

### Column E Explanations

This form is intended as an aid to completing the Column E explanation. It is not an official form and its use is voluntary. Names, addresses, protocols, veterinary care programs, and the like, are not required as part of an explanation. A Column E explanation must be written so as to be understood by lay persons as well as scientist.

1. Registration Number: 51-R-018
2. Number   6 (during FY12)    of animals used in this study.
3. Species (common name) Non-Human Primate (Rhesus) of animals used in this study.
4. Explain the procedure producing pain and/or distress.

*Radiation Injury (GI acute radiation syndrome: ARS): NHPs receive total body irradiation (TBI) at a total delivered dose of 11.5 Gy.*

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For federally mandated testing, see Item 6 below).

*GI toxicity induced by radiation remains a significant concern for those exposed in radiation accidents, nuclear terrorist events and oncologic therapy treatments. There are no FDA-approved drugs or biologics for treating ARS. This model will be used to test the treatment efficacy of drugs or biologics on the GI system with the goal of developing FDA-approved medications to treat this condition in humans exposed to any of the above. Although NHPs receive intensive supportive care and medical management (including the administration of opioid-based pain medication twice daily throughout the entire duration of the study), there is some possibility that the animal will experience unrelieved pain and/or distress relative to the effects of high dose irradiation.*

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency: FDA    CFR Title 21, Parts 314 & 601

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1. Registration Number: 51-R-0018
2. Number   4 (during FY12)    of animals used in this study.
3. Species (common name) Non-Human Primates (Olive Baboons) of animals used in this study.
4. Explain the procedure producing pain and/or distress.

*The development of a respiratory tract infection following B. pertussis inoculation such that animals display clinical signs consistent with pertussis (Whooping Cough). Signs may include paroxysmal coughing, mucus production, post-tussive vomiting and leukocytosis.*

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For federally mandated testing, see Item 6 below).

*This is a proof of concept protocol to develop a model of cough caused by B. pertussis infection of the respiratory tract. Anti-cough medication is not administered as the goal of the protocol is to develop the model that reproduces the infection and disease as seen in humans in order to develop novel therapies to prevent or ameliorate the severe cough in pertussis. Animals are closely monitored throughout course of the experiment and any animal in acute respiratory distress will be euthanized. This experiment was completed in FY12 and no animal inoculated developed any clinical signs of Pertussis at any time during the study.*

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Agency: \_\_\_\_\_ CFR \_\_\_\_\_

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1. Registration Number: 51-R-018
2. Number   80 (during FY12)   of animals used in this study.
3. Species (common name) Non-Human Primate (Rhesus) of animals used in this study.
4. Explain the procedure producing pain and/or distress.

*Radiation Injury (acute radiation-induced hematopoietic subsyndrome): NHPs receive total body irradiation (TBI) at a total delivered dose sufficient to produce significant hematopoietic alterations (low red cell levels, low platelet levels, low white blood cell levels).*

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For federally mandated testing, see Item 6 below).

*If an individual is accidentally exposed to high doses of irradiation (such as might occur in a nuclear accident or "dirty bomb" attack), their blood system may be severely injured, and they may experience infection, bleeding or anemia. Without medical treatment, death may occur within 10-28 days. Currently the only medical treatments available are antibiotics, fluids and blood transfusion. This research will test the ability of medications to improve survival following radiation exposure. Although NHPs receive intensive supportive care and medical management (including the administration of opioid-based pain medication), there is still some possibility that the animal will experience unrelieved pain and/or distress relative to the effects of high dose irradiation.*

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

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1. Registration Number: 51-R-0018
2. Number 2418 (during FY12)      of animals used in this study.
3. Species (common name) Guinea Pigs of animals used in this study.
4. Explain the procedure producing pain and/or distress.

*Animals are exposed to organophosphorus (OP) compounds to induce signs of OP toxicity.*

5. Provide scientific justification why pain and/or distress could not be relieved. State methods or means used to determine that pain and/or distress relief would interfere with test results. (For Federally mandated testing, see Item 6 below).

*The purpose of these studies is to develop therapeutic treatments against OP toxicity (acute and delayed effects) such as might occur in a chemical warfare situation or terrorist attack. The administration of OP nerve agents may cause distress. The testing of treatments requires OP toxicity to be present in order to evaluate the effectiveness of the treatment. Animals are closely monitored and animals showing signs of seizure activity accompanied by respiratory distress are immediately euthanized.*

6. What, if any, federal regulations require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g., APHIS, 9 CFR 113.102):

Agency: \_\_\_\_\_ CFR \_\_\_\_\_

Species	Exception	Justification	# Animals Affected (FY2012)
Baboons	Pair Housing	Pair housing of adult females was attempted in the past and was unsuccessful due to injuries. Additionally, there was a general loss of menstrual cyclicity in the colony during this time that severely compromised research goals. All adults are singly housed in the presence of conspecifics with continuous visual, olfactory, and auditory contact. Animals are intermittently pair-housed for purposes of breeding to obtain time dated pregnancies.	26
Baboons	Pair Housing	Animals will be singly housed once its pair counterpart is utilized as a recipient in a non-survival experiment. This would create considerable stress on the remaining animal with release of stress hormones and changes in hemodynamics. In this immunologic study this stress would potentially affect the outcome of the experiment in which this animal will be used. All animals singly housed are continuously in the presence of conspecifics with continuous visual, olfactory, and auditory contact.	0
Baboons	Pair Housing	Animals will be singly housed once its pair counterpart is utilized as a recipient in a non-survival experiment. This would create considerable stress on the remaining animal with release of stress hormones and changes in hemodynamics. In this immunologic study this stress would potentially affect the outcome of the experiment in which this animal will be used. All animals singly housed are continuously in the presence of conspecifics with continuous visual, olfactory, and auditory contact.	32
Non-human primates (NHP)	NHP Pair Housing	Animals can be pair housed up until animals are jacketed to have a surgically implanted jugular catheter placed, which will be used to deliver study drugs and fluid support. These catheters require the use of a soft form fitting jacket and stainless steel tether tube apparatus to prevent the animal from removing or tearing the catheter tubing on its own. Study animals will be on immunosuppressive drugs for organ transplant making injury of the study animal of concern. If such injury occurred, this could allow an infection which may require the animal to be euthanized prior to study endpoint or cause immunostimulation that could initiate early transplant rejection and affect other study parameters. All animals singly housed are continuously in the presence of conspecifics with continuous visual, olfactory, and auditory contact.	37
NHP	NHP Pair Housing	Full pair housing is acceptable for compatible animals during quarantine and up to the time of jugular catheter implant surgery. After surgery, animals will need to be singly housed. They will be jacketed and tethered during the initial 4-6 weeks postop, and all animals receive immunosuppressive medications that would make them more susceptible to infection in the event of an injury from a cagemate. All animals singly housed are continuously in the presence of conspecifics with continuous visual, olfactory, and auditory contact.	17
NHP	NHP Pair Housing	Most, if not all, animals will be older macaque males which are not paired as they are more likely to do trauma to each other trying to establish cage dominance. Additionally, once pNAION is induced it will be necessary to prevent animal related trauma occurring to the less seeing eye as this would require removal of the animal from the study and increase animal use to maintain statistical numbers of animals under study. All animals singly housed are continuously in the presence of conspecifics with continuous visual, olfactory, and auditory contact.	4
NHP	NHP Pair Housing	Because this vaccine study utilizes a mucosally administered vaccine and challenge that will be excreted through feces, animals in study must be singly housed for the duration of the study. If pair housed, fecal shedding of either vaccine or wild type bacteria from one animal could be picked up by its cagemate, which could potentially confound (and ultimately negate) results of the study. All animals singly housed are continuously in the presence of conspecifics with continuous visual, olfactory, and auditory contact.	0
NHP	NHP Pair Housing	Animals under study undergo whole thorax lung irradiation and because of the potential for severe lung damage induced by this treatment, animals must be singly housed while under study. Although the animals do not experience severe cytopenia, they may require treatment with corticosteroids for periods of time which will increase susceptibility to infections and must be singly housed to minimize the likelihood of transmission of infectious disease. All animals that are singly housed will have continual visual, auditory, and olfactory exposure to conspecifics.	38
NHP	NHP Pair Housing	Animals may be pair-housed with exceptions. Once the animals are identified as a candidate for a particular study (one month prior to the start of the experimental protocol), animals cannot be pair housed since the probability for fighting and consequent injury are present which would prevent them from being used on study. Since animals are singly housed on study, this period also allows for the animal to fully acclimate to single housing prior to study onset. All animals that are singly housed will have continual visual, auditory, and olfactory exposure to conspecifics.	88
NHP	NHP Pair Housing	Animals which serve as donors will be large (>7.5 kg), mature males which have been singly housed for a long period of time. The risk of severe injury of the animals due to aggressive behavior is great and outweighs the benefits of pair housing. If previous social housing history exists and early evaluation is positive, pair housing may be attempted.	32
NHP	NHP Pair Housing	Animals under study undergo whole body myeloablative intent irradiation. Because of the severe myelosuppression induced by this treatment, animals do not have the ability to normally fight infection and are more prone to serious, potentially life threatening bleeding from even trivial injury. All animals that are singly housed will have continual visual, auditory, and olfactory exposure to conspecifics.	6

NHP	NHP Pair Housing	Animals in this study undergo severe myelosuppression induced by whole body irradiation and must be singly housed. These animals do not have the ability to normally fight infection (decreased white blood cells) and are more prone to serious, potentially life threatening bleeding from even trivial injury (decreased platelets). All animals that are singly housed will have continual visual, auditory, and olfactory exposure to conspecifics.	80
Sheep	Restraint - head halter / tether / stanchion	Animals under study have a cardiovascular device placed that is connected to an external electrical control system and power supply via an electric cable. If animals were not restrained, the animal could turn and chew on IV line and electrical cable. Damage to the IV line will lead to bleeding and damage to the electrical cable will cause the cardiovascular device to fail.	31
NHP	Restraint - supine restraint device	After acclimation to the device using positive reinforcement, animals are restrained for brief periods to allow for study procedures or supportive medical care administration.	124
Baboon	Multiple Major Survival Surgery (MMSS)	This study is designed to determine the role of estrogen on uterine arteries and possible fetal and postnatal effects to develop modalities to treat problems associated with pregnancy and fetal development. In order to reach these goals, multiple laparotomies (Caesarian sections) are performed on pregnant baboons to elucidate the hormonal events essential to the maintenance of pregnancy, labor and fetal adrenal-cortical self-sufficiency.	21
NHP	MMSS	This study evaluates the potential of a novel therapeutic adjunct to promote acceptance of a transplanted organ and modulate immunity in a pre-clinical non-human primate model. This study involves multiple surgeries for transplant and immune monitoring of the graft and recipient tissues.	0
NHP	MMSS	The specific purpose of this protocol is to test new ways to more safely and effectively overcome acute and chronic rejection of organ transplants. This study involves multiple surgeries for transplant and immune monitoring of the graft and recipient tissues.	24
NHP	MMSS	The specific purpose of this protocol is to test new ways to more safely and effectively overcome graft versus host disease rejection response in bone marrow transplants. This study involves multiple surgeries for immune monitoring of the recipient.	0
NHP	MMSS	This protocol will investigate vaccine candidates for Shigellosis. Animal undergo two laparotomies for collection of colonic lymph nodes to determine the mucosal immune response to vaccine and challenge.	0
Swine	MMSS	This study will utilize animal models of ischemic cardiomyopathy to investigate two potential treatment approaches to prevent dysfunctional cardiac remodeling during the heart healing phase after ischemia. Ischemia is surgically induced then treated 5-12 weeks later at which time animals undergo a second surgery for either stem cell therapy or cardiovascular device implantation for treatment (or both).	5
Rabbits	MMSS	This study will evaluate how the addition of a botulinum toxin (botox) injection aids in rotator cuff healing after surgical repair. Animals undergo two surgeries to mimic real life situations: one to induce rotator cuff injury and a second to repair the injury.	16