IBC #: \_\_\_\_\_\_\_\_\_\_ Action: ­­­­­­­­\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

▲ For IBC Use Only ▲

**Instructions:**

* Use this form to submit:
	+ Annual Updates for your Biosafety Protocol
	+ Amendments to your current Biosafety Protocol
	+ Terminations of a Biosafety Protocol
* Complete all applicable fields and save your form as *Biosafety\_PI Name*
	+ Example: Biosafety\_ JDoe
* Submit the file to  biosafety@brown.edu

|  |
| --- |
| **Section 1: General Information** |
| 1.1 | Current Biosafety Protocol Title(s): |       |
| 1.2 | Current BRA Number: |       |
| 1.3 | Principal Investigator (PI): |       | Building: |       | Phone Number: |       |
|  | Email Address: |       | Department: |       |
| 1.4 | Lab Contact – 1: |       | Email Address: |       | Phone Number: |       |
| 1.5 | Lab Contact – 2: |       | Email Address: |       | Phone Number: |       |
| 1.6 | Are you **Terminating** this protocol? | [ ]  Yes – Go directly to **Section 2 – Protocol Termination**[ ]  No – Continue with the Form |
| 1.7 | Are you submitting this form as your **Annual Renewal**? | [ ]  Yes – If there are absolutely **NO** changes fill out sections 3 & 6-9 **ONLY**[ ]  No – This submission will be reviewed as an amendment. #1.8, Sections 3 & 6-9 **MUST** be filled out. Fill out Sections 4 & 5 as applicable. |
| 1.8 | Describe the nature of this submission. If amending to make changes, provide a detailed summary of changes:       |
| **Section 2: Protocol Termination** |
| 2.1 | [ ]  **Terminate Protocol** – Date termination should go into effect: |       |
|  | Principal Investigator’sElectronic Signature:  (By electronically entering your name, you are indicating that you want to terminate this protocol.) | Date:       |
|  | **If you are terminating your protocol, you are done**Save the form as *Biosafety \_PI Name* and submit file to biosafety@brown.edu |
| **Section 3: Engineering Controls & Signage** |
| ***Personnel Information*** |
|  | * **Training Notes:**
* **Laboratory Safety Training:** Required for all individuals working in a laboratory. Required every five (5) years.
* **Biological Safety/Bloodborne Pathogens (BBP) Training:** Required for all individuals having occupational exposure to human blood, OPIM of human origin (cells/cell lines, unfixed tissues) or human BBP. Required annually per OSHA.
* **Biological Safety/Bloodborne Pathogens (BBP) Training:** Required for all individuals working with biohazard agents, toxins, and recombinant and synthetic nucleic acid molecule experiments or materials. Required every five (5) years.
* **NIH Guidelines Training:** The NIH requires training on biosafety and recombinant and synthetic nucleic acid molecules. Required once per NIH.

  |
| ***Engineering Controls*** |
| 3.1 | **Biosafety Cabinets** – List all biosafety cabinets in the table below. |
|  | ***Location*** | ***Class*** | ***Type*** | ***Certification Expiration Date*** |
|  |       |  |  |       |
|  |       |  |  |       |
|  |       |  |  |       |
| 3.2 | **Chemical Fume Hoods** – List all chemical fume hoods in the table below. |
|  | ***Location*** | ***Test Date*** |
|  |       |       |
|  |       |       |
|  |       |       |
|  |       |       |
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| 3.3 | ***Use of Brown Core Facilities:*** Will you be utilizing any Brown Core facilities to conduct any rDNA experiments (i.e., creation of transgenic mice, breeding experiments, creation of flow cytometry)? | [ ]  Yes\* | [ ]  No |
| *\** *Name of the Core Facility you will be using:*        |
| *\** *Explain what service(s) the Core Facility will provide for your project:*       |

 |
| ***Administrative Controls*** |
| 3.3 | **Lab Signage** – Is all lab signage posted and information is current (i.e., emergency contact, hazard symbols, PPE requirements)? | [ ]  Yes[ ]  No – ***\*Request new or revised signage from Brown’s EHS @ (401) 863-3353 or the applicable contact when located at PVAMC\**** |
| **Section 4: Protocol Changes** |
| Use this section to make changes to your currently approved protocol. Mark the check box next to what you would like to change and then provide the information that is asked of you for that specific item number. After completing applicable portions of this section, continue to **Section 8 – Investigator’s Assurance.** |
| ***Changes to Current Personnel*** |
| 4.1 | [ ]  **Add New Personnel**– Complete the table below for all personnel that you would like to add to your protocol. See notes in 3.1. |
| ***Name*** | ***Job Title***  | ***Department*** | ***Telephone/Email Address*** | ***Relevant Experience******(if no relevant experience, please include how will be trained)*** |
|  |  |  |  |  |
|       |       |       |       |       |
|       |       |       |       |       |
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|       |       |       |       |       |
| 4.2 | [ ]  **Remove Personnel from Current Protocol**– List all personnel that you would like to remove from your protocol in the table below: |
|  | ***Name*** | ***Title and Email address*** |
|  |       |       |
|  |       |       |
|  |       |       |
|  |       |       |
|  |       |       |
|  |       |       |
|  |       |       |
| ***Changes to Locations*** |
| 4.3 | [ ]  **Change Location(s)** – Fill in the table below to add or remove locations where this work is being conducted |
|  | ***Building*** | ***Room Number*** | ***Addition or Removal*** |
|  |       |       | [ ]  Addition  | [ ]  Removal |
|  |       |       | [ ]  Addition  | [ ]  Removal |
|  |       |       | [ ]  Addition  | [ ]  Removal |
|  |       |       | [ ]  Addition  | [ ]  Removal |
|  |       |       | [ ]  Addition | [ ]  Removal |
| ***Changes to Current Titles*** |
| 4.4 | [ ]  **Change a Current Title** – A title to an existing, approved protocol may be changed only if the research project procedures remain the same. |
|  | ***New Title*** | ***Justification for Change*** | ***Describe the aims and procedures used in the new protocol title*** |
|  |       |       |       |
|  |       |       |       |
| ***Changes to Current Animals*** |
| 4.5 | [ ]  **Add New Animals to the Current Protocol** – Fill in the table below to add animals to your existing protocol. |
|  | Provide a detail explanation of this change:      |
|  | ***Type*** | ***Housing Location*** | ***Animal Biosafety Level*** | ***Justification for Addition*** | ***Description of Experimental Procedures Involved*** |
|  |       |       |  |       |       |
|  |       |       |  |       |       |
|  |       |       |  |       |       |
|  |       |       |  |       |       |
| 4.6 | [ ]  **Remove Animals from the Current Protocol** – List the animals that you would like to have removed from your existing protocol: |       |
| ***Changes to Current Agents*** |
| 4.7 | [ ]  **Add New Agents to the Current Protocol –** Fill in the table below to add agents to your existing protocol. |
|  | ***Type*** | ***Name of Agent*** | ***Biosafety Level*** | ***Justification for Addition*** | ***Description of Experimental Procedures Involved*** |
|  |  |       |  |       |       |
|  |  |       |  |       |       |
|  |  |       |  |       |       |
|  |  |       |  |       |       |
| 4.8 | [ ]  **Remove Agents from the Current Protocol** List the agents that you would like to remove from your existing protocol:       |
| ***Changes to Current Recombinant & Synthetic Nucleic Acid Molecules (rDNA) Research*** |
| 4.9 | [ ]  **Add New rDNA Research Activities to the Current Protocol***Go to section 5. Complete all items that apply.*  |
| 4.10 | [ ]  **Remove rDNA Research Activities from the Current Protocol**List the rDNA work that you would like to remove from your existing protocol:       |

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| Section 5: Recombinant & Synthetic Nucleic Acid Molecules |
| **Purpose:** The purpose of the “[NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules](http://osp.od.nih.gov/sites/default/files/NIH_Guidelines.html)” (NIH Guidelines)is to specify the practices for constructing and handling: * Recombinant nucleic acid molecules,
* Synthetic nucleic acid molecules, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules, and
* Cells, organisms, and viruses containing such molecules.

**Definition:** In the context of the NIH Guidelines, recombinant and synthetic nucleic acids are defined as: * Molecules that: (1) Are constructed by joining nucleic acid molecules and (2) That can replicate in a living cell, i.e., recombinant nucleic acids;
* Nucleic acid molecules that are chemically or by other means synthesized or amplified, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules, i.e., synthetic nucleic acids, or
* Molecules that result from the replication of those described in (i) or (ii) above.

**Note:***Your answers to the questions in this section will allow the IBC to determine the level of review that your experiments require.* |
| 5. 1 | Does your protocol involve recombinant or synthetic nucleic acid molecules (rDNA)?  | [ ]  Yes – [Click Here to go to NIH appendix](#Check3)  [ ]  No – *Skip Section & Go to* **#6.1** |
| 5.2 | Describe the source of the DNA/synthetic nucleic acid molecules, the nature of the inserted DNA/synthetic nucleic acid molecules sequences, the host(s) and vector(s) to be used, if an attempt will be made to obtain expression of a foreign gene and what protein will be produced. Be sure to account for whether or not the genes involved or expressed have potential: toxicity, allergenicity or other risk to research personnel.      |  |  |
| 5.3 | Describe key features of the agent, virus or bacteria used in this project and if the experiments will result in acquisition of new characteristics e.g., enhanced virulence, infectivity, drug resistance, or change in host range.Give references if appropriate.      |
| 5.4 | Have vector maps been submitted with this application via email?***\*Vector Maps must be submitted via email with this application\****  | [ ]  Yes | [ ]  No \* |
| 5.5 | Indicate the percent of the pathogen genome present in the vector (kilobases of the parent pathogen in the vector and packaging cell combined).      |  |  |
| 5.6 | Will the research involve the use of antibiotic selection markers?*\*If yes, list the markers and microbial agents used (e.g. neomycin resistance marker in E. coli).*      | [ ]  Yes\* | [ ]  No |
| 5.8 | ***Use of Replication-Incompetent Virus Derived Vector Systems:***Will you be using a virus derived vector system that is replication-incompetent?  | [ ]  Yes\* | [ ]  No |
| *\*If yes, explain how this has been achieved using details, maps, references, etc. Also, describe how you will assure that your vector material is free from contamination by replication competent virus.*       |
|  5.9 | Will any of the sequences code for toxins? | [ ]  Yes | [ ]  No |
|  5.10 | If using adeno or lentivirus, will you be using third or fourth generation systems for safety? | [ ]  Yes | [ ]  No [ ]  N/A |
|  5.11 | Will VSV-G be used for pseudotyping and are you aware that this can increase the risk of exposure through absorption and inhalation along with injection and ingestion?  | [ ]  Yes | [ ]  No [ ]  N/A |
|  5.12 | If using oncogene inserts, a DNA sequencing library shall be kept. Indicate the location of these records.       |
| ***Additional Gene Editing Questions***  |
| 5.13 | Will your research involve gene editing technologies (i.e. CRISPR/Cas9, TALEN, Zinc Finger Nucleases, Meganucleases)?*\*If no, skip to #5.19.* | [ ]  Yes | [ ]  No\* |
| 5.14 | If CRISPR is involved, are the guide RNA sequence and the Cas endonuclease on the same plasmid or delivery vehicle? | [ ]  Yes\* | [ ]  No |
|  | *\*If yes, can the plasmid, vector or delivery vehicle infect a human cell?* | [ ]  Yes | [ ]  No |
| 5.15 | Does the use of CRISPR involve a viral vector? | [ ]  Yes | [ ]  No |
| 5.16 | Is this a gene drive experiment? | [ ]  Yes | [ ]  No |
| 5.17 | Will the research involve embryos or germ line cells (outside of standard transgenic animal protocols)?  | [ ]  Yes\* | [ ]  No |
|  | *\*If yes, discuss the potential for off-target effects?*        |
| 5.18 | How many genes have been targeted?  | [ ] Single | [ ] Multiple – How many?       | [ ] Library\* |
|  | \* (List number, i.e. hundreds, thousands, more?        |
|  | Number of unique vectors associated with gene editing library?       |
|  | Number of gene editing sequences targeting each gene in the library (per vector)?       |

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| ***Recombinant DNA Table – Use the table below to describe your recombinant or synthetic nucleic acid experiments***  |
| 5.19 | [*Click here for Risk Group Classification Definitions*](#RiskGrp) |
| ***Host*** | ***Host Risk Group Classification*** | ***Vector*** | ***Vector Risk Group Classification*** | ***Biosafety Level*** | ***Inserted recombinant or synthetic nucleic acid molecules***  | ***What is the largest fraction of eukaryotic viral genome contained in the recombinant or synthetic nucleic acid molecules?*** | ***Will a helper virus or packaging cells be used?*** | ***Is the virus replicative?*** |
|       |  |       |  |  |       |  | If yes, enter name:       |  |
|       |  |       |  |  |       |  | If yes, enter name:       |  |
|       |  |       |  |  |       |  | If yes, enter name:       |  |
|       |  |       |  |  |       |  | If yes, enter name:       |  |
|       |  |       |  |  |       |  | If yes, enter name:       |  |

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| **Section 6: Dual-Use Screening** |
| **Disclaimer:** A research project is considered dual-use in nature if the methodologies, materials or results could be used for public harm. **The following questions must be answered prior to the initiation of research.** It should be noted that an affirmative answer will not delay the progress of research, but indicates that further review and consideration may be warranted as the research advances. Information regarding the dual-use dilemma in biological research may be found at <http://www.serceb.org/dualuse.htm>. |
|  | Will an intermediate or final product of your research make a vaccine less effective or ineffective? | [ ]  Yes | [ ]  No |
|  | Will the intermediate or final product of your research confer resistance to antibiotics or antivirals? | [ ]  Yes | [ ]  No |
|  | Will your work enhance the virulence of a pathogen or render a non-pathogen virulent? | [ ]  Yes | [ ]  No |
|  | Will the results of your work increase the transmissibility of any pathogen? | [ ]  Yes | [ ]  No |
|  | Will your research result in the alteration of the host range of the pathogen? | [ ]  Yes | [ ]  No |
|  | Will your research result in an intermediate or final product that may prevent or interfere with the diagnosis of infection or disease?  | [ ]  Yes | [ ]  No |
|  | Does your research enable weaponization\*\* of an agent or toxin? | [ ]  Yes | [ ]  No |
| \*\**In this context, weaponization refers to the enhanced dispersion, deliverability, survivability or pathogenesis of a potentially harmful agent or toxin.* |
|  | Will synthetic biology*+* techniques be used to construct a pathogenic organism, toxin or **potentially harmful** intermediate product? | [ ]  Yes | [ ]  No |
| +*Synthetic biology includes, but is not limited to, techniques of molecular biology, chemistry and genetics that would allow for the de novo synthesis or reverse engineering of genes, gene products or entire functional organisms.* |
|  | **After considering your answers to 11.1 – 11.8, do you believe there is the potential for your research data/product to be readily utilized to cause public harm?** | [ ]  Yes | [ ]  No |

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| Section 7: Progress Report |
| 7.1 | Have any adverse events occurred in the last approval period? [ ] Yes\* | [ ] No | [ ] N/A |
| \**If yes, please provide details of the events:*       |
| 7.2 | Were these events reported to the EHS immediately following the incidents?***\*All accidents and injuries must be reported\**** | [ ]  Yes | [ ]  No\* | [ ]  N/A |
| 7.3 | Have there been any accidental exposures related to this protocol, not limited to your lab staff? *\*If yes, please provide details of events (including notification being sent to the EHS and/or Insurance and Risk) and what was done to prevent this type of event from recurring:*       | [ ]  Yes | [ ]  No\* | [ ]  N/A |
| 7.4 | Were these events reported to the EHS immediately following the incidents?***\*All accidents and injuries must be reported\**** | [ ]  Yes | [ ]  No\* | [ ]  N/A |

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| Section 8: Investigator’s Assurance |
|  | I confirm that all persons involved with this project (including my collaborators) have been adequately trained in good microbiological techniques, have received instruction on any specific hazards associated with the project and worksite, and are aware of any specific safety equipment, practices, and behaviors required while conducting project procedures and using these facilities. The IBC may review my records documenting the instruction. | [ ]  I Accept |
|  | I will immediately report to Brown’s Biosafety Office any accident, injury, spill of biohazardous material, equipment or facility failure (i.e. ventilation failure), and/or any breakdown in procedure that could result in potential exposure of laboratory personnel, staff, or the public to biohazardous or toxic material. | [ ]  I Accept |
|  | I confirm that any proposed changes to my work that would result in an increased level of biohazard will be reported to the EHS before the change is implemented, and a BRA – Annual Update, Amendment & Termination Form will be submitted. | [ ]  I Accept |
|  | I confirm that no work that requires EHS approval will be initiated or modified until approval is received and all sponsoring agency requirements have been met. | [ ]  I Accept |
|  | I will notify the EHS of all personnel changes or additions through the use of the BRA – Annual Update, Amendment & Termination Form. | [ ]  I Accept |
|  | I have read and understand my responsibilities of Principal Investigator outlined in [Section IV-B-7 of the NIH Guidelines](http://www.osp.od.nih.gov/sites/default/files/NIH_Guidelines.html#_Toc446948348) and agree to comply with these responsibilities. | [ ]  I Accept |
|  | I certify that the information provided within this application is accurate to the best of my knowledge. I also understand that, should I use the project described in this application as a basis for a funding proposal (either intramural or extramural), I am responsible for ensuring that the description of procedures in the funding proposal is identical in principle to that contained in this application. | [ ]  I Accept |
|  | I confirm that all persons involved with this protocol will comply with all applicable environmental laws and regulations and that this project does not significantly impact the environment. | [ ]  I Accept |

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| Section 9: Investigator’s Signature |
|  | Electronic Signature:  | Date:       |
|  |
| *Principal Investigator* (By electronically signing this form, you are indicating verification that all items are accurate and you agree to ensure compliance with the above items.) An image of the signature is acceptable. |  |
| **Please submit the form electronically to** **Biosafety@brown.edu** |

 **NIH Appendix**

 **Recombinant DNA Experiment Classifications**

**\*\*Select any that apply-see bottom of page for Risk Group definitions. Only answer below if you have answered “yes” to the use of recombinant DNA\*\***

**[ ] Section III-F-1**: Experiments that are not in organisms or viruses.

**[ ] Section III-F-2**: Experiments that consist entirely of DNA segments from a single nonchromosomal or viral DNA source, although one or more of the segments may be a synthetic equivalent.

**[ ] Section III-F-3**: Experiments that consist entirely of DNA from a prokaryotic host including its indigenous plasmids or viruses when propagated only in that host (or a closely related strain of the same species), or when transferred to another host by well-established physiological means.

**[ ] Section III-F-4**: Experiments that consist entirely of DNA from an eukaryotic host including its chloroplasts, mitochondria, or plasmids (but excluding viruses) when propagated only in that host (or a closely related strain of the same species).

**[ ] Section III-F-5**: Those that consist entirely of DNA segments from different species that exchange DNA by known physiological processes, though one or more of the segments may be a synthetic equivalent. A list of such exchangers is prepared and periodically revised by the NIH Director and can be found at <http://osp.od.nih.gov/sites/default/files/NIH_Guidelines.html>

**[ ] Section III-F-6**: Those exemptions as determined by the NIH Director to not present a significant risk to health or the environment are listed in the appendices below. **Please check all categories that apply:**

[ ] **Appendix C-I:** Recombinant DNA in Tissue Culture; Molecules Containing <1/2 of any Eukaryotic Viral Genome.

**[ ] Appendix C-II:** Escherichia coli K-12 Host-Vector Systems. 0Appendix C-III: Saccharomyces Host-Vector Systems.

**[ ] Appendix C-IV:** Kluyveromyces Host-Vector Systems.

**[ ] Appendix C-V:** Bacillus Subtillus or Bacillus Lichenformis Host-Vector Systems.

**[ ] Appendix C-VI:** Extrachromosomal Elements of Gram Positive Organisms.

**[ ] Appendix C-VII:** The Purchase or Transfer of Transgenic Rodents, BSL 1 only.

**[ ] Appendix C-VIII:** Transgenic Rodents Generated by Breeding, BSL 1 only.

**[ ] Section III-E**: Experiments that are not included in Sections III-A, III-B, III-C, III-D, and III-F; and experiments in which all components are derived from non-pathogenic prokaryotes and non-pathogenic eukaryotes fall under Section III-E and may be conducted at **BSL-1 containment**.

**[ ] Section III-E-1**: Experiments involving the formation of recombinant DNA molecules containing no more than two-thirds of the genome of any eukaryotic virus (**BSL 1 only)**.

**[ ] Section III-E-2**: Experiments involving recombinant DNA-modified whole plants, and/or experiments involving recombinant DNA modified organisms associated with whole plants (**BSL 1 only)**.

**[ ] Section III-E-3**: Experiments involving transgenic rodents, modified by the stable introduction of genetic material. Note: This section applies to BLS 1 only; all others are classified under Section III-D-4.

**[ ] Section III-D-1**: Experiments using Risk Group 2, Risk Group 3, or restricted agents as host-vector systems.

**Select Risk Group:** **[ ]** Risk Group 2 (RG2) **[ ]**  Risk Group 3 (RG3) **[ ]**  Risk Group 4 (RG4)

**[ ] Section III-D-2**: Experiments in which DNA from Risk Group 2, Risk Group 3, or restricted agents is cloned into non-pathogenic prokaryotic or lower eukaryotic host-vector systems.

 **Select Risk Group:** **[ ]** Risk Group 2 (RG2) **[ ]** Risk Group 3 (RG3) **[ ]** Risk Group 4 (RG4)

**[ ] Section III-D-3**: Experiments involving the use of infectious DNA or RNA viruses or defective DNA or RNA viruses in the presence of helper virus in tissue culture systems.

**Select Risk Group:** **[ ]** Risk Group 2 (RG2) **[ ]**  Risk Group 3 (RG3) **[ ]**  Risk Group 4 (RG4)

**[ ] Section III-D-4**: Experiments involving whole animals (e.g., non-human vertebrate or invertebrate organism, including arthropods).

**Select Section that applies:** **[ ]** III-D-4-a: RG 1 Organisms **[ ]**  III-D-4-b: RG 2 or 3 Organisms

**[ ] Section III-D-5:** Experiments involving whole plants or insects; experiments to genetically engineer plants by recombinant DNA methods, to use such plants for experimental purposes (e.g. response to stress), to propagate such plants, or to use plants together with microorganisms or insects containing recombinant DNA (cannot be done at BSL 1).

**[ ] Section III-D-6:** Experiments involving more than 10 liters of culture.

Please note: This section requires NIH pre-approval. Please contact the IBC for assistance.

**[ ]** Section III-A-1: The deliberate transfer of a drug resistance trait to microorganisms that are not known to acquire the trait naturally. (Requires RAC review and NIH Director pre-approval)

**[ ]** Section III-B-1: Experiments involving the cloning of toxin molecules with LD50 of less than 100 nanograms per kilogram body weight. (Requires NIH pre-approval)

**[ ]** Section III-C-1: Experiments involving the deliberate transfer of recombinant DNA, or DNA or RNA derived from recombinant DNA, into one or more human research participants. (Requires NIH pre-approval)

**Risk Group Definitions**

**Risk Group 1 (RG1)**: Agents that are not associated with disease in healthy adult humans

**Risk Group 2 (RG2)**: Agents are associated with human disease which is rarely serious and for which preventative or therapeutic interventions are often available.

**Risk Group 3 (RG3)**: Agents are associated with serious or lethal human disease for which preventative or therapeutic interventions may be available.

**Risk Group 4 (RG4)**: Agents are likely to cause serious or lethal human disease for which preventative or therapeutic interventions are not usually available.

**Once you have completed this section,** [**click here to return to the main application.**](#GenQs)