Yerkes: Safety Officer</b> O: 404-727-8012      M: 404-275-0963	
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DECONTAMINATION	
<i>Disinfection</i>	Routine cleaning and disinfection procedures using EPA-registered disinfectants is appropriate, including 10% bleach. Follow manufacturer's recommendations for use – dilution (i.e., concentration), contact time, and care in handling.
<i>Inactivation</i>	Suspected to be inactivated by heat (60°C for 30 minutes) and UV radiation (60 minutes)
<i>Survival Outside Host</i>	It is not known how long the SARS-CoV-2 survives on surfaces, preliminary information suggests the virus may survive a few hours or more on dry inanimate surfaces.

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
<i>Minimum Laboratory PPE Requirements</i>	Personnel are required to don double nitrile gloves, closed toed shoes, solid front gown, eye protection with side shield, surgical mask. N95 respirator may be required based on risk assessment [Annual fit testing is required per Emory's Respiratory Program].
<i>Additional Practices</i>	All procedures involving live virus or samples potentially infected should be conducted in a biological safety cabinet (BSC). Hand hygiene should be performed as the last step in doffing PPE and before exiting the facility. The use of needles, syringes, and other sharp objects must be approved by the Biosafety office. Waste must be autoclaved before disposal through Emory's approved vendor.