UNIVERSITY OF GHANA

University of Ghana Institutional Animal Care and Use Committee (UG-IACUC)

Phone:
Email: UG-IACUC@ug.edu.gh

P.O. Box LG 581
Legon, Accra
Ghana

Office Location: Department of Animal Experimentation Building, Noguchi Memorial Institute for Medical Research (NMIMR), University of Ghana

NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

FOR OFFICE USE ONLY

1. **TYPE OF PROJECT** (please check one): Research ☐ Teaching/training ☐ Testing ☐

2. **UG - IACUC PROTOCOL NUMBER: _____**

3. **PAYMENT**

i. Payment Receipt No.:……..

ii. Payment waiver……Yes ☐ No ☐

iii. If yes, provide justification……

GUIDELINES

1. **REQUIREMENTS:**

i. A new protocol must be submitted to the UG-IACUC at least five weeks before the proposed commencement date of the research.
ii. All sections of the form must be completed before protocol can be considered for review.
iii. One hard copy of the proposal must be submitted to the UG-IACUC in addition to other documentations as spelt out below. A soft copy of the proposal and other documentations should also be emailed to
iv. UG-IACUC@ug.edu.gh
v. This form must be completed in Times New Romans with a font size 11.

2. **ATTACHED DOCUMENTATIONS TO APPLICATION FORM**

i. Project Proposal
ii. CV of applicant (PI): a two page abridge Curriculum vitae
iii. Proof of any scientific review of your protocol (eg. Departmental review board, scientific and technical review committee)
iv. A brief statement on whether you have submitted this proposal to any other ethics committee for review

3. **UNIVERSITY OF GHANA APPROVED CHARGES FOR ETHICS COMMITTEES**

i. Clinical Trials - $ 750
ii. Protocols - $ 500
iii. The processes for making payment are as follows:
- Contact the Office of Research, Innovation and Development (ORID) Account Office for an invoice
- Proceed to make payment at the University of Ghana Cash Office
- Protocol is then submitted to the UG-IACUC with receipt attached for processing and review

iv. **Exempt Category**:
- UG students and faculty members with UG grants (UG funded) are exempted from payment
- Individuals, international organization and UG-faculty with externally funded grants are not exempted

4. **All approved studies are renewed based on submission of an annual progress report**

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1. TITLE OF PROJECT:

2. SUMMARY OF STUDY/ABSTRACT (PLEASE NOT MORE THAN 100 WORDS)

3. PRINCIPAL INVESTIGATOR (PI) INFORMATION:

Please indicate how you prefer to be contacted: Fax ☐ E-mail ☐ Mobile ☐

PI Name: **Department/Institution:**

Work Address: **Work Phone #:**

Mobile #: **FAX #:**

E-mail Address:

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4. SUPERVISOR'S DETAILS *(if other than PI):* **N/A** ☐

Please indicate how person prefers to be contacted: Fax ☐ E-mail ☐ Mobile ☐

Name: **Department/Institution:**

Work Address: **Work Phone #:**

Mobile #: **FAX #:**

E-Mail Address:

5. . **DETAILS OF ATTENDING VETERINARIAN** (where applicable)

Name:

Work Address:

Telephone Number:

Email:

6. DETAILS OF COLLABORATOR (S): *(if any)* **N/A** ☐

Please indicate how person prefers to be contacted: Fax ☐ E-mail ☐ Mobile ☐

Name: **Department/Institution:**

Work Address: **Work Phone#**

Mobile #: **FAX #:**

E-Mail Address:

7. QUALIFICATIONS AND TRAINING OF PERSONNEL:

Please list below the names of all personnel who will be working with, or handling live vertebrate animals associated with this protocol:

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8. EMERGENCY NOTIFICATION

Provide the name(s) of the person(s) responsible for animal procedures/care in the PI's absence. Include work and mobile numbers. If there is more than one person responsible, please provide the information on an attached sheet and reference this section accordingly. *It is the responsibility of the PI to assure duplicate emergency contact information is provided in the animal room (i.e. cage card or special instruction notebook).*

NAME: **WORK PHONE #:**

MOBILE #:

A person who has authority and responsibility for animals must be available by phone at all times in case of an emergency. The UG – IACUC secretariat will make every attempt to reach the designated personnel; however, if an animal is in pain and/or distress and no one can be reached, the animal may be treated for symptoms or euthanized by DAE **without prior approval** from that designated person.

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9. FUNDING:

AGENCY/ SPONSOR	PI OF AWARD	AGENCY AWARD NUMBER	TITLE

**** Please add on ross where applicable**

a. Please indicate the funding source(s) that will support this work:

10. OFF SITE RESEARCH (i.e. RESEARCH SITE OUTSIDE UNIVERSITY OF GHANA):

a. Please indicate the name and location of the institution where this work will be conducted:

b. Does the Offsite Facility have an IACUC (i.e. **I**nstitutional **A**nimal **C**are and **U**se **C**ommittee) or an Animal Study Oversight Body? **YES** ☐ **NO** ☐

c. Please indicate Mode of Transportation:

d. Please indicate source of animals:

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SECTION 1: PROCEDURES TO BE DONE ON LIVE VERTEBRATE ANIMALS:

Please list the species to be used and check **all procedures** to be conducted on each species.

PROVIDE SPECIES NAME:				
PROCEDURE				
Blood/tissue collection				
Behavioral studies				
Antibody production/collection (monoclonal)				
Antibody production /collection (polyclonal)				
Restraint devices used				
Food/Water Regulation				
Chronic disease studies				
Administration of experimental agents				
Immunosuppression (Chemical, irradiation, genetic)				
Tumor Growth				
Breeding				
Death as an Endpoint				
Use of Hazardous Agents (*see Section 17*)				
Major Survival Surgery*				
Multiple Major Survival Surgery				
Minor Survival Surgery				
Terminal Surgery**				
Other Non-surgical procedures (*See Section 8)*				

***Major Survival Surgery** means a surgical intervention that penetrates and/or exposes a body cavity or produces permanent impairment.

****Terminal Surgery** means an animal never awakens from the procedure.

-If you will be conducting Survival Surgery, please refer to UG-IACUC Standard Operating Procedure (SOP): *Policies and Guidelines for Aseptic Rodent Survival Surgery*; or *Survival Surgery Standards for Non-Rodent Mammals*.

-If you will be conducting Terminal Surgery on Non-rodent Mammals, please refer to UG-IACUC Standard Operating Procedure (SOP): *Guidelines for Non-survival Surgery on Non-rodent Mammals.*

UG-IACUC Standard Operating Procedure (SOP): ***can be found on the UG - IACUC website***

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SECTION 2: RELEVANCE OF RESEARCH

Provide a **brief synopsis** (max. 100 words) of the research or teaching project, and of its overall objectives and intended benefits to humans, animals and/or the advancement of scientific knowledge. **This section should be understandable to the general public.**

SECTION 3: ANIMALS REQUESTED / PAIN CATEGORY ASSIGNMENT

A) Using the table below:

a) List all live vertebrate animals to be involved in this project. List separately pregnant animals and offspring, and any special strains (e.g. nude, genetically altered).

b) Check the appropriate Pain Category to which each animal would belong, in relation to the procedure to which it would be subjected.

i. For protocols that include more than one procedure please list separately each species to ensure it is placed in the Pain Category that pertains to the greatest degree of pain, distress or discomfort to which the animals will be exposed.

c) The total number of animals needed for the entire duration of the project should be stated ***(max. of 3 years)***.

Description of each Pain Category are noted below the table. Be sure to read each category carefully to ensure animals are placed in the correct category.

SCIENTIFIC &COMMON NAME	STRAIN/STOCK	SEX	AGE OR WEIGHT	PAIN CATEGORY					TOTAL # REQUIRED
				A	B	C	D	E	

Category A- No live animals are contacted. This could include purely observational field studies, or the use of tissues/ cadavers not euthanized specifically for the study.

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Category B- Animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery, but not yet used for such purposes.

Category C- Animals upon which teaching, research, experiments, or tests are conducted involving no pain, distress, or use of pain-relieving drugs.

Category D- Animals upon which experiments, teaching, research, surgery, or tests are conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs are used.

Category E- Animals upon which teaching, experiments, research, surgery or tests are conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs will adversely affect the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests, and so are withheld. This must be scientifically justified and will need to go before the full committee for approval.

A registered veterinarian should be consulted in the planning of procedures involving Pain Categories D &E.

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

B. Prevention & Alleviation of Pain, Distress, and Discomfort

Please address the potential for discomfort, distress, pain, and injury as follows:

- Identify the criteria (e.g. loss of weight/mobility, failure to groom, abnormal posture, licking/biting wound area, etc.) used to assess these conditions and if present.

- Describe the procedures, (the use of analgesic, anesthetic, tranquilizing drugs or other methods) used to minimize these conditions.

- Indicate at what point the animal(s) will be removed from the study or euthanized.

- The criteria used to determine if an animal is in pain, distress, or discomfort, (e.g.: loss of mobility, failure to groom, abnormal posture, licking/biting wound area, etc) should be provided

- How the pain, distress, or discomfort will be managed should it occur

- Indicate pain assessment, criteria & alleviation

SECTION 4: JUSTIFICATION FOR SPECIAL CIRCUMSTANCES **N/A** ☐

If your project involves (**1**) **Category E Procedures** or, (**2**) **Death as an Endpoint** (i.e. lethality is used as the experimental endpoint rather than euthanasia), or endpoints involving severe morbidity or impairment, strongly written scientific justification with particular attention to significance, necessity, and potential benefits of the research is required below:

SECTION 5 JUSTIFICATION FOR THE USE OF ANIMALS

a. Provide the rationale for the use of live vertebrate animals in this research project:

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b. Explain why each species was specifically chosen for the proposed project (cost of the animal should not be the sole factor for the choice):

SECTION 6 APPROPRIATENESS OF ANIMAL NUMBERS

a. Describe in detail the basis upon which the total number of animals was determined and how the number is appropriate for the goals of the project**.**

b. List the experimental groups (including control groups), the number of animals in each group and the dependent variable(s) to be measured. Include details of multiple time points and drug doses where applicable. Describe how the group sizes were determined.

c. A power analysis or other statistical justification should be used when appropriate. Where the number of animals required is dictated by other than statistical considerations (such as the amount of tissue needed, period of viability, etc.), justify the number of animals requested on this basis. Provide this for the duration of the project or a maximum of 3 years; whichever is less.

Note: *All animals involved in the project must be included in the protocol and justified. This includes not only experimental animals, but also donor animals, breeding pairs, pregnant mothers, and offspring purposely bred by the investigator but cannot be utilized because of genotype/phenotype, sex, etc.*

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SECTION 7: THERAPEUTIC DRUGS N/A ☐

If anesthetic, analgesic, tranquilizing or other therapeutic drugs (e.g. antibiotics) will be used for non-experimental purposes to treat the animals, provide the information below (experimental drugs should only be noted in Section 8). The use of ether is generally prohibited. If ether as an anesthetic is required, justification for its use must be provided and a "Request to Use Hazardous Agents" form must also be completed.

AGENT	DOSE (mg/kg body weight)	ROUTE	FREQUENCY & DURATION	PURPOSE

Note: *Expired drugs are not approved for use in survival procedures performed on live vertebrate animals. Use of selected expired drugs in non-survival surgery may be acceptable with prior UG -IACUC approval. Only medical grade drugs should be used unless they are unavailable, or scientific justification is provided for use of non-medical grade drugs. Controlled drugs must be secured and logged appropriately.*

SECTION 8: DESCRIPTION OF NON-SURGICAL PROCEDURES N/A ☐

Describe in detail any non-surgical procedures to be performed on live vertebrate animals. This information is needed to allow the Committee to understand what will be done to the animals. *The Committee does not require details about what will be done to tissue after it has been harvested*. The most commonly used non-surgical procedures are noted below, indicating specific information required in the description.

For projects that include more than one procedure and/or more than one species, please provide information for each species/procedure separately.

Please check the box next to any procedures that will be performed in this protocol.

☐ **Blood and tissue collection**: Indicate the site (on the animal) and method(s) for collection, the quantity and frequency of collection, and the use of any restraining device or anesthetics and any of **a-g** below if applicable:

a. The duration of the individual procedures being done on live vertebrate animals with a clear definition of the experimental endpoint,
b. Post-procedural monitoring procedures,
c. Frequency of monitoring, and

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d. At what point the animal will be removed from the study or euthanized. Reminder: Endpoints involving death, severe morbidity or impairment require detailed description and justification (see Section 4).
e. The number of procedures done per animal.

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

☐ **Behavioral studies:** Describe any sensory or dietary deprivation, as well as any kind of experimental stimulus that will be presented to the animals and any of **a-d** below if applicable. Please refer to the UG - IACUC approved Guidelines for Fluid Restriction in Conjunction with Behavioral Studies with Non Human Primates, and/or the UG-IACUC approved Policy for Regulated Food or Fluid in Rodents, and confirm that these policies will be followed when applicable. *The Guidelines can be found on the UG-IACUC website section*.

a. Post-procedural monitoring procedures,
b. Frequency of monitoring, and
c. At what point the animal will be removed from the study or euthanized. Reminder: Endpoints involving death, severe morbidity or impairment require detailed description and justification (see Section 4).
d. The number of procedures done per animal.

☐ **Administration of experimental, biological, chemical, or radioactive agents including hazards** (e.g. tumor cell lines, serum, drugs, microbes)**:**

i. Identify all agents to be used for experimental purposes, the reason for their administration, and describe any anticipated side effects.
ii. Provide assurance that the biological agents have been evaluated for infectious agents and any A "Request to Use Hazardous Agents" form must be submitted for all hazards.

Using the table below provide dosages, route, vehicle (e.g. water, DMSO, etc.), and frequency of administration.

AGENT	DOSE (mg/kg body weight	ROUTE	VEHICLE	FREQUENCY	HAZARD YES/NO
					Y N
					Y N
					Y N
					Y N
					Y N
					Y N
					Y N

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☐ **Use of restraining devices**: Use of restraining devices: Provide in-depth details in the following areas:

a. The type of restraint being used
b. Description of the acclimation process that includes the duration of the acclimation period, criteria used for early removal of animal from restraint device
c. During the acclimation period how long will each session be
d. How is it determined that an animal is properly acclimated
e. How long animals will be restrained once acclimated, and why this time period is required
f. If restraint falls into the definition of "prolonged restraint" according NIACUC policy, provide scientific justification for this procedure.
g. Outline how animals will be monitored while restrained
h. Identify criteria used to determine when the animal needs to be removed from the device
i. Indicate what steps are taken if an animal is unwilling to remain in the device
j. Provide a clear definition of the experimental endpoint (exclusive of euthanasia),
k. Outline post-procedural monitoring procedures,
l. Indicate the frequency of monitoring, and
m. How many times the animals will be restrained during the duration of the study.

☐ **Breeding:** Provide the information below only if you are breeding animals to generate animals for experimental use under this protocol:

1. Indicate the species to be bred.

2. Describe the rationale for breeding this species:

3. Explain why animals cannot be obtained from the Breeding Facility of the Department of Animal Experimentation (DAE – NMIMR) or purchased from commercial sources.

4. Estimate the **initial** number of animals necessary to establish the colony (number of breeder animals should be stated for the duration of the project – a maximum of 3 years). *Be sure these animals are reflected in the table in Section 3 under Pain Category B.*

5. Please list the estimated number of animals to be produced per year:

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

6. If breeders (in addition to pups) will be used in the research, indicate which study procedures will be performed.

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7. If breeders will not be used experimentally, indicate their fate.

8. Indicate: the age of the animal, the tissue (e.g. tail, ear, etc.), and the amount of tissue that will be taken for genetic characterization.

9. Identify who will be responsible for colony management, including weaning and recording births and deaths.

10. Please describe the record-keeping system that will be used and how breeding, health and maintenance of the colony is recorded (a sample record-keeping sheet would be helpful):

☐ **Other:** Describe any other procedures that will be performed.

SECTION 9: PRODUCTION OF MONOCLONAL AND POLYCLONAL ANTIBODIES

1. Indicate all attempts made to produce the antibody using an *in-vitro* system(s) by you or other researchers;

2. Indicate the reason it is believed that the tested *in-vitro* system(s) was the best to try;

3. Provide a description of why the *in-vitro* method(s) tried was unacceptable;

4. Provide scientific justification for the production of monoclonal/polyclonal antibodies using animals

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SECTION 10: SURGICAL PROCEDURES N/A ☐

1. For all surgical procedures provide detailed information for each topic (**a-m**) listed below.
2. For projects that include more than one surgical procedure and/or more than one species, please provide information for each species/surgical procedure separately.
3. Please also refer to the UG-IACUC policies (listed below), and where applicable, confirm that they will be followed.

a. Pre-operative care	**h.** Surgical endpoint
b. Induction &assessment of level of anesthesia c. Use of paralyzing drugs	**i.** Post operative care* (including post-op analgesia)
d. Surgical procedure(s)	**j.** Anticipated long term care (if applicable)
e. Use of aseptic technique	**k.** Record-keeping procedures
f. Methods to prevent dehydration &hypothermia	**l.** Multiple surgeries (justify why necessary)
g. Duration of each surgical procedure	

***** Post-operative care must include details on monitoring and the use of post-operative analgesia. See the UG - IACUC approved Guidelines for Postoperative Care of Rodents, or Standards for Postoperative Care (Non-Rodents) and confirm these policies will be followed where applicable.

*Post-operative analgesia **is required** unless its absence is scientifically justified and approved by the UG-IACUC.
Please refer to the UG- IACUC Policy on the Use of Analgesics in Laboratory Animals and confirm that it will be followed or provide scientific justification for not using post-operative analgesics in topic **i** above.

Examples for topic **j include loss of mobility, failure to groom, abnormal posture, licking/biting wound area, etc.

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

SECTION 11: DESCRIPTION OF EXPECTED CLINICAL SIGNS OR LESIONS N/A ☐

1. Describe any clinical signs or lesions expected in animals assigned to this protocol (e.g. ruffled fur, absence, increase or decrease in food/water intake, absence, increase or decrease in urination/defecation, unformed or softened faeces, abnormal colour of urine/faeces, lameness, lethargy, surgical wounds, drug toxicity, tumors, change in normal respiration, change in body weight, etc.).

2. Describe how these signs and lesions will be managed.

3. Describe how animals will be monitored and frequency of monitoring.

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

a) Who will be responsible for animal husbandry? PI and his/her team? ☐ Or DAE staff ☐
If 'PI and his/her team' provide information on feeding (frequency and type of food), cage type and size, and cleaning schedule, veterinary care and emergency procedures. Include in this a confirmation that a daily log will be maintained in order to comply with UG IACUC requirements that animals must be observed on a daily basis, including weekends and holidays:

b) Does the protocol call for non-standard caging (i.e. wire bottom, metabolic) to be used? YES ☐ NO ☐
If "**Yes**" please indicate the length of time the animals will be housed in these non-standard cages and provide justification as to why this type of caging is necessary:

c) Does the protocol call for solitary isolation of social species (e.g. mice, rats, sheep, goat)? YES ☐ NO ☐
If "**Yes**" please indicate the length of time the animals will be isolated, justification for this type of housing and include plans for enhanced environmental enrichment.

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

SECTION 12: REQUEST FOR HOUSING EXCEPTION

Will animals be housed outside a University of Ghana Animal Facility?
YES ☐ NO ☐ If **Yes,** provide the following information (please refer to the UG-IACUC Standard Operating Procedure (SOP) on Housing of animals Used in Teaching, Research and Training):

a. If more than one species is noted on the protocol, indicate which animal(s) will be kept out of the animal facility.

b. Identify the site where animals will be kept (Building/Room #).

c. How often will animals be monitored and what care will they receive?

d. Will animals be housed in cages other than those provided by DAE Animal Facility? If **yes**, please describe the cages to be used and how they would be obtained.

e. If animals will be kept outside DAE Animal Facility, provide an SOP on feeding (frequency and type of food), cage type and size, and cleaning schedule, veterinary care and emergency procedures. Include confirmation that a daily log will be maintained in order to comply with NIACUC requirements that animals must be observed on a daily basis including weekends and holidays.

SECTION 13: CONSIDERATION OF ALTERNATIVES TO PAINFUL PROCEDURES N/A ☐

This section requires the consideration of alternatives to all procedures, which may cause more than minimal or transient pain or distress. This section must be completed ONLY if any animal is placed in Pain Category "**D**" or "**E**" (See Section 3).

When considering alternatives you should search for techniques that incorporate *replacement, reduction or refinement* of animal use in order to minimize animal pain and distress consistent with the goals of the research. Examples include:

- Methods that use non-animal model systems or less sentient animal species to partially or fully *replace* animals (for example, the use of an *in-vitro* or insect model to *replace* a mammalian model),

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NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

- Methods that *reduce* the number of animals to the minimum required to obtain scientifically valid data, and
- Methods that *refine* animal use by lessening or eliminating pain or distress and, thereby, enhancing animal well-being (taken from USDA Policy 12).

1.) <u>For *all* live vertebrate animals used in Pain Category D or E:</u>

a) List all procedures that will cause more than momentary pain and or distress (e.g. survival or non-survival surgery, tumor growth, prolonged restraint, food/water regulation):

b) For each procedure listed in (a), please describe your consideration of alternatives and how it was determined that alternatives were not available.

c) Provide a statement indicating what sources* have been used to determine that there are no available, less painful, alternative *procedures* that would allow the same research goals to be achieved.

**Database searches remain the most effective and efficient method for conducting alternative searches.*

(**b**) The **minimal** narrative must include: (i.) the names of the databases searched, (ii) the date the search was performed, (iii) the period covered by the search, and (iv) the key words and/or search strategy used. Please provide that information below.

Name of Database: **Date(s) of the search:**

Period Covered: **Keywords Used:**

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Legon, Accra
Ghana

Office Location: Department of Animal Experimentation Building, Noguchi Memorial Institute for Medical Research (NMIMR), University of Ghana

NEW APPLICATION TO USE ANIMALS IN RESEARCH, TEACHING OR TESTING

IMPORTANT NOTE: In view of foreign funding, please keep material supporting data search on file since some agencies request to inspect the information documenting the sources you consulted for this protocol.

SECTION 14: DISPOSAL OF ANIMALS AT END OF PROJECT/EUTHANASIA

1) Will **YOU** be performing euthanasia independently of DAE: **YES** ☐ **NO** ☐
If **No**, there is no further information required in this section.

If **Yes**, please describe in detail the euthanasia procedures (physical or chemical) to be used for each species.

2) If chemical agents will be used for euthanasia, please complete the table below.

AGENT	DOSE (mg/kg body weight)	ROUTE	SPECIES

Physical methods such as **cervical dislocation** and **decapitation** *in the absence of anesthesia* are not considered an acceptable means of euthanasia, unless required for the scientific goals of the project and should be completely justified:

3) Regardless of the method used, please indicate how death will be confirmed. Choose one of the following:

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Rigor mortis (occurs in 10 minutes)
Removing vital organ
Create pneumothorax
Absence of cardio-vascular function
Other (Please describe):

4) If animals will not be euthanized, specify means of disposal:

SECTION 15: HAZARDOUS AGENTS (i.e. Radioactive Substances, Radiation Devices such as Irradiators or X-ray Producing Equipment, Lasers, Hazardous Biological Agents (including tissue of human origin and all Biosafety Level 2 and above agents), Biological Toxins, Toxic Chemicals (LD_{50}<50 mg/kg), Mutagens, Carcinogens , Reproductive Toxins, and Ether.

Will hazardous agents be used *in vivo* as part of the animal protocol? YES ☐ NO ☐ If ***Yes*****,** please attach a "Request to Use Hazardous Agents" form.

Reminder: the use of hazardous agents in animals may only be initiated **after** approval from UG-IACUC.

INVESTIGATOR'S ASSURANCE
For the Application to Use Animals in Research, Teaching, or Testing

University of Ghana Institutional Animal Care and Use Committee (UG-IACUC)

By virtue of submitting this application I, the Primary Investigator, ensure the following:

1. I agree to abide by UG-IACUC Regulations governing the use of animals in research, teaching and testing.

2. I will permit emergency veterinary intervention, even if it could compromise my experiments, for animals showing evidence of pain or illness not addressed specifically in the approved protocol, in addition to appropriate veterinary care as prescribed for individual species. I understand that it is my responsibility to provide current and updated emergency contact information if veterinary intervention will compromise my experiments.

3. I declare that all personnel having direct live animal contact on this project, including myself, have been or will be trained in humane and scientifically acceptable procedures for animal handling, procedural techniques, administration of anesthesia, analgesia and euthanasia to be used in this project, and all are

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aware of the hazards involving the use of live animals and tissues. Personnel will be allowed adequate time to obtain training necessary for this project.

4. I certify that all experiments and surgeries involving live animals will be performed under my supervision or that of another qualified professional listed on this protocol.

5. I will ensure that copies of the approved protocol will be made available to all laboratory personnel.

6. I guarantee that, all personnel on this study, including myself will follow the recommendations of the University's Health Authority with respect to Occupational Health; to safeguard our health and that of the animals we would come into contact with while carrying out this study.

7. 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 proposal for funding, it is my responsibility to ensure that the description of animal use in such funding proposal is identical in principle to that contained in this application.

8. I certify that all personnel in this project will attend the mandatory UG-IACUC/DAE Orientation.

9. I am aware that the use of hazardous agents in animals may **only be initiated after** approval from UG-IACUC

Date of Submission ……

Signature……

SECTION 16: REFERENCES

Please provide bibliography and references for the study