

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. CERTIFICATE NUMBER: 23-R-0023  
CUSTOMER NUMBER: 309

FORM APPROVED  
OMB NO. 0579-0036

**ANNUAL REPORT OF RESEARCH FACILITY**  
( TYPE OR PRINT )

University Of Pennsylvania  
(b)(6), (b)(7)c  
(b)(2)High, (b)(7)f Mail Code 6303  
Philadelphia, PA 19104

Telephone: (215) -898-7236

3. REPORTING FACILITY ( List all locations where animals were housed or used in actual research, testing, or experimentation, or held for these purposes. Attach additional sheets if necessary )

FACILITY LOCATIONS ( Sites ) - See Attached Listing

**REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY ( Attach additional sheets if necessary or use APHIS Form 7023A )**

A. Animals Covered By The Animal Welfare Regulations	B. Number of animal being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals an for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for wh the use of appropriate anesthetic, analgesic, or tranquiliz drugs would have adversely affected the procedures, res or interpretation of the teaching, research, experiments, surgery, or tests. ( An explanation of the procedures producing pain or distress in these animals and the reas such drugs were not used must be attached to this report	F. TOTAL NUMBER OF ANIMALS  ( COLUMNS C + D + E )
4. Dogs	243	396	561	0	957
5. Cats	47	251	151	0	402
6. Guinea Pigs	0	227	242	10	479
7. Hamsters	0	0	7	0	7
8. Rabbits	0	71	74	0	145
9. Non-human Primates	0	14	56	0	70
10. Sheep	4	37	260	0	297
11. Pigs	122	513	774	377	1664
12. Other Farm Animals	Please see continuation page for details				
13. Other Animals	" "	" "	" "	" "	

**ASSURANCE STATEMENTS**

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual rest teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and ap Institutional Animal Care and Use Committee (IACUC). A summary of all such exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary in brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL  
( Chief Executive Officer or Legally Responsible Institutional Official )

b6,b7c

DATE SIGNED

11/20/08

NOV 24 2008

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2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA, include Zip Code)  
University of Pennsylvania

## ASSURANCE STATEMENTS

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). A summary of all the exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

I certify that the above is true, correct, and complete. (7 U.S.C. Section 2142)

**HEADQUARTERS**

b6 b7c

(MUG 97)

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### Column E Explanation

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 scientists.

1. Registration Number: 23-R-0023.
2. Number 10 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.

Dunkin-Hartley guinea pigs develop spontaneous osteoarthritis with age. The purpose of this study was to correlate the severity of arthritic lesions as visualized on T<sub>1</sub> $\rho$  MRI with terminal biochemical changes in cartilage. Groups of guinea pigs were observed for clinical signs of arthritis as they age, were imaged multiple times using MRI under general anesthesia and were humanely euthanatized using an IV overdose of potassium chloride under general anesthesia. General anesthesia is necessary for MRI to prevent animal movement during imaging. After euthanasia, cartilage was collected and biochemical techniques were used to measure the molecular changes in the cartilage. The arthritis in these guinea pigs develops spontaneously and any signs of stiffness or lameness could not be treated because this would alter clinical observations and measurements of the biochemical content of the cartilage specimens. If any guinea pig became inappetent or reluctant to move due to progressive arthritis, it was euthanatized to prevent any further discomfort.

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 PI has done comprehensive literature searches with each approval and re-approval of the protocol and has determined that treatment for arthritis, which is chronic and slowly progressive, is likely to both alter clinical observations and to alter biochemical measurement.

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):

None.

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



## Column E Explanation

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 scientists.

1. Registration Number: 23-R-0023

2. Number 377 of animals used in this study.

3. Species (common name) Swine of animals used in this study.

4. Explain the procedure producing pain and/or distress.

Open castration of unanesthetized male piglets, aged 7-10 days, is performed in the Swine Teaching Herd as it is done in commercial swine facilities. A vertical incision is placed in the ventral portion of the scrotal sac over each testes. The incision penetrates the skin, the tunics and often the testicular parenchyma in single-motion of the scalpel blade in order to minimize the duration of the procedure. The testes are everted through the incisions and spermatic cords are isolated. Manual traction is placed on the spermatic cord and the resultant tearing of the spermatic cord frees the testes for removal. The traction/tearing of the blood vessels stimulates hemostasis and precludes the need to ligate or cauterize these vessels. The incisions are not closed to promote drainage. The surgical site is washed with antiseptic solution and the piglet returned to the mother. The total time that the piglet is away from its mother is less than 5 minutes.

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 stated objective of the School of Veterinary Medicine Swine Teaching Herd is to provide the primary laboratory for veterinary students to experience and learn commercial swine production husbandry and management. The procedures to satisfy these teaching objectives are intended to mimic modern swine production. Livestock producers perform apparently painful procedures that we as veterinary educators have an obligation to teach if we expect to prepare our students for their service to farmers. Scientific evidence documents that these procedures are painful. However, the degree of pain experienced by the animal is unknown, and thus the decision when to intervene with analgesics or anesthetics is unclear; especially when the use of analgesics or anesthetics carries a greater risk to the welfare of the young pre-weaned animal than the seemingly painful procedure. These procedures are brief, with the most painful steps preformed rapidly by experienced hands. Alternatively, the use of analgesics or anesthetics is not necessarily effective, may result in similar untoward post-operative effects, and carries a finite risk of fatality. The potential complications associated with anesthesia could compromise the young piglet. Our experience with several thousand castrations is that the animals return to their mother's side immediately and resume nursing; complications associated with blood loss or infection have been nonexistent.

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):

None.

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

Exceptions to the regulations and standards – USDA reporting year 10/1/07-9/30/08  
November 17, 2008

PI name/ Protocol #	Title	Species	Narrative
b6,b7c Non-protocol /Facility space		Swine	Swine housed in the production teaching herd on the farm were exempt from space requirements of the biomedical 'Guide' but were housed within parameters for agricultural practice as stated in the 'Ag-Guide'
b6,b7c 802089	<i>Heartworm Infected Dogs for Teaching Parasitology</i>	Dog	Dogs that are maintained on a regimen of "cage rest" are much less likely to suffer from shortness of breath and coughing. Thus to avoid clinical signs and the anxiety they produce in the dog, the PI is asking that their heartworm infected dogs be exempt from the exercise requirement.
b6,b7c 702342	<i>Insulin-Like Signaling in Parasitic Nematode Development</i>	Dog	Due to infections of different strains of the heartworm, the research needs to prevent cross-contamination of parasitic infections among the dog colony residents, necessitating the request to exempt the dogs from exercise. Dogs shed larvae in feces, which may contaminate the floor and re-infect/cross-infect other dogs if they are allowed to roam the room for exercise. For this reason, the IACUC approved housing these dogs individually in cages within mandated sizes, but exempted them from exercise. IACUC approval is for the duration of the protocol.
b6,b7c 800423, 801046, 801589	<i>Mechanisms of Learning a Visual Discrimination in Rhesus Monkeys</i>  <i>Role of Locus Coeruleus in Decision Outcome</i>  <i>Neuronal Basis of Reward-biased Visual Perception</i>	Primate	Special cage configuration – sufficient floor square footage but not sufficient height. (L shape) Does provide play cage. Allows for pair-housing of the NHPs. Approved for one year at a time and the wellness of the primates is monitored by the veterinary staff.
b6,b7c 800423, 801046, 801589	<i>Mechanisms of Learning a Visual Discrimination in Rhesus Monkeys</i>  <i>Role of Locus Coeruleus in Decision Outcome</i>  <i>Neuronal Basis of Reward-biased Visual Perception</i>	Primate	Watering requirements – animals are not offered ad lib water outside of the experimental session at least twice daily for at least one hour. (research session may provide more than the minimum daily required or animals is offered immediate afterward for total daily requirement)
b6,b7c		Primate	Special cage configuration – sufficient

Exceptions to the regulations and standards – USDA reporting year 10/1/07-9/30/08  
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801992			floor square footage but not sufficient
801784			height. (L shape)
801005			
702400			
702316			
702038			
801671			

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