



VCU

Memorandum of Understanding and Agreement: *Clinical Trials and Other Human-Use Protocols Involving Recombinant DNA and Biohazardous Agents*

Deliberate transfer of rDNA, DNA, or RNA derived from recombinant DNA, into human research participants (human gene transfer) and/or application of biohazardous agents to human subjects requires completion/submission of this form to the Biosafety Officer.

I. PRINCIPAL INVESTIGATOR ASSURANCE.

Principal Investigator: [Click here to enter text.](#)

I attest that the information contained in this application is accurate and complete. I agree to comply with requirements pertaining to handling, shipment, transfer, and disposal of biohazardous agents and recombinant DNA (rDNA). I am familiar with and agree to abide by the provisions of the current [NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules](#) (hereafter referred to as “NIH Guidelines”), the [CDC’s Biosafety in Microbiological and Biomedical Laboratories 6th Edition](#) (BMBL), and other federal, state, and local regulations pertaining to the proposed project.

I further attest that all research personnel under my supervision are properly trained, that such training is documented, that all clinical, laboratory, and support staff understand the potential biological hazards, that proposed precautions, appropriate emergency procedures, and practices and techniques required to ensure safety will be followed. I further agree to accept responsibility for training of all laboratory workers covered by this MUA.

I will submit a written report to the Institutional Biosafety Committee (IBC) Biosafety Office (IBC@vcu.edu) in the event of:

- A. Any accident that results in inoculation, ingestion, or inhalation of biohazardous and/or rDNA materials, or other events resulting in potential exposure of laboratory staff, clinic personnel, patients, or visitors.
- B. Any incident resulting in the potential release of biohazardous/rDNA agents into the environment outside of clinical or laboratory areas.
- C. Failure of equipment and/or barriers, or other conditions which present potential for compromise of suitable containment of biological/rDNA hazards.
- D. Availability of new information bearing on the NIH or CDC guidelines such as technical information relating to hazard assessment, safety equipment recommendations, newly available innovations for mitigating hazards, etc.

I will not carry out the work described in this application until the MUA has received IBC approval.

Institutional Biosafety Committee

P.O. Box 980112
c/o EHS/SRM
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VCU

Signature of Principal Investigator:

Date: [Click here to enter a date.](#)

II. ADMINISTRATIVE INFORMATION.

A. Contact Information:

Principal Investigator: Click here to enter text.
Department: Click here to enter text.
Office Telephone: Click here to enter text.
Email: Click here to enter text.
Office Location: Click here to enter text.
Laboratory Location: Click here to enter text.

B. MUA (Clinical Trial) Title: **Click here to enter text.**

C. Grant Funding or Sponsoring Agency: **Click here to enter text.**

D. Hazard Identification (check *all* that apply; Hazard Worksheets are provided in Section VI):

- Gene Therapy/Clinical Trials Involving rDNA Applications** (includes viral, bacterial, bacteriophage, and plasmid vectors/cells transformed by vectors, siRNA, miRNA, mRNA, and other synthetic nucleic acid molecules). If checked, completion of **Hazard Worksheet A** is required.
- Clinical Trials Involving Biological Agents** (includes all viral/bacteria/other unaltered microorganisms, allogeneic human cells/tissues and other biological therapeutics not involving rDNA applications). If checked, completion of **Hazard Worksheet B** is required.

E. Documents to be submitted with MUA request:

1. A complete copy of the proposed clinical protocol including text, tables, and figures.
2. A complete copy of the Physicians Brochure for the proposed study.
3. A copy of the informed consent form to be used for prospective trial participants.
4. Other sponsor-provided support documentation may also be included in submission.

F. Post-MUA Approval Requirements: (The PI must check each box to verify that the following conditions will be met)

- The IBC (IBC@vcu.edu) will be notified one working day prior to conducting first administration of agent.
- The IBC (IBC@vcu.edu) will be notified within one working day of the occurrence of any serious adverse event (SAE) known or suspected to be related to the test agent.
- The IBC (IBC@vcu.edu) will be provided with a copy of any correspondence between the researcher and sponsor concerning occurrence of serious adverse events simultaneous with submission/receipt.
- The IBC (IBC@vcu.edu) will be notified immediately upon acquiring any laboratory animal testing data which indicates potential for previously unknown mutagenic, teratogenic, and/or carcinogenic properties associated with the test agent(s).

III. PROJECT DESCRIPTION. Attach a brief summary of the project in lay language.

IV. PERSONNEL.

A. Training Information: All clinical staff (to include clinical, pharmacy, and any other hospital or university staff involved in the study) with reasonable potential for coming into contact with biological/rDNA hazards must be listed below. For each staff member listed, the PI must verify that appropriate training has been completed or provide an anticipated completion date for each training element.

1. “Protocol-specific” training addresses the hazards presented by agents in use in the clinical trial and includes:

- a. Participation in sponsor-provided site awareness training event or subsequent interactive review of the information package with the PI/Research Coordinator, lead nurse, and pharmacy/preparation facility supervisor.
- b. Interactive review of this MUA including the opportunity for staff to ask questions and/or voice concerns regarding the conditions set forth in the document.

2. “Workplace-specific” training is provided by the PI/Research Coordinator to all staff prior to their participation in clinical/lab procedures and includes the following:

- a. Identification of hazards which are specific to the work area and the workers’ job duties including review of standard operating procedures developed for limiting exposure risk.
- b. Completion of basic safety training modules available through the “Learning Exchange” to include bloodborne pathogen safety and other training modules pertinent to employee duties.

3. “Dangerous Goods Certification”: All staff involved in the preparation of packages and/or receiving of shipments containing dangerous goods materials (including biological/rDNA agents utilized and patient samples generated during clinical trials) must possess a valid dangerous goods training certification.

Name:	Title:	Protocol-Specific Training: Completion Date:	Workplace Specific Training: Completion Date:	Dangerous Goods Certification Date:

V. FACILITIES.

A. Research Locations: Research involving the rDNA/biological hazards identified in this MUA is limited to those locations detailed below. PIs should identify all rooms where rDNA/biological hazards will be stored, prepared, and administered during the course of the protocol:

Building	Room Number	Intended Use of Space (e.g., storage, preparation, administration, etc.)	Biosafety Level

B. Biosafety Cabinets (BSCs): Biosafety cabinets must be used for preparatory procedures involving agents classified at BSL-2 or greater which may present the potential for generating infectious aerosols. BSCs utilized for containment of agents classified at BSL-2 or greater must be certified annually to comply with [NSF International Standard 49](#) (NSF-49). The IBC recommends that NSF-49 accredited consultants be utilized for annual certification. The Biosafety Office will not approve protocols classified at BSL-2 or greater without either verification that a certified BSC is available or provision of an acceptable risk assessment indicating that the proposed procedures do not pose a significant health risk to staff involved.

Building	Room	Class (I, II, or III)	Type (A1, A2, B1, B2, etc.)	Manufacturer	Date Certified

VI. HAZARD WORKSHEETS. (complete only those worksheets applicable to your protocol)

WORKSHEET A: GENE THERAPY PROTOCOLS

Protocols involving any application of rDNA materials (including viral, bacterial, bacteriophage, and plasmid vectors/cells transformed by vectors, siRNA, miRNA, mRNA, and other synthetic nucleic acid molecules) to human subjects are required to complete this form and may not be conducted until receiving written IBC approval. Protocols involving human subjects and nonexempt NIH rDNA applications are also required to comply fully with [NIH Guidelines](#).

A. rDNA Test Agent Vector/Expression Details (please provide the following details):

1. Identify the source(s) of DNA (species, organ, tissues, etc.): **Click here to enter text.**
2. Describe purpose/anticipated function of the inserted DNA sequence(s)/or other rDNA applications: **Click here to enter text.**
3. Identify vector(s) utilized (viral, plasmid, other) and provide manufacturer catalog info if applicable: **Click here to enter text.**
4. If viral/bacterial (other “living” vector) vector is utilized, indicate whether virus is replication competent, replication deficient, or conditionally-replication deficient (if virus is conditionally-replication deficient, describe conditions under which replication is possible): **Click here to enter text.**
5. Provide a brief description of the production methods used to derive the agent (mammalian cell lines, bacterial host, etc). **Click here to enter text.**
6. Provide a brief description of the measures taken to ensure that the agent is free from viruses/other adventitious agents and otherwise pure. **Click here to enter text.**
7. Will a deliberate attempt be made to obtain expression of a foreign gene? **Yes** **No** If “yes”, identify the gene, what protein will be produced, and briefly describe potential or anticipated function/effects: **Click here to enter text.**
8. NIH Classification (refer to Section III-C of the [NIH Guidelines](#)). are the proposed rDNA applications:
 - Exempt* studies (not covered under NIH Guidelines per Section III-C)
 - Nonexempt* studies (covered under Section III-3 of the NIH Guidelines)

B. Hazard Assessment:

1. Explain the potential health concerns or deleterious effects posed by the vector, gene expression/resulting proteins, and other components of the drug. Address potential concerns posed to human subjects, clinical staff, patients/caregivers and the general population: **Click here to enter text.**
2. Indicate the appropriate Biosafety Level: **BSL-Click here to enter text.**
3. Methods for limiting exposure potential, provide the following details:
 - a. Provide a listing of the minimum level of personal protective equipment (PPE) to be worn by staff during the preparation and administration of the agent: **Click here to enter text.**

b. Dose preparation: Procedures with potential for generating aerosols (including reconstitution and loading of syringes) must be conducted within a BSC. Preparation of BSL-1 agents within a BSC is also recommended. Briefly explain safety precautions to be employed for preparation of agents, for agents classified at BSL-2 or greater verify use of BSC, identify the location of the BSC, and indicate last date of validation/certification of the BSC. **Click here to enter text.**

c. Transfer of materials: Provide a complete description of safety precautions to be employed during the transfer of agents from the preparation area to administration area. **Click here to enter text.**

d. Needle recapping: Will the clinical protocol require recapping of needles? **Yes** **No**
If “yes,” submission of a [Needle Recapping Waiver](#) is required. **Click here to enter a date.**

C. Staff Training Requirements:

1. Has comprehensive training regarding epidemiology, symptomatology, health risks, and potential exposure routes for all vectors/rDNA applications (including potential oncogenic expression) been provided to all staff participating in the study?: **Yes** **No**

Note: comprehensive training must include sponsor-provided safety information and the review of Worksheet A of this MUA, checking “yes” in box above confirms that the staff will review Worksheet A following IBC approval of this MUA.

2. Have all staff involved on the trial with a reasonable potential for exposure to bloodborne pathogens completed training via “Learning Exchange” (Bloodborne Pathogens Exposure Control) or other acceptable training source? **Yes** **No** If a source other than Learning Exchange is utilized for this training please identify: **Click here to enter text.**

3. Briefly indicate your experience (include the PI and other key staff) with research involving this agent or other other gene therapy applications: **Click here to enter text.**

4. Contained Spill Response: Detail measures to be taken in the event of a spill of biohazardous material(s) occurring within a BSC (include required PPE, work methods, disinfectants to be utilized, etc.): **Click here to enter text.**

5. Response to Spills Outside of BSC (required for agent classified at BSL-2 or greater). Detail measures to be taken in the event of a spill of biohazardous material occurring in the general laboratory or clinical area outside of a BSC; include required aerosol settling time, PPE, work methods, disinfectants to be utilized, etc.: **Click here to enter text.**

6. Routine Cleaning/Disinfection of Surfaces, Equipment, and Facilities. Provide brief details regarding routine cleaning/disinfecting practices to be employed within the BSC, clinical areas where agent in administered, management of potentially-contaminated laundry, and (if applicable) patient toilet facilities in relation to the test agent: **Click here to enter text.**

D. Procedures for storage, transport, and disposal of rDNA hazards (both within and outside VCU):

1. Is access to rooms containing agent(s) controlled? **Yes** **No**

2. Are rooms/freezers where agents are stored posted with appropriate hazard signage? **Yes** **No**

3. Shipment or receipt of materials classified at BSL-2 or greater via commercial courier service requires Department of Transportation dangerous goods certification. Does a laboratory member possess valid certification for shipment of dangerous goods? **Yes** **No** **N/A**

4. Couriers transporting agents with rDNA and/or biological hazard potential to inter/intra hospital locations have participated in awareness training program which details procedures for safe material handling and incident response. **Yes** **No** **N/A**

(If “N/A,” state why this requirement does not apply): **Click here to enter text.**

5. Confirm that all rDNA/biological agents will be transferred inter/intrafacility within a secure leak-proof container marked on the exterior with a standard biohazard rosette. **Yes** **No**

6. Provide details of the procedures to be followed for disposal or return (if sponsor specifies) of unwanted stocks, contaminated laboratory/clinical waste, and discarded syringes/needles: **Click here to enter text.**

E. Provide brief details of the medical surveillance practices for staff at risk of exposure: The [Biosafety in Microbiological and Biomedical Laboratories 6th Edition](#) (BMBL) may be referenced for completing this section. If agent is not listed in BMBL, PI should provide response consistent with hazard assessment completed above: **Click here to enter text.**

WORKSHEET B: PROTOCOLS INVOLVING BIOLOGICAL AGENTS (non-rDNA)

Gene therapy/rDNA agents already reported on worksheet A do not require completion of this worksheet.

A. Biological hazard details, please provide the following details:

1. Identify the biohazardous agent: **Click here to enter text.**
2. Identify the source of the agent: **Click here to enter text.**
3. Describe purpose/anticipated function and therapeutic effect of the agent: **Click here to enter text.**
4. If agent is viral, bacterial, or other live organism, indicate whether virulence attenuation has been imparted and briefly describe the process utilized for reduction of virulence: **Click here to enter text.**

B. Hazard Assessment:

1. Explain the potential health concerns posed by the agent, Address potential concerns posed to human subjects, clinical staff, patients/caregivers, and the general population. **Click here to enter text.**
2. Indicate the appropriate Biosafety Level: **BSL-Click here to enter text.**
3. Methods for limiting exposure potential, provide the following details:
 - a. Indicate the minimum level of personal protective equipment (PPE) to be donned by staff prepping the agent and staff administering the agent: **Click here to enter text.**
 - b. Dose preparation: procedures involving agents classified at BSL-2 or greater, with significant potential for generating aerosols (including loading of syringes) must be conducted within a biological safety cabinet (BSC). Use of a BSC for preparation of agents classified at BSL-1 is recommended. Briefly detail safety precautions to be employed for preparation of agents: **Click here to enter text.**
 - c. Transfer of materials: Provide brief description of safety precautions to be employed during the transfer of biohazardous agents from the preparation area to administration area. **Click here to enter text.**
 - d. Needle recapping: Will protocol involve recapping of needles? Yes No N/A
(If “yes” submission of a [Needle Recapping Waiver](#) is required).

C. Staff Training Requirements:

1. Has comprehensive training regarding epidemiology, symptomatology, health risks, and potential exposure routes for the biological agent(s) used in this protocol been provided to all staff participating in the study?: Yes No

Note: comprehensive training must include review of sponsor-provided safety information and the review of Worksheet B of this MUA, checking “yes” in box above confirms that the staff will review Worksheet B following IBC approval of this MUA.

2. Have all staff involved on the trial with a reasonable potential for exposure to bloodborne pathogens completed training via “Learning Exchange” (Bloodborne Pathogens Exposure Control) or other acceptable

training source? **Yes** **No** If other training source than Learning Exchange is utilized please identify: **Click here to enter text.**

3. Briefly indicate your experience (include the PI and other key staff) with research involving this agent or similar biological agents in clinical trials or other human applications: **Click here to enter text.**

4. Response to Spills Outside of BSC (required for agent classified at BSL-2 or greater): Detail steps to be taken in the event of a spill of biohazardous material occurring in the general lab area outside of a BSC; include required aerosol settling time, PPE, work methods, and disinfectants to be utilized: **Click here to enter text.**

5. Routine Cleaning/Disinfection of Surfaces, Equipment, and Facilities: Provide brief details of routine cleaning/disinfecting practices to be employed within the BSC, clinical areas where agent is administered, and (if applicable) patient toilet facilities in relation to the test agent: **Click here to enter text.**

D. Procedures for storage, transport, and disposal of biohazardous agents (both within and outside VCU)

1. Is access to rooms where stocks of agents are stored controlled? **Yes** **No**

2. Are rooms/freezers where agents are stored posted with appropriate hazard signage? **Yes** **No**

3. Shipment or receipt of materials classified at BSL-2 or greater via commercial courier service requires Dangerous Goods certification. Does a lab representative possess valid certification for shipment of dangerous goods? **Yes** **No** **N/A**

4. Couriers transporting agents with rDNA and/or biological hazard potential to inter/intra hospital locations have participated in awareness training program which details procedures for safe material handling and incident response. **Yes** **No** **N/A**

(If “N/A,” state why this requirement does not apply): **Click here to enter text.**

5. Confirm that all rDNA/biological agents will be transferred inter/intrafacility within a secure leak-proof container marked on the exterior with a standard biohazard rosette. **Yes** **No**

6. Provide details of the procedures to be followed for disposal or return (if sponsor specifies) of unwanted stocks, contaminated laboratory/clinical waste, and discarded syringes/needles: **Click here to enter text.**

E. Provide brief details of the medical surveillance practices for staff at risk of exposure to the test agent.

The [Biosafety in Microbiological and Biomedical Laboratories 6th Edition](#) (BMBL) may be used as a reference for completing this section. If agent is not listed in BMBL, PI should provide response consistent with hazard assessment completed above): **Click here to enter text.**

Approval Conditions: This Memorandum of Understanding and Agreement (MUA) is valid for THREE years beyond the indicated IBC approval date. Dependent on conditions of IBC approval, MUAs involving NIH nonexempt recombinant DNA (rDNA) applications may require completion of an onsite preliminary facility inspection which will include the Principal Investigator (PI) and an IBC representative. All university laboratories receive annual safety compliance assessment through the Office of Safety and Risk Management; continued IBC approval will be contingent upon PIs' demonstration of due diligence in complying with the terms of the MUA. If research in relation to this protocol continues beyond the completion of the 3-year cycle, or significant changes are made to the protocol, IBC notification and renewal or revision of MUA will be required.

IBC USE ONLY

IBC Protocol Inspection:

MUA# _____ Initial IBC Approval Date _____ Valid Through _____

Facility Inspection Date _____ IBC Inspector _____

The principal investigator and IBC inspector will sign below *after* completion of the IBC on-site protocol inspection to confirm that all findings and conditions are understood:

Principal Investigator, Printed Name Principal Investigator, Signature Date

IBC Inspector, Printed Name IBC Inspector, Signature Date