PROTOCOL FOR ANIMAL USE AND CARE

Investigator:

Last Name: [ ]
First: [ ]
Middle: [ ]
email: [ ]
Department: [ ]
Phone / Fax: [ ]
After hrs. #: [ ]

Contact:

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

Species (common names): Rhesus macaques
Number: 84
Source: Primate Center

Project Title: Fetal Monkey Model of Obstructive Renal Dysplasia

Overnight housing location: Primate Center
Day use only:

Animals will be maintained by:
[ X] 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.

These studies focus on understanding the pathogenesis associated with fetal renal obstructive disease. Established ultrasound-guided methods will be used to induce obstruction in the early 2nd trimester, monitor disease progression, and sample fetuses in utero. Tissues will be harvested near term for extensive morphologic and molecular evaluations.

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.

None.

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

Sick Animals
[ X] Call Investigator
[ ] Clinician to treat
[ ] Terminate
[ ] Necropsy

Dead Animals
[ X] Call Investigator
[ ] Save for Investigator
[ ] Bag for disposal
[ ] Necropsy

Pest Control
[ X] Call Investigator
[ ] OK to use pesticides
[ X] No Pesticides in animal area

Hazardous Materials (only if in the animal room):

Infectious Agents? [ X] Yes [ ] No
Agent(s): SIN Lentiviral vectors (BAUA 0547)

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

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

Toxic Chemicals? [ ] Yes [ X] No
Agent(s): [ ]
Congenital urinary tract obstruction is the most common fetal anomaly identified on antenatal screening of pregnant women, with an incidence of up to 1% of all pregnancies. Likewise, bladder outlet obstruction is the most common reason for the development of renal failure in boys less than 4 years of age. It has previously been shown that obstruction of the urinary tract during fetal development and during the critical stages of kidney morphogenesis results in disruption of kidney structure and function that does not recover with relief of obstruction in the postnatal period. Consequently, attempts have been made in the past twenty years to intervene surgically in the fetus with obstructive hydronephrosis. Unfortunately, due to inaccuracy of in utero diagnosis, invalidated markers of poor outcome, and ill-defined patient selection criteria, the postnatal outcome of infants who survive the intervention has been uniformly poor. In order to further our understanding of prenatal pathogenesis, develop markers to predict postnatal compromise and disease, and design interventive strategies for improving the outcome of obstructive nephropathy and renal dysplasia, relevant animal models that closely parallel human development are essential. Thus, we previously established a fetal rhesus monkey model of obstructive renal dysplasia using a non-surgical, ultrasound-guided approach to induce the obstruction [et al., 2000]. This model shows all the classic abnormalities of obstructive renal dysplasia observed in humans. The current studies focus on the hypotheses that (1) in utero sampling and diagnosis of dysplasia will be feasible and predictive of postnatal disease severity, and (2) the optimal timing for in utero intervention can be determined based on findings related to the release of obstruction. A major stumbling block for successful antenatal intervention in the human fetus has been the lack of valid, sensitive, and specific criteria for the diagnosis of fetal renal dysplasia and obstructive nephropathy; consequently, the variability of the characteristics of patients selected for intervention has adversely impacted on the surgical results. In fact, reports suggest a high percentage of patients selected for surgery have been misdiagnosed, while a substantial proportion may have done poorly due to the severity and irreversibility of their disease at the time of intervention. Conversely, decisions to terminate pregnancies have been based on non-histological, non-validated criteria, and have run the risk of falsely overestimating disease severity. Indicators of good outcome have included crude functional measures such as fetal urinary electrolytes, amniotic fluid volume, and the appearance of echogenic kidneys on antenatal ultrasound screening. However, since postnatal kidney function is contingent upon appropriate fetal growth and differentiation, we propose that an objective histological and molecular evaluation and scoring of disease severity may provide an important guide for in utero intervention. Thus, these studies will focus on addressing the predictive value of serial kidney biopsies, the outcome after the release of obstruction at different gestational time points, and the potential usefulness of in utero cell and gene therapy for reversing pathogenesis and disease.
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
- [ ] Induced illness, intoxication, or disease
- [ ] LD 50 or ID50 studies.
- [X] 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.
- [X] 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.)

| Study 1. Predictive value of renal biopsies. | Gravid adults will be selected for study (N=4). Fetuses will be sonographically evaluated to confirm normal growth and development prior to unilateral renal obstruction, using established procedures [ et al., 2000]. Dams will be administered ketamine or telazol for all ultrasound-related studies. Patented, custom-designed alginate beads shown to be highly efficient in inducing a physiologic obstruction with no evidence of toxicity will be used. The beads will be injected into the fetal kidney at the exit of the ureter from the hilum in a 0.1 ml volume using a 25 gauge spinal needle under aseptic conditions and continuous ultrasound guidance. Each fetus will be sonographically assessed 24 hours post-obstruction, then every 7-10 days until fetal tissue harvest. Since the beads are echogenic, we will continuously monitor the appearance and location of the obstruction. Renal biopsies will be performed using a 25 gauge biopsy needle, 1-3 biopsy cores obtained using established techniques from the obstructed and contralateral kidneys at ~90, 110, and 130 days gestation (20, 40, and 60 days post-obstruction). Animals will be scheduled for hysterotomies near term (~150 days gestation). A complete set of tissues will be collected, using standard techniques. |
| Study 2. Outcome after the release of obstruction. | Gravid adults will be selected for study (N=12). Fetuses will be sonographically evaluated to confirm normal growth and development prior to unilateral renal obstruction, using established techniques, as described above. The alginate beads will be designed to dissolve at defined time points so as to spontaneously release the obstruction. Each fetus will be sonographically assessed 24 hours post-obstruction, then every 7-10 days until fetal tissue harvest. Animals will be scheduled for hysterotomies near term (~150 days gestation) for tissue harvest. |
| Study 3. Define mechanisms of abnormal glomerular development. | Gravid adults will be selected for study (N=6). Fetuses will be sonographically evaluated to confirm normal growth and development prior to unilateral renal obstruction. Each fetus will be sonographically assessed 24 hours post-obstruction, then every 7-10 days until fetal tissue harvest. Two animals will be scheduled for hysterotomy at 20, two at 60, and two at 80 days post-obstruction (~90, 130, 150 days gestation). A complete set of tissues will be collected from all fetuses, using standard techniques. |
| Study 4. Cell and gene transfer in obstructed fetuses. | We will compare the use of fetal to newborn and adult marrow-derived mesenchymal stem cells (MSC) in these studies. Donors: Three gravid animals, 2 newborns, and 2 adults will be included. For fetal marrow, gravid animals with a sonographically identified male fetus will be used (gender determined by ultrasound using established techniques) and fetal tissue harvests will be performed at ~140 days gestation, using established techniques. For male newborn and adult marrow aspirates, established techniques will be used. Briefly, bone marrow aspirates (~2-5 ml, dependent upon age; 1-2 aspirates per animal) will be
Cells collected will be grown in culture and transduced using a SIN lentiviral vector using the enhanced green fluorescent protein (EGFP) as a reporter gene.

**Recipients:** Gravid adults will be sonographically screened for female fetuses and selected for study (N=15). Fetuses will be sonographically evaluated to confirm normal growth and development prior to obstruction and intrarenal MSC transfer [, 1988]. Dams will be administered ketamine or telazol for all ultrasound-related procedures. Each fetus will undergo unilateral renal obstruction as described above at 70 days gestation, then administered MSC intrarenal at 80 days gestation (5 fetal-derived, 5 newborn-derived, 5 adult-derived) in an approximate 50 µl volume, using a 25 gauge spinal needle and established techniques. All of these procedures have been safely used in other studies at a comparable age of gestation without any evidence of trauma or adverse effects. Each fetus will be evaluated sonographically 24 hrs post-obstruction and transfer, then at 7-10 day intervals until term. Animals will be scheduled for hysterotomies near term (~150 days gestation) for tissue collection.

**YEAR 1:** 4 gravid dams (N=8; Study 1) + 6 gravid dams (N=12; Study 2). Total animals = 8 + 12 = 20.

**YEAR 2:** 6 gravid dams (N=12; Study 2) + 6 gravid dams (N=12; Study 3). Total animals = 12 + 12 = 24.

**YEAR 1-3:** Donors - 3 gravid dams + 2 infants + 2 adults (10 animals) + Recipients - 15 gravid dams (N=30; Study 4). Total animals = 10 + 30 = 40.

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 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>1</td>
<td>Study 1: 4 dams and 4 fetuses, maternal blood samples, fetal unilateral renal obstruction, fetal renal biopsies, hysterotomy at ~150 days gestation.</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Study 2: 12 dams and 12 fetuses, maternal blood samples, fetal unilateral renal obstruction, spontaneous release of obstruction, hysterotomy at ~150 days gestation.</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Study 3: 6 dams and 6 fetuses, maternal blood samples, fetal unilateral renal obstruction, hysterotomy at ~90, 130, or 150 days gestation.</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Study 4 Donors: 3 maternal/fetal pairs (hysterotomy with harvest of tissues), 2 infants (marrow aspirates), 2 adults (marrow aspirates)</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Study 4 Recipients: 15 dams and 15 fetuses, maternal/fetal blood samples, fetal unilateral renal obstruction, fetal intrarenal MSC transfer, hysterotomy near term.</td>
<td>30</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?

Monkeys are the only appropriate model for these studies because of physiologic similarities when compared to humans. Prior studies have shown that the expression of select genes in fetal monkey kidneys directly parallel those observed in human fetal kidneys. Based on our experience with this model, the number chosen is the minimum required in order to adequately assess the efficiency of the proposed techniques. Statistical significance is not required for these studies.

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

<table>
<thead>
<tr>
<th>Building</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRPRC animal quarters</td>
<td>Surgery suite</td>
</tr>
</tbody>
</table>

Who will be the surgeon?  
CRPRC veterinarians

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>10</td>
<td>IM</td>
<td>10-12 times</td>
</tr>
<tr>
<td>Rhesus</td>
<td>Telazol</td>
<td>5-8</td>
<td>IM</td>
<td>4-5 times</td>
</tr>
<tr>
<td>Rhesus</td>
<td>Isoflurane</td>
<td>to effect</td>
<td>inhal.</td>
<td>Once, for c-section</td>
</tr>
<tr>
<td>Rhesus</td>
<td>Oxymorphone</td>
<td>0.15</td>
<td>IM</td>
<td>Post-surgery for dams</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)

All possible measures will be taken to minimize discomfort and adverse effects. Oxymorphone will be administered to the dams for 2 days post-hysterotomy. All of the techniques proposed have been successfully used in prior studies without any evidence of adverse effects.

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.

See comments above. There are no other adverse effects anticipated or procedures planned that would require administration of analgesics or anesthetics other than those described above.

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/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? 2/1/02

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 Strategies</th>
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<tbody>
<tr>
<td>PubMed</td>
<td>1980 to current</td>
<td>Obstructive renal dysplasia, fetal obstructive nephropathy, animal models, fetal therapy, gene therapy, gene transfer, cell transfer, MSC</td>
</tr>
<tr>
<td>Reference Update®</td>
<td>Most recent publications</td>
<td>Obstructive renal dysplasia, fetal obstructive nephropathy, animal models, fetal therapy, gene therapy,</td>
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</tbody>
</table>
What were your findings with respect to alternative methodologies?

There are none that would allow us to investigate the questions we propose to address. A primate model is essential for these investigations in order to obtain relevant information for potential human application.

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.

The studies outlined are novel and have never been conducted in the manner we propose.

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

All dams are returned to the breeding colony post-hysterotomy.

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>
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</thead>
<tbody>
<tr>
<td>Rhesus</td>
<td>Overdose</td>
<td>Pentobarbital</td>
<td>60</td>
<td>IV</td>
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</table>

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

Dams are returned to the breeding colony, as noted above.
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://clueless.ucdavis.edu/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. Autotutorials are also available on the world wide web at http://clueless.ucdavis.edu/.
**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/](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>Assoc. Adj. Prof</th>
<th>3/15/02</th>
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</thead>
<tbody>
<tr>
<td>Principal Investigator</td>
<td>Rank / Title</td>
</tr>
<tr>
<td>CRPRC Director</td>
<td></td>
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</tbody>
</table>

**Committee Use Only Below**

**Conditions necessary for Committee Approval:**

<p>| |</p>
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**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>

University of California, Davis
Printed 10/30/2003 2:07 PM Page 9
ANIMAL ROOM SAFETY INFORMATION

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

PROTOCOL #_10032__

EXPIRES: ________

RUA#: ________ BUA#: 0547 CCA#: ________

Identity of Hazard: HIV-1-derived lentiviral vectors

Investigator Last Name: ________________________ Department: ________________________
First Name: ________________________ Phone: ________________________
Email: ________________________ Fax: ________________________

Provide a short description of the agent:

The lentiviral vectors are self-inactivating and replication-defective and the only potential infection risk is if recombination occurs between vectors of the packaging sequences, which could lead to emergence of replication-competent viruses. This is highly unlikely because the vectors are self-inactivating.

This agent / material is hazardous for: [ ] Humans only [ ] Animals only [X] Humans and Animals

For which Animal Species? [ ] Monkeys

The agent can be spread by: [X] Blood [X] Feces/urine
[X] Saliva/nasal droplets [ ] Does not leave animal

Describe any human health risk associated with this agent:

Vectors have all viral genes removed and thus are replication-defective. The generation of self-inactivating (SIN) vectors enhances the safety features of these vectors by reducing the possibility of recombination to generate replication-competent virus because there is no complete U3 in the virus production system.

The precautions checked below apply to this experiment: **Standard CRPRC conditions for handling and housing applies.**

[ ] 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.

[ ] Cage
[ ] Stall
[ ] Water Bottle
[ ] Other:

[ ] Cages must be autoclaved before cleaning.

[ ] Label cages and remove label after decontamination.

[ ] Animal carcasses must be labeled and disposed of as follows:

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

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

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

Personal Protective Equipment Required:

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

[ X] Lab Coat/Coveralls [ ] Shoe Covers/Booties
[ X] Disposable Gloves [ ] Head Cover
[ ] NIOSH Certified Dust Mask [ ] Disinfectant footbath
[ X] Eye Protection/Face Shield [ ]
[ ] Fitted Respirator [ ] Type:
[ ] Other: [ ] 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: