Biological Safety Manual

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Provide laboratory personnel under his/her supervision with access to the Biological Safety Manual, and all applicable SOPs and SDSs.
Train laboratory personnel he/she supervises to work safely with biological materials and operations, and maintain records of training provided locally.
Maintain in functional working order appropriate personal protective equipment (e.g., gloves, goggles).
Promptly report laboratory accidents and injuries to the Office of Safety and Risk Management.
Submit an annual inventory of potentially infectious agents to the Office of Safety and Risk Management.
Make available required medical surveillance or medical consultation/examination for laboratory personnel, when applicable.
Inform facilities personnel, other non-laboratory and any outside contractors of potential lab-related hazards when they are required to work in the laboratory environment. Identified potential hazards should be minimized to provide a safe environment for repairs and renovations.
Ensure training and coordinating audits are completed.
Additional responsibilities regarding IBC involvement.

Follow the guidelines in all laboratory safety documents.
Follow oral and written laboratory safety rules, regulations, and standard operating procedures required for the tasks assigned.

Provide appropriate oversight, training and safety information to lab s02

treated as though they are pathogenic. Examples of agents handled at BSL-1 include: Bacillus subtilis, non-

BSL-2 Agents (including, but not limited to the following)

BSL-2 Viral Agents
Adenovirus

BSL-4 is required for work with dangerous agents that pose a high individual risk of life-threatening disease

BSL	Agents	Practices	Safety Equipment (Primary Barriers)	Facilities (Secondary Barriers)
2	May cause disease but are difficult to contract via aerosol.	BSL-1 practices plus: Restricted access to areas sharps precaution defined waste decontamination medical surveillance policies Laboratory specific biosafety BSL-2 SOP Biohazard warning sign	Biological Safety Cabinet (BSC) or other physical containment device. PPE (lab coats, gloves required and face/eye protection as needed)	BSL-1 facilities plus: Autoclave available Eyewash readily available Doors should be self-closing and lockable
WCU does not have BSL-3 or BSL-4 facilities				
3	May cause serious or potentially lethal disease via inhalation, but for which treatment exists.	BSL-2 practices plus: Controlled access to areas at all times Decontamination of all waste Decontamination of laboratory clothing before laundering	BSL-2 safety equipment plus: BSC for all work with microbes. Respirators may be required.	BSL-2 plus: Self-closing, double door access. Exhausted air not recirculated Negative air pressure in lab Entry through airlock Hands-free sink at laboratory exit
4	Highest level of biological safety. Microbes are dangerous and exotic, posing a high risk of aerosol-transmitted infection. Cause serious or potentially lethal disease for which treatment does not exist.	BSL-3 practices plus: Clothing change before entering Shower on exit All material decontaminated before leaving	Manipulation of agents must be performed in a Class III BSC. Personnel must wear a positive pressure supplied air suit.	BSL-3 plus: Separate building or isolated zone Dedicated supply and exhaust, vacuum, and decontamination systems Additional requirements detailed in CDC text

secondary container is clean and disinfected before placing the primary biological agent container inside. The secondary container must be labeled with the word “BIOHAZARD” and must include the biohazard symbol.

The container must be taken directly to the intended laboratory. Do not enter any offices, break rooms, cafeterias, or other inappropriate locations with the container. Upon delivery, the biological agent should be properly stored in the receiving laboratory. Lastly, inspect the primary and secondary containers for evidence of spillage.

Laboratories that receive biological agents that were not previously stored there should contact the Laboratory Safety Officer so that the campus biological agent inventory can be updated.

No biological agent should be transported via mail without the relevant DOT/IATA training. Contact the Safety and Risk Management Office if you have questions about shipping or receiving biological agents.

Written SOPs for any particularly hazardous substance (PHS) or procedures that pose unique health risks must be developed and made available for all lab members. The SOP describes how your lab will handle a hazardous material safely, including the amount and concentration of material you will use, how you obtain or create the working solution, special handling procedures, engineering controls, per

recombinant DNA research conducted by WCU faculty, staff, or students whether NIH funded or non-funded.

The mission of the WCU IBC is to:

Ensure that all recombinant DNA research conducted at the institution or sponsored by the institution is conducted in compliance with the National Institutes of Health Recombinant DNA Guidelines.

Ensure that protocols of research involving Select Agents (defined by the Centers for Disease Control and Prevention), including but not limited to recombinant DNA, are reviewed and found to comply with all national, state, and local requirements.

The IBC, in conjunction with the Office of Safety and Risk Management, is authorized to inspect research facilities, approve research practices and procedures, and to take action such as enforcement of cessation of laboratory or clinical research activities, in the event of an unsafe workplace situation.

Research that requires IBC approval includes:

The use of recombinant or synthetic nucleic acid molecules

The use of human or animal pathogens

Use of soil, seed or plant pathogens, field releases of plant pests, or field releases of genetically modified organisms received under a USDS APHIS permit

The use of biological toxins (any toxic substance produced by a living organism)

Office of Research Administration

Provide the necessary liaison between PIs, the IBC, granting agencies, and regulatory agencies.
Serve as the administrator for the IBC and as a non-voting member.
Maintain documentation of IBC reviews, approvals, and meeting minutes.
Provide all necessary documentation, forms, regulatory guidelines and regulations for the Principal Investigator.
Notify the Principle Investigator of the results of the IBC review.
Provide annual reports to institutional leadership.

Principal Investigators (PI)

Ensure compliance with appropriate National Institute of Health guidelines and all conditions stated in the protocol approved by the IBC.

All research involving exempt and non-exempt rDNA experiments must be registered with and approved by the IBC. All approved projects must be renewed annually. Further guidance and the application for recombinant DNA research at WCU is available from the WCU Institutional Biosafety webpage.

Review the general laboratory procedures for biosafety and rDNA work found in Appendix G of the NIH Guidelines.

> Strict adherence to good microbiological practices, aseptic techniques, and knowledge of the biology of the organisms used in the experiments so that the potential biohazards can be understood and appreciated.
>
> Any research group working with potential biohazards shall have an emergency plan describing the procedures to follow if an accident contaminates personnel or the environment, as well as treatment protocols and immunizations effective against the biohazard agents in use.
>
> For particularly infectious agents, it is recommended that personnel carry a card in their wallet indicating "I work with the following infectious agents……" if

experience, as well as through information and training provided by their supervisors and the University's Safety and Risk Management Office. Principal Investigators and Lab Supervisors are responsible for the safety training of their lab personnel and must ensure that they document the trai-3.22bkthd8-6 (r)8d(t)-5.9 (h)10.6d(t)-5

Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7
Composition Stone with a chemical resistant resin finish	Natural Quarry Stone with					

Special Purpose Hoods – Type 3, Solid Resin (chemical resistant)

Chairs: Laboratory seating should be upholstered with vinyl or be constructed of solid materials such as plastic or wood that has been sealed to render it non-porous. Finishes shall be as resistant as possible to the corrosive chemical activity of chemicals used in the laboratory, as well as disinfectants.

Typical microbiological procedures often utilize Bunsen burners or other open flames to sterilize and/or reduce cross contamination; however, the use of such open flames inside of a BSC is NOT recommended for several reasons:

The Class II BSC maintains sample protection through delivery of downward laminar airflow (volumes of air traveling in a single direction at a constant speed, without turbulence) over the work area of the cabinet. Hot air rises, so any open flame causes air to rise against the laminar down-flow, creating turbulence and foiling the BSC's ability to protect the samples in the work area.

If an open flame gets too hot, it also has the capacity to melt the bonding agent holding the HEPA filter media to its frame. This destroys the HEPA filter's effectiveness, leading to loss of containment in the positively pressured plenum.

If the flame goes out and the gas supply valve remains open, flammable gas would be introduced to the cabinet unabated. In a Biosafety Cabinet, where 70% of the air within is recirculated, concentrations of the flammable gas could reach explosive potential and pose a seriouTw -12.978he cab'[1)-0.

Review the Laboratory Waste Management Plan (LWMP) section for Laboratory Equipment Disposal and Surplus Property. The University has procedures in place to ensure the safety of personnel picking up surplus equipment as well as requirements to ensure the proper disposal regulations are followed.

Any research, diagnostic, or teaching activity conducted with material derived from humans including blood, body fluids, unfixed tissues, primary or established cell lines, and other potentially infectious materials (OPIM) requires the PI to implement the University's Bloodborne Pathogens Exposure Control Plan. This plan addresses all of the provisionsall oH13 (t6 (n)2Ol o).6 (n)2.3 ((n)2.3 ()8.9 (t(t)-3 (a in)2.2 (6.6 (v)-5.5 7