

BIOHAZARDOUS AGENT REFERENCE DOCUMENT

Human Coronavirus
(excluding SARS and MERS viruses)

The Biohazardous Agent Reference Document (BARD) is a general guidance resource that reviews and summarizes the nature of a pathogen or biotoxin, and offers safety requirements for work with the agent in the laboratory. The BARD may replace the formal SOPs used in conjunction with some IBC registrations.

The BARD is provided as an additional guidance tool, and is not a substitute for a risk assessment, biosafety training, lab-specific training, or a formal [IBC master protocol registration](#). This document should be readily available in the laboratory, and it is the responsibility of the Laboratory Supervisor or Principal Investigator to ensure that all personnel have read, understood, and signed the document. The BARD is for informational purposes only, and is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Please consult a health care provider for any medical questions or concerns.

INSTRUCTIONS

- 1. Review the information contained in this document.**
- 2. Add any necessary information that is specific to your work in the laboratory (such as strain-specific information). Please be sure that the track changes function is turned on to indicate any changes that you make.**
- 3. Instruct all personnel to review the BARD and sign the last page, indicating that they have read and understood the information.**
- 4. Submit the BARD along with your IBC master protocol registration, amendment, or continuing review.**

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CHARACTERISTICS

Morphology	Enveloped positive-stranded RNA virus with a crown-like appearance due to the presence of spike glycoproteins on the envelope. Worldwide distribution, causing 10 – 15% of common cold cases.
Strain Specific Characteristics	

HEALTH HAZARDS

Host Range	Humans
Modes of Transmission	Inhalation of aerosols, contact with mucous membranes
Signs and Symptoms	Upper or lower respiratory illnesses, such as: Cough, fever, runny or stuffy nose, sneezing, sore throat, headache, malaise, gastroenteritis, or diarrhea.
Infectious Dose	Unknown
Incubation Period	2 – 4 days

MEDICAL PRECAUTIONS / TREATMENT

Prophylaxis	None available
Vaccines	None available
Treatment	Not usually diagnosed due to the normally mild, self-limiting nature of the infection. Supportive care only.
Surveillance	Monitor for symptoms. Testing methods include serology, electron microscopy, and PCR-based assays
UVM IBC Requirements	Report any exposures or signs and symptoms to your supervisor
Additional Medical Precautions	May cause more severe lower respiratory tract infection, including pneumonia in infants, elderly, and immunocompromised individuals.

LABORATORY HAZARDS

Laboratory Acquired Infections	None reported
Sources	Respiratory droplets or specimens, stools, laboratory cultures

CONTAINMENT REQUIREMENTS

BSL - 2	Manipulation of known or potentially infected clinical samples and cultures of laboratory adapted strains (RG2)
BSL - 3	
ABSL - 2	All animal work
ABSL - 3	
Aerosol generating activities	Centrifugation, homogenizing, vortexing or stirring, cell sorting, pipetting, pouring liquids, sonicating, loading syringes
Primary containment device (BSC)	Use for all activities that have the potential to generate aerosols, all manipulation of potentially infected specimens or cultures

EXPOSURE PROCEDURES

Mucous membranes	Flush eyes, mouth or nose for 15 minutes at eyewash station.
Other exposures	Wash area with soap and water for 15 minutes
Medical Follow-Up	Contact UVMHC Infectious Disease Dept. directly at (802) 847-2700 for immediate assistance. Bring this document with you if seeking medical care.
Reporting	Report all exposures or near misses to: <ol style="list-style-type: none"> 1. Your immediate Supervisor 2. The UVM Biosafety Officer at (802) 777-9471 and Risk Management at 6-3242 3. Risk Management and Safety; http://www.uvm.edu/safety/lab/incident-reporting

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Minimum PPE Requirements	Nitrile gloves, lab coat or gown, appropriate eye/face protection. Wash hands after removing gloves.
Additional Precautions (Risk assessment dependent)	

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VIABILITY	
Disinfection	10% bleach, 70% alcohols, 2% glutaraldehyde, and 10% iodophors. Minimum contact time of 10 minutes.
Inactivation	Most coronaviruses are sensitive to UV radiation, and heat above 60°C. Minimum contact time of 30 minutes.
Survival Outside Host	Capable of surviving for up to six days in aqueous mediums, and up to 3 hours on dry inanimate surfaces.

SPILL CLEAN UP PROCEDURES	
Small Spill	Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply approved disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before clean up and disposal. Dispose in double biowaste bags and biobox.
Large Spill	Inside of a lab: Call UVM Service Operations at 656-2560 and press option 1 to speak to a dispatcher. Ask them to page Risk Management and Safety. Outside of a lab: Pull the nearest fire alarm and evacuate the building. Wait out front of the building for emergency responders to arrive.

REFERENCES	
Canadian PSDS	https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/human-coronavirus.html
BMBL	https://www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2020-P.pdf
CDC	https://www.cdc.gov/coronavirus/general-information.html

STUDENT / EMPLOYEE NAME	SIGNATURE	DATE