**PROTOCOL FOR ANIMAL USE AND CARE**

**CNPRC**

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Name:</td>
<td></td>
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<tr>
<td>First:</td>
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<td>Middle:</td>
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<tr>
<td>email:</td>
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<tr>
<td>Department:</td>
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<td>Phone / Fax:</td>
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<tr>
<td>After hrs. #:</td>
<td></td>
</tr>
</tbody>
</table>

| Last Name:   |         |
| First:       |         |
| Middle:      |         |
| email:       |         |
| Department:  |         |
| Phone:       |         |
| After hrs. #:|         |

**Project Title**: Pulmonary Immune Activation for Bioterror Defense

**Species** (common names): **rhesus**

**Number**: 30

**Source**: CNPRC

**Project Title**: Pulmonary Immune Activation for Bioterror Defense

**Overnight housing location**: CNPRC

**Day use**: CNPRC (animal quarters or workrooms)

Animals will be maintained by: [ ] Vivarium [ ] Investigator (If investigator maintained, attach husbandry SOP’s.)

**Procedures**: Provide a one or two sentence layman’s description of the procedures employed on the animals in this project. This information will help the animal care staff understand any conditions they may encounter while caring for your animals.

Juvenile male macaques (between 6 months and 3 years of age) will be treated with 3 mg of CpG (cytosine and guanine joined by phosphate) ODN (oligodeoxynucleotides) will be challenged intranasally with measles virus.

**Special Husbandry Requirements**: Describe any special requirements your animals have with respect to food, water, temperature, humidity, light cycles, caging type, bedding, or any other conditions of husbandry.

**Other instructions for animal care staff**: (check applicable entries)

<table>
<thead>
<tr>
<th>Sick Animals</th>
<th>Dead Animals</th>
<th>Pest Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Call Investigator</td>
<td>[ X] Call Investigator</td>
<td>[ X] Call Investigator</td>
</tr>
<tr>
<td>[ X] Clinician to treat</td>
<td>[ ] Save for Investigator</td>
<td>[X ] OK to use pesticides</td>
</tr>
<tr>
<td>[ ] Terminate</td>
<td>[ ] Bag for disposal</td>
<td>[ ] No Pesticides in animal area</td>
</tr>
<tr>
<td>[ ] Necropsy</td>
<td>[ X] Necropsy</td>
<td></td>
</tr>
</tbody>
</table>

**Hazardous Materials** (only if in the animal room):

- **Infectious Agents**?
  - Yes [ ] No [ X]
  - Agent(s): measles

- **Radioisotopes**?
  - Yes [ ] No [ X]
  - Agent(s): 

- **Chemical Carcinogens**?
  - Yes [ ] No [ X]
  - Agent(s): 

- **Toxic Chemicals**?
  - Yes [ ] No [ X]
  - Agent(s): 
Summary of Procedures:

a) Briefly describe the overall intent of the study. Include in your description a statement of your hypothesis, the objectives and significance of the study. Your target audience is a faculty member from a discipline unrelated to yours. Do not use jargon.

The hypothesis of these studies is that administration of CpG’s (a mimic of bacterial DNA) will enhance both innate non-specific immune responses and specific anti-viral responses to pathogens. If CpG’s are able to protect against pathogenic measles challenge, they may offer protection against inhaled bioterrorist agents. Our objective is to determine if CpG’s should move forward to human trials testing possible means of protection against bioterrorist agents.

b) Procedures employed in this project:

Please check the appropriate boxes if any of these procedures will be employed in your project:

- [ ] Monoclonal Antibody Production**
- [ ] Food or water restriction
- [ ] Special diets; food or water treatment.
- [ ] Polyclonal Antibody Production**
- [ ] Non-recovery surgical procedures
- [X] Induced illness, intoxication, or disease
- C) LD 50 or ID50 studies.
- [ ] Survival surgical procedures
- [ ] Death as an endpoint (see i below)
- X] catheters, blood collection, intubation
- [ ] Multiple survival surgery
- [ ] Trapping, banding or marking wild animals
- [ ] Prolonged restraint. (8 hrs+)
- [ ] Behavioral modification.
- [ ] Fasting prior to a procedure.
- [ ] Aversive conditioning.

** If this protocol only describes antibody production, you may use the attached antibody production page in lieu of completing section c below.
c) Describe the use of animals in your project in detail, with special reference to any of procedures checked above. Include any physical, chemical or biological agents that may be administered. List each study group, and describe all the specific procedures that will be performed on each animal in each study group. Use terminology that will be understood by individuals outside your field of expertise. (Note: This cell will expand to whatever length you require. You may make this section as long as you wish, but try to be concise. Some projects may require one or two pages.)

Explanation of CpG ODNs:
One of the ways the immune system is able to detect microbes is through recognition of unmethylated CpG dinucleotides (CpG motifs) by toll-like receptors. These motifs are common in bacterial DNA, but are under-represented and methylated in vertebrate DNA. Thus, this difference in the DNA allows the immune system to detect foreign microbes and elicit an immune response. Synthetic CpG’s have been made in order to take advantage of this ability to activate the immune system. Three CpG’s with slight variations in structure (A, B, C) will be used in these experiments. They have been tested for immunogenicity and toxicity in rodents. The results show generation of an immune response with no adverse effects reported.

General outline:
Day -12: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
Day -6: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
Day 0: CpG or control treatment by intra-tracheal introduction of an aerosol, 3 mg suspended in saline
6 hours post-tx: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
24 hours post-tx: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
72 hours post-tx: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
Day 6: CpG or control treatment by intra-tracheal introduction of an aerosol, 3 mg suspended in saline
6 hours post-tx: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
24 hours post-tx: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
72 hours post-tx: Broncho-alveolar lavage, nasopharyngeal aspirates, blood
Day 12: Intranasal challenge with measles virus.
6 hours post-challenge: Nasopharyngeal aspirates, blood
24 hours post-challenge: Nasopharyngeal aspirates, blood
72 hours post-challenge: Nasopharyngeal aspirates, blood
Day 17: Nasopharyngeal aspirates, blood
Day 26: Nasopharyngeal aspirates, blood
Day 33: Blood
Day 40: Blood
2 Months: Blood
3 months: Blood

Explanation of procedures:
All procedures will be performed under Ketamine anesthesia (10 mg/kg for sampling/bleeds 1x per day) introduced intramuscularly. Animals will be fasted 10-12 hours prior to anesthesia. For inoculation/sampling 3 times in 24 hours, a lower dose of Ketamine IM (5-8 mg/kg) will be used followed by Medetomidine HCL at 30 mcg/kg IM. At the end of the procedure the Medetomidine will be reversed with Atipamezole at 150 mcg/kg IM/IV. This will allow for a quicker recovery. Animals will be fed between 6 and 12 hours. CpG’s (or control) will be instilled (at 3 mg dissolved in sterile saline) via aerosol into the trachea using an intra-tracheal tube. Blood will be collected, 10-15 ml using standard techniques (not to exceed 12 mg/kg/month).
NP= nasopharyngeal aspirates performed by instilling sterile saline in the nose with a soft pediatric catheter and quickly aspirating.
BAL = broncho-alveolar lavage to be collected by bronchoscopy using standard veterinary technique. This procedure will be done under 5-10 mg/kg Ketamine and Propofol at 20 mg/kg/hour by IV infusion of a bolus dose (approx. 10-20 mg) as needed as determined by the veterinary staff.

**Group A: Pulmonary administration of CpG-A will protect against measles challenge.**

Baseline BAL’s, NPL’s and blood will be collected on day -12 and -6. On Day 0, animals will be treated with 3 mg of CpG-A ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 6, animals will be treated with 3 mg of CpG-A ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 12, animals will be challenged with 10^5 TCID50 measles virus in 1 ml sterile saline by instilling drop-wise into the nares. BAL’s and NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-challenge. NPL’s and blood will be collected 3, 7, and 14 days post-challenge to monitor pulmonary infection. Blood will be collected days 21 and 28, 2 months and 3 months post-challenge to monitor infection. Animals will be returned to the colony once they are measles negative (approximately 3 months post-challenge).

**Group B: Pulmonary administration of CpG-B will protect against measles challenge.**

Baseline BAL’s, NPL’s and blood will be collected on day -12 and -6. On Day 0, animals will be treated with 3 mg of CpG-B ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 6, animals will be treated with 3 mg of CpG-B ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 12, animals will be challenged with 10^5 TCID50 measles virus in 1 ml sterile saline by instilling drop-wise into the nares. NPL’s and blood will be collected 6 hours, 24 hours, and 72 post-challenge. NPL’s and blood will be collected 3, 7, and 14 days post-challenge to monitor pulmonary infection. Blood will be collected days 21 and 28, 2 months and 3 months post-challenge to monitor infection. Animals will be returned to the colony once they are measles negative (approximately 3 months post-challenge).

**Group C: Pulmonary administration of CpG-C will protect against measles challenge.**

Baseline BAL’s, NPL’s and blood will be collected on day -12 and -6. On Day 0, animals will be treated with 3 mg of CpG-C ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 6, animals will be treated with 3 mg of CpG-C ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 12, animals will be challenged with 10^5 TCID50 measles virus in 1 ml sterile saline by instilling drop-wise into the nares. NPL’s and blood will be collected 6 hours, 24 hours, and 72 post-challenge. NPL’s and blood will be collected 3, 7, and 14 days post-challenge to monitor pulmonary infection. Blood will be collected days 21 and 28, 2 months and 3 months post-challenge to monitor infection. Animals will be returned to the colony once they are measles negative (approximately 3 months post-challenge).

**Group D: Pulmonary administration of control ODN will not protect against measles challenge.**

Baseline BAL’s, NPL’s and blood will be collected on day -12 and -6. On Day 0, animals will be treated with 3 mg of control ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 6, animals will be treated with 3 mg of control ODN (dissolved in 1 ml saline) via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 12, animals will be challenged with 10^5 TCID50 measles virus in 1 ml sterile saline by instilling drop-wise into the nares. NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-challenge. NPL’s and blood will be collected 3, 7, and 14 days post-challenge to monitor pulmonary infection. Blood will be collected days 21 and 28, 2 months and 3 months post-challenge to monitor infection. Animals will be returned to the colony once they are measles negative (approximately 3 months post-challenge).
colony once they are measles negative (approximately 3 months post-challenge).

**Group E: Pulmonary administration of saline will protect against measles challenge.**

Baseline BAL’s, NPL’s and blood will be collected on day -12 and -6. On Day 0, animals will be treated with 1 ml saline via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 6, animals will be treated with 1 ml saline via aerosol. BAL’s NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-treatment. On Day 12, animals will be challenged with $10^5$ TCID$_{50}$ measles virus in 1 ml sterile saline by instilling drop-wise into the nares. NPL’s and blood will be collected 6 hours, 24 hours, and 72 hours post-challenge. NPL’s and blood will be collected 3, 7, and 14 days post-challenge to monitor pulmonary infection. Blood will be collected days 21 and 28, 2 months and 3 months post-challenge to monitor infection. Animals will be returned to the colony once they are measles negative (approximately 3 months post-challenge).

d) **Study Groups and Numbers:** Define, in the form of a table, the numbers of animals to be used in each experimental group described above. The table may be presented on a separate page as an attachment to this protocol if you prefer. The Normal format should be three columns: Study Group, Procedure, Number of animals. The number of rows should follow from the number of study groups; you may add as many rows as you require. The chart must fully account for the number of animals you intend to use under this protocol. Assign each group to an invasiveness category according to the chart below.

<table>
<thead>
<tr>
<th>Group</th>
<th>Procedures / Drugs</th>
<th>Number of Animals</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>CpG ODN A/measles</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>CpG ODN B/measles</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>CpG ODN C/measles</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>PBS/measles</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>ODN control/ measles</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

**Categories of invasiveness**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1        | Little or no discomfort or stress  
Examples: domestic flocks or herds being maintained in simulated or actual commercial production management systems; the short-term and skillful restraint of animals for purposes of observation or physical examination; blood sampling; injection of material in amounts that will not cause adverse reactions by the following routes: intravenous, subcutaneous, intramuscular, intraperitoneal, or oral.                                                                                                                                                                                                                   |
| 2        | Minor stress or pain of short duration  
Examples: cannulation or catheterization of blood vessels or body cavities under anesthesia; minor surgical procedures under anesthesia, such as biopsies or laparoscopy; short periods of restraint beyond that required for simple observation or examination, but consistent with minimal distress                                                                                                                                                                                                                     |
| 3        | Moderate to severe distress  
Examples: major surgical procedures conducted under general anesthesia, with subsequent recovery; prolonged (several hours or more) periods of physical restraint; induction of behavioral stresses such as maternal deprivation                                                                                                                                                                                                                                                        |
| 4        | Severe pain near, at or above the pain tolerance threshold  
Examples: exposure to noxious stimuli or agents whose effects are unknown; exposure to drugs, chemicals, or infectious agents at levels that markedly impair physiological systems and which cause death, severe pain, or extreme distress; Surgical experiments which have a high degree of invasiveness.                                                                                                                                                                                                           |

Further descriptions of these categories are included in the instructions following this document.

e) **Rationale for species and numbers:** How did you determine that 1) the species choice was appropriate and 2) the number of animals in each study groups was the minimum number necessary to achieve sound scientific results?

The rhesus macaque animal model is the most generally accepted model predication of human immune responses and primates must be used for pre-
clinical virus challenge studies of CpG effectiveness. Six animals for the intranasal challenge with measles is the minimum number per group that will permit us to distinguish statistically significant outcomes (using a student T test) between groups using +/- infection criteria.

f) Surgery: If the project involves survival surgery, where will the surgery be conducted?

Building:  
Room:  
Who will be the surgeon?

f) Surgery: If the project involves survival surgery, where will the surgery be conducted?

Building:  
Room:  
Who will be the surgeon?

g) Anesthetics, Analgesics, Tranquilizers, Neuromuscular blocking agents:

Post procedural analgesics should be given whenever there is possibility of pain or discomfort that is more than slight or momentary. If postoperative analgesics are not to be given, justify the practice under part (i) below.

Provide the following information about any of these drugs that you intend to use in this project.

<table>
<thead>
<tr>
<th>Species</th>
<th>Drug</th>
<th>Dose (mg/kg)</th>
<th>Route</th>
<th>When and how often will it be given?</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhesus</td>
<td>ketamine</td>
<td>5-10 mg/kg</td>
<td>IM</td>
<td>Prior to all procedures</td>
</tr>
<tr>
<td>rhesus</td>
<td>Medetomidine HCL</td>
<td>30 mcg/kg</td>
<td>IM</td>
<td>Multiple sampling in 24 hours</td>
</tr>
<tr>
<td>rhesus</td>
<td>Atipamezole</td>
<td>150 mcg/kg</td>
<td>IM/IV</td>
<td>Multiple sampling in 24 hours</td>
</tr>
<tr>
<td>rhesus</td>
<td>Propofol</td>
<td>20 mg/kg/hr</td>
<td>IV</td>
<td>bronchoscopy</td>
</tr>
</tbody>
</table>

h) Neuromuscular blocking agents can conceal inadequate anesthesia and therefore require special justification. If you are using a neuromuscular blocking agent, please complete the following:

Why do you need to use a neuromuscular blocking agent?

What physiologic parameters are monitored during the procedure to assess adequacy of anesthesia?

Under what circumstances will incremental doses of anesthetics-analgesics be administered?

i) Adverse effects:

Describe any potential adverse effects of the experiment on the animals (such as pain, discomfort; reduced growth, fever, anemia, neurological deficits; behavioral abnormalities or other clinical symptoms of acute or chronic distress or nutritional deficiency)

Any injection or venipuncture has the potential to cause minor pain or discomfort, but the animals are immobilized for the procedure and should not experience pain.

Rhesus monkeys infected with pathogenic measles virus experience mild discomfort, lethargy and anorexia for several days. Measles causes a skin rash and pneumonia, but the rash does not itch or ulcerate and the pneumonia causes only mild cough and shortness of breath for several days. Post-measles complications are mainly bacterial gastroenteritis.

CpG-ODN administration at extreme dosages could possibly result in septic shock. Doses up to 100 ug have been used in the rodent system, and 3 mg/kg in the respiratory cynomolgous macaque model with no adverse effects reported. As a precaution, animals should not be treated with TNF-alpha during these studies due to the slim possibility of inducing TNF-alpha mediated shock.
How will the signs listed above be ameliorated or alleviated? If signs are not to be alleviated or ameliorated by means of post-operative analgesics or other means, explain why this is necessary.

All possible efforts will be made to minimize animal pain and discomfort. Analgesics have no effect on the proposed studies and they will be administered at the discretion of the CRPRC veterinary staff. All clinical signs are noted by staff veterinarians, with discretion to use appropriate palliation and specific anti-microbial therapy.

Note: if any unanticipated adverse effects not described above do occur during the course of the study, a complete description of those effects and the steps taken to mitigate them must be submitted to the committee as an amendment to this protocol.

Is death an endpoint in your experimental procedure? [ ] Yes [ X ] No

(Note: “Death as an endpoint” refers to acute toxicity testing, assessment of virulence of pathogens, neutralization tests for toxins, and other studies in which animals are not euthanized, but die as a direct result of the experimental manipulation). If death is an endpoint, explain why it is not possible to euthanize the animals at an earlier point in the study. If you can euthanize the animals at an earlier point, describe the clinical signs which will dictate that an animal will be euthanized.

j) Literature search for alternatives and unnecessary duplication:

Federal law specifically requires this section. You are required to conduct a literature search to determine that either 1) there are no alternative methodologies by which to conduct this class/lab, or 2) there are alternative methodologies, but these are not appropriate for your particular class/lab. “Alternative methodologies” refers to reduction, replacement, and refinement (the three R’s) of animal use, not just animal replacement. You must also show that this use of animals is not unnecessarily duplicative of other studies.

UC Davis provides on-line access to a number of databases that can be used to search for alternatives. Visit http://trc.ucdavis.edu/jawelsh/Databases_Med_Vet_Researchers.htm (email: jawelsh@ucdavis.edu) or http://www.vetmed.ucdavis.edu/Animal_Alternatives/main.htm (email: mwwood@ucdavis.edu)

What was the date on which you conducted this search? 2/25/03

List the databases searched or other sources consulted (there should be more than one). Include the years covered by the search.

<table>
<thead>
<tr>
<th>Database Name</th>
<th>Years Covered</th>
<th>Keywords / Search Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference Update</td>
<td>1999–present</td>
<td>CpG motifs, CpG, pathogens, immune response, virus, primates</td>
</tr>
<tr>
<td>CRISP</td>
<td>1972–present</td>
<td>CpG motifs, CpG, pathogens, immune response, virus, primates</td>
</tr>
</tbody>
</table>

What were your findings with respect to alternative methodologies?

CpG oligodinucleotides have been shown to induce immune responses in tissue culture systems, rodent models, and a small number of cynomolgous monkeys. So far, they have not been tested in the rhesus macaque model, nor have they been tested alone against a pathogenic challenge. They are being tested in various forms to treat allergies and cancer, as well as viral pathogens. They are particularly attractive because they can provide resistance against a broad spectrum of pathogens. Other adjuvants/agents have been tried with variable success.

Has this study been previously conducted? [ ] Yes [ X ] No

If the study has been conducted previously, explain why it is scientifically necessary to replicate the experiment.

k) Disposition of animals: At what point in the study, if any, will the animals be euthanized?

University of California, Davis
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Animals will be returned to the colony once measles negative.

**l) Methods of euthanasia:** Even if your study does not involve killing the animals, you should show a method that you would use in the event of unanticipated injury or illness. If anesthetic overdose is the method, show the agent, dose, and route.

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>Drug</th>
<th>Dose (mg/kg)</th>
<th>route</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhesus</td>
<td>IV</td>
<td>pentobarbital</td>
<td>60 mg/kg</td>
<td>IV</td>
</tr>
</tbody>
</table>

**m) Surplus animals:** What will you do with any animals not euthanized at the conclusion of the project?

Animals will be returned to the colony at the end of the project.
n) Project Roster: Please provide the names of all the individuals who will work with animals on this project. This page will not be made available to the public. Give either the University Employee ID # or a valid UC Davis email address so that we can document training and occupational health compliance for regulatory agencies. Include all investigators, student employees, post-doctoral researchers, staff research associates, post-graduate researchers and laboratory assistants who will actually work with the animals. You don't need to include the staff of the vivarium in which your animals will be housed.

The principal investigator is responsible for keeping this roster current. If any staff is added or subtracted from this project, you must amend the protocol by sending the campus veterinarian a memo describing any changes.

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Middle Name</th>
<th>UC ID Number or SSN</th>
<th>Email Address</th>
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Occupational Health Program:

Supervisors must enroll their employees in the campus Occupational Health Program if the workers are at increased risk of illness or injury (such as allergy, physical injury, or infectious disease) because of their work. Enroll workers by having them complete an "Animal Contact History Form", available from Employee Health Services (phone 752-2330). For further information, visit our web site at [http://ehs.ucdavis.edu/animal/health/](http://ehs.ucdavis.edu/animal/health/) or read the UC Davis Policy & Procedure Manual 290-25.

Training:

Supervisors are responsible for insuring that their employees are adequate trained, both in the specifics of their job and in the requirements of the Federal Animal Welfare Act. EH&S offers free, basic wet labs in laboratory animal handling and techniques, and lecture format classes in the requirements of the Animal Welfare Act. To schedule a class for your unit, contact EH&S at 2-2364. Information is available on the world wide web at [http://ehs.ucdavis.edu/](http://ehs.ucdavis.edu/).
Assurances for the Humane Care and Use of Vertebrate Animals:

Principal Investigator's Statement:

I have read and agree to abide by the UC Davis Policy and Procedure Manual section 290-30 (Animal Use and Care). This project will be conducted in accordance with the ILAR Guide for the Care and Use of Laboratory Animals, and the UC Davis Animal Welfare Assurance on file with the US Public Health Service. (These documents are available from the Campus Veterinarian and at http://ehs.ucdavis.edu/). I will abide by all Federal, state and local laws and regulations dealing with the use of animals in research.

I will advise the Animal Use and Care Administrative Advisory Committee in writing of any significant changes in the procedures or personnel involved in this project.

<table>
<thead>
<tr>
<th>Principal Investigator</th>
<th>Rank / Title</th>
<th>Date</th>
</tr>
</thead>
</table>

Committee Use Only Below

** Conditions necessary for Committee Approval:

Final Disposition of this protocol:

__________ Approved

__________ Not Approved

__________ Withdrawn by Investigator

Date of Action: _____ / _____ / _____

I verify that the Institutional Animal Care and Use Committee of the University of California, Davis, acted on this protocol as shown above.

<table>
<thead>
<tr>
<th>Campus Veterinarian</th>
<th>Date</th>
</tr>
</thead>
</table>
## ANIMAL ROOM SAFETY INFORMATION

Complete this form if you will be using biohazards, radioisotopes, carcinogens, or toxic chemicals in the animal room.

---

### Identity of Hazard:

| Measles |

<table>
<thead>
<tr>
<th>Investigator Last Name:</th>
<th>Department:</th>
</tr>
</thead>
<tbody>
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<td>First Name:</td>
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### Provide a short description of the agent:

Measles infects both monkeys and humans, CRPRC requires vaccination to measles prior to working at the facility. Measles virus is a common respiratory virus that causes a mild illness or no illness in adults.

### This agent / material is hazardous for:

- [ ] Humans only
- [ ] Animals only
- [X] Humans and Animals

### The agent can be spread by:

- [X] Blood
- [X] Saliva/nasal droplets
- [X] Other: All mucosal secretions

### Describe any human health risk associated with this agent:

Measles can be potentially harmful in immuno-compromised adults and pregnant women. Measles can cause abortion in pregnant women. All of these agents are readily inactivated with 10% bleach and anti-microbial agents for skin care or simple hand washing.

### The precautions checked below apply to this experiment:

- [ ] The researcher or his/her technicians are responsible for the feeding and care of these animals.
- [ ] The following items must be assumed to be contaminated with hazardous material and must be handled only by the researcher or his/her technicians.
- [X] Cage
- [ ] Stall
- [ ] Water Bottle
- [ ] Animal Carcasses
- [ ] Bedding
- [ ] Other:

#### Cages must be autoclaved before cleaning.

#### Label cages and remove label after decontamination.

#### Animal carcasses must be labeled and disposed of as follows:

- [X] Incineration
- [ ] Bag and Autoclave

#### All contaminated waste (soiled bedding or other animal waste) must be properly labeled and disposed of as follows:

- [X] Incineration
- [ ] Biohazardous Waste Container
- [ ] EH&S will pick-up (2-1493).

### Personal Protective Equipment Required:

- [X] The following personal protective equipment must be worn/used in the room:

#### Lab Coat/Coveralls

#### Disposable Gloves

#### NIOSH Certified Dust Mask

#### Eye Protection/Face Shield

#### Fitted Respirator

#### Other:

#### Type: Tyvek overalls and outer boots

#### Describe:

### Personal protective equipment must be removed before leaving the room.

### Personal protective equipment must be discarded or decontaminated at the end of the project.

### Hands, arms, and face must be thoroughly washed upon leaving the room.

### Full shower, including washing of hair, must be taken upon leaving the room.

### Decontaminate Room (Inform ARS area supervisor when cage and/or room can be returned to general use).

### Provide any other information needed to safely work in this room:

For measles, standard quarantine - level precautions are necessary for containment of the virus. Any rash/illness in yourself or a person exposed to you such as a child at home should be reported immediately to a physician. All procedures in the relevant BUA should be followed.