CHEMICAL HYGIENE PLAN AND MANUAL FOR BLOOD-BORNE DISEASE

<<PI's Name>> LABORATORY

1. **The Blood-Borne Disease Standard** <<modify the following as appropriate>>
   Standard practices for occupational exposure to blood or other potentially infectious materials have been defined by Georgia Tech in accordance with Federal Regulations (Blood-Borne Disease Standard, 29 Code of Federal Regulations 1910.1030). Training in the recognition and prevention of occupational infection hazards will be given by <<PI's Name>>, in collaboration with the Environmental Health and Safety (EHS) office to all employees whose job responsibilities may expose them to potentially infectious materials. Records of training sessions will be maintained by <<PI's Name>>.

2. **Epidemiological and Occupational Hazards of Bloodborne Pathogens**
   Bloodborne pathogens are pathogenic microorganisms that are present in human blood, or blood components, which can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV). HBV constitutes the primary occupational infection hazard to healthcare workers, wherein approximately 18,000 cases occur annually. The risk of occupational infection with HIV is very low, although the consequences are much more severe. Other bloodborne diseases that pose sporadic but infrequent occupational infection risks include: hepatitis C, syphilis, malaria, babesiosis, brucellosis, relapsing fever, human T-lymphotropic viruses, viral hemorrhagic fever agents, and arboviruses. Non-blood-borne diseases of concern include tuberculosis and shigellosis.

   Control practices operative before tissue acquisition are the following. First, we have been assured by the collaborating surgeon or commercial supplier that tissues will not be made available from patients known to be infected with HBV, HIV, herpes, or any other highly contagious pathogen. Second, in the case of primary human cultures, we will obtain from the primary physician the recent health status of each patient before the day of surgery.

3. **Exposure Control Plan**  
   We will adopt the Georgia Tech Exposure Control Plan as our standard. In doing so, we will apply the criteria recommended for biosafety level 2 (BSL-2) in terms of practices, safety equipment, and facilities, and we will adopt the concept of "universal precautions", which assumes that all blood, body fluids, tissues, secretions, and excretions from all persons are potentially infectious. Criteria for biosafety level 2 are incorporated into the following three sections.

4. **Engineering Controls**  
   All manipulations of potentially pathogenic materials will be performed in the established tissue culture facility in Room <<location>>, using Class <<BSC class>> biological safety cabinets. Safety cabinets will be certified annually. This facility will be off-limits at all times to...
children 12 years of age or younger. Older children may enter only when supervised. When specimen manipulation is under way, traffic into the room will be limited to only that which is unavoidable, and only those individuals who meet the required immunization status. During this time, a biohazard warning sign will be posted which includes the universal biohazard warning symbol, name of potentially infectious agent(s), <<PI’s Name>> name and telephone number as well as that of the laboratory manager <<Name>>, and the special conditions for entry into the room (i.e., HBV immunization).

5. **Work Practice Controls**

a. Mechanical pipetting and suctioning devices will be used for manipulations of potentially infectious or hazardous fluids; pipetting or suctioning by mouth is strictly prohibited.

b. Employees will wash their hands with an antiseptic microbicidal soap (such as Betadine) immediately after contact with potentially infectious materials and following the removal of protective gloves, and before exiting <<location>>.

c. Employees will place all used needles, scalpels, and other sharps directly into a labeled, puncture-proof sharps container immediately following use, without any effort made to recap by hand, destroy or remove needles from the syringes.

d. The following activities are prohibited from <<location>>: eating; drinking; smoking; application of cosmetics or lip balm; handling of contact lenses; storage or preparation of food or drink.

e. Employees with increased risk (broken skin, immunocompromised) should avoid working with potentially infectious materials.

f. Work surfaces are decontaminated at least once per day, and after any spill of viable material. In practice, the surface of the biological safety cabinet will be cleaned with 70% isopropanol before it is used, and cleaned with 10% bleach after use.

g. All supplies that come into contact with potentially infectious materials (e.g., pipettes, filter units, culture dishes) are sterilized by autoclave (minimum 30 minutes) before they are disposed of.

h. All potentially infectious liquid or solid waste is decontaminated by autoclave before being disposed of. Left-over tissue can be autoclaved, if the amount of tissue remains small. Otherwise, it can be placed in a biological containment box. Liquid waste, once treated with bleach to a final concentration of 1:10, can be put down the drain.

i. All procedures are performed carefully to minimize the creation of aerosols.

j. Spills and accidents that result in overt exposures to infectious material are immediately reported to <<PI’s Name>>.

k. Containers for potentially infectious laboratory waste will be labeled, leak-proof, and closeable.

l. Biomedical waste that has been autoclaved (for a minimum of 30 minutes) may be discarded as non-regulated solid waste. However, red bags bearing the biohazard symbol may not be visible when placed in the solid waste, since this material will not be accepted by the landfill.

m. The following key phrases will remain standard in this laboratory:
   - Acquire training in handling potentially infectious materials
   - Observe "universal precautions"
   - Wear protective clothing and gear
- Avoid sharps
- Control splash hazards
- Decontaminate waste materials
- Wash hands well, before leaving the room
- Decontaminate the equipment
- Avoid increased risk
- Control aerosols
- Respond correctly to exposure
- When handling specimens, remain vigilant, leave nothing to ambiguity, follow established protocols, and remain focused on your work.

6. Personal Protective Clothes and Devices  
   a. The use of personal protective apparel constitutes the most important barrier in avoidance of occupational infection.
   b. When there is a potential for occupational exposure to infectious agents, protective clothing and devices must be used.
   c. When manipulating specimens in the biological safety cabinet, employees shall wear gloves, a biohazard-designated laboratory coat (not to be worn outside of <<location>>, a face shield (if there is substantial chance of splash), and any other gear that may be necessary to prevent overt exposures. Long hair must be pulled back and contained.
   d. In general, gloves will be worn when employees have the potential for direct or indirect contact with blood or other potentially infectious materials. This includes during handling of closed vessels containing tissue, blood, or culture medium that is contaminated with tissue or blood. Gloves will also be worn during all cleaning and decontamination procedures, and during handling of biomedical waste that has not yet been autoclaved.
   e. When potentially contaminated, laboratory coats designated for use in <<location>> will be removed from this room in a protective container that is closed before removal from the laboratory, and immediately autoclaved. Lab coats must be decontaminated before laundering.

7. Pre-exposure Immunization  
   a. All human samples are to be considered potentially infectious materials.
   b. All employees who will be working with potentially infectious materials will be vaccinated against Hepatitis B, in accordance with Georgia Tech’s policies.

8. Post-Exposure Procedures  
   a. Employees must report exposure incidents to <<PI’s Name>>, who will arrange for appropriate medical evaluation and follow-up.
   b. Medical evaluation, surveillance, counseling, laboratory testing, prophylaxis, and treatment will be provided to individuals who have occupational exposures to Hepatitis B or other potentially infectious agents.
c. Employees who experience on the job injuries, accidents, or exposures to potentially infectious materials or agents must prepare a brief narrative report of the incident, submit it to <<PI’s Name>>, and have it forwarded to the Biosafety Officer at EHS.

9. **Emergency Actions** <<modify the following as appropriate>>
   a. In case of emergency, such as spill of potentially hazardous material, the only issue of importance is the health and safety of the individual(s) at risk: the experiment or procedure is unimportant.
   b. A spill or accident that results in an exposure incident must be reported immediately to <<PI’s Name>>.
   c. All spills shall be immediately contained and cleaned up by appropriately trained individuals. Do not allow the hazard to be spread outside of <<PI’s Name>>.

10. **Medical Surveillance** <<modify the following as appropriate>>
    a. Medical records required by the Blood-borne Disease Standard, and records of immunizations, shall be kept by the EHS.