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| **INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (IACUC)**  **Project/Study Application Form** | | | |
| **IACUC Ref No.:** | FOR OFFICIAL USE | **Amendment Request Date:** | FOR OFFICIAL USE |
| **Application Date:** | FOR OFFICIAL USE | **Amendment Approved Date:** | FOR OFFICIAL USE |
| **Approval Date:** | FOR OFFICIAL USE | **Amendment Version No.** | FOR OFFICIAL USE |
| **Expiry Date:** | FOR OFFICIAL USE |  |  |
| **Protocol Title** | | | |
| <Please Specify> | | | |
| **Instructions for IACUC Application** | | | |
| Instructions / Notes for Principal Investigator (PI)   * To reduce potential delay in your application, it is advised that the completed application be submitted for a Vet Checklist by the 1st day of the month. The final submission via your official corporate email to IACUC Secretariat (including Vet's Checklist) must be submitted by the 7th day of the month (except December), otherwise it will be reviewed in the next cycle of review. * Consult SEMC vets before submission for IACUC review, to ensure that the protocol is complete and accurate, thus reducing delay in the IACUC approval process. * Please note that Section Q is the last Section for this application form. * PI must reply to the reviewers’ comments/queries/recommendations fully with high degree of clarity as possible, after they have been sent to PI. If PI’s reply is still unsatisfactory after PI’s 3rd attempt, IACUC may request PI to re-submit the application, which will be treated as a new application. * NACLAR Guidelines (Second Edition) stated that “Investigators must inform the IACUC in writing when each project is completed or discontinued; and the outcome of each project.” It is the Principal Investigator's responsibility to submit the Annual Project Update report one year from the IACUC approval date and yearly thereafter if the project duration exceeds one year and to request for project extension when necessary. Failure to do so may result in suspension of study till the Annual project report is submitted to the IACUC Secretariat. * Please note that all IACUC protocols' extension is to be made **at least 4 weeks** prior to protocol expiry date. The Extension Approval is given on a case-by-case basis. No further extension request will be granted for projects that are in the fifth year of the study, or projects that had already been given two extensions. * Applicant and the project team's RCULA certificates must be attached with the application. * CIRB's and/or IBC's and/or HBRA approvals (if applicable).   **For further enquiries, please contact the** SingHealth IACUC Secretariat @ SingHealth Office of  Research at:  20 College Road, The Academia Discovery Tower Level 7  Singapore 169856  Email: iacuc@singhealth.com.sg | | | |
| Responsible Conduct of Research  **SingHealth Institutional Animal Care and Use Committee (IACUC)** oversees activities involving any live, vertebrate animal used or intended for use in research, research training, teaching, experimentation, or biological testing or for related purposes. All animal research projects conducted in any of the SingHealth managed facilities shall obtain the consent of the SingHealth IACUC before commencement of the projects.  SingHealth Member Institutions that handle biological agents and toxins covered by the Biological Agents and Toxins Act 2005 (BATA) would form its own BATA Sixth Schedule Biosafety Committee to meet the statutory requirements and the Singapore Biosafety Guidelines for Research on Genetically Modified Organisms. | | | |
| **Declaration of Ethics/Biosafety Considerations**  Please note that approval of this IACUC application is subject to prior approval by the Institutional Review Board (IRB) and/or Institutional Biosafety Committee (IBC) if your project involves human tissues and/or using materials requiring biosafety approval. It is the Principal Investigator's responsibility to ensure that the IRB and/or IBC’s approvals are in place | | | |
| i. Please state if your study involves the following: | | | |
| Use of Human Tissues or Cells  Use of Human Tissues or Cells for Xenotransplantation Purposes  Requirement for Containment Class 2 and Above  Use of Material Requiring Biosafety Approval  List of Biological Agents & Toxins  *(See LIST OF BIOLOGICAL AGENTS AND TOXINS in IACUC Website)*  First Schedule  Second Schedule  Third Schedule  Fourth Schedule  Fifth Schedule  Genetically Modified Organism  Nanoparticles  Xenotransplantation | | | |
| ii. Do you have an approved IRB Protocol?  Please note that you can apply for IRB approval concurrently to IACUC application, if applicable. For IRB matters, please contact [irb@singhealth.com.sg](mailto:irb@singhealth.com.sg) | | | |
| Yes  No  Pending  NA. | | | |
| |  |  |  | | --- | --- | --- | | IRB Ref. No. | Date of Approval | Approval Letter | |  | DDDMMMYYYY |  | | | | |
| iii. Do you have an approved IBC Protocol?  Please note that you can apply for IBC's approval concurrently to IACUC application, if applicable. | | | |
| Yes  No  Pending  NA. | | | |
| |  |  |  |  | | --- | --- | --- | --- | | IBC Ref. No. | Name of PI | Date of Approval | Approval Letter | |  | <Please Specify> | DDMMMYYYY |  | | | | |
| iv. Do you have a HBRA Approval?  Please note that you can apply for HBRA approval concurrently to IACUC application, if applicable. | | | |
| Yes  No  Pending  NA. | | | |
| |  |  |  | | --- | --- | --- | | HBRA Ref. No. | Date of Approval | Approval Letter | |  | DDDMMMYYYY |  | | | | |
| **Study Funding Information** | | | |
| **1. Please provide information on Funding Source or Sponsor information.** | | | |
| Department/Institutional Fund  Pharmaceutical/Industry Sponsored   |  | | --- | | **i. Name of Pharmaceutical/Sponsor Company** | | <Please Specify> | | **ii. Sponsor Company's Contact Person** | | |  |  | | --- | --- | | Name | <Please Specify> | | Contact No. | <Please Specify> | | Email Address | <Please Specify> | | Address | <Please Specify> | |   Grant   |  |  | | --- | --- | | Grant Agency | <Please Specify> | | Grant Name | <Please Specify> | | Approval Status | <Please Specify> | | Grant Ref. No. | <Please Specify> | | Grant Approval Date | DDMMMYYYY | | Grant Expiry Date | DDMMMYYYY | | Grant Amount Approved | <Please Specify> | | | | |

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| **Section A: Administrative Data** |
| **A1. Project Title** |
| <Please Specify> |
| **i. Proposed Project Commencement Date:**  Proposed Project Commencement Date is indicative only and is subject to final approval letter from IACUC. |
| DDMMMYYYY |
| **ii. Expected Duration of the Project:**  Approval is only for a maximum of 3 years with an additional 1-year extension is possible at the request of the Investigator and subject to approval of IACUC, on a case-by-case basis. |
| DDMMMYYYY |
| **iii. Will you be collecting photo and/or video images of animals and/or, facilities? See SEMC Video Recording and Photo Taking Policy.**  Where will the images be published and elaborate on the purpose and how the images will be captured and used?  For more info about availability of histology consulting and services, please contact [shs.semc@singhealth.com.sg](mailto:%20shs.semc@singhealth.com.sg). |
| <Please Specify> |
| **iv. Does this protocol involve breeding?** |
| Yes  No |
| **v. Has the application been previously submitted to any local IACUC? (Including SingHealth IACUC)** |
| <Please Specify> |
| **A2. Principal Investigator**  PI should have Didactic RCULA/ Didactic RCULA refresher/ every 5 years to be approved for PI-ship. |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Name** | **Designation** | **Institution/ Organization** | **Department** | **Contact**  **Number** | **Highest**  **Qualification** | **RCULA Cert**  **No./ Date** | |  |  |  |  |  |  |  | |

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| **A3. Delegate/Team Collaborators**  All collaborators handling animals should have RCULA/ RCULA hands-on refresher/ actively worked on protocols, for the specific species, within a 2-year validity period to be approved for animal procedures. Relevant Protocol numbers can be stated in the RCULA column. |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Name** | **Designation** | **Institution/**  **Organization** | **Department** | **Contact**  **Number** | **Highest**  **Qualification** | **Handling**  **Animals** | **RCULA Cert**  **No./Date** | **Delegate** | |  |  |  |  |  |  |  |  |  |   *\*Add more rows if required.* |

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| **Section B: Objectives of the Study** |
| **B1. Objectives of the Study** |
| The information in this section must be self-contained so that it can serve as a succinct and accurate description of the study when it is read by itself. As far as possible, the technical and medical terms should be explained in simple layman language.  ***IMPORTANT NOTE:*** Do not use terms such as "Refer to attached document" or similar. |
| <Please Specify> |

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| **Section C: Abstract of the Study** |
| **C1. Abstract of the Study (Up to 400 words, no tabular data/information or image, attachment)** |
| <Please Specify> |

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| **Section D: Animal Requirements** |
| **D1. Animal Requirements** |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Species (Scientific Name)** | | | | | | **Proposed Number of Animals Used** | | | | | **Year 1** | **Year 2** | **Year 3** | **Total** | | <Please Specify> | | | | | |  |  |  |  | | **Strains/**  **Stocks** | **Age or**  **Weight/**  **Size** | **Sex** | **Source** | **Holding**  **Location** | **Animal**  **Procedure**  **Location** | **Year 1** | **Year 2** | **Year 3** | **Sub Total** | |  |  |  |  |  |  |  |  |  |  |   *\*Add more rows if required.* |

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| **D2. Social Housing of Animal** |
| **Do you require the animal to be individually housed?**  If yes, please provide justification on why the animal require individual housing and include information on the extra environmental enrichment that the animal will receive. |
| Yes  No |
| <Please Specify> |

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| **Section E: Rationale for Animal Use** |
| **E1. Explain the rationale and basis for choosing the number of animals to be used.**  [Note: Group sample size based on quantity of harvested cells or amount of tissue required. Explain how much tissue is needed based on the number of experiments you will conduct and how much tissue you expect to obtain from each animal.] |
| <Please Specify> |

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| **E2. Explain your rationale for animal use, rather than performing in vitro study, computer modelling, tissue culture, etc. Justify the 3Rs:** |
| i. Replacement of animals with other methods. (Up to 300 words) |
| <Please Specify> |
| ii. Reduction in the number of animals used. (Up to 300 words) |
| <Please Specify> |
| iii. Refinement of project and the techniques used to minimize impact on animals. (Up to 300 words) |
| <Please Specify> |

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| **E3. Justify the appropriateness of the species selected as the animal model. (Up to 300 words)** |
| <Please Specify> |

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| **E4. Justification of the number of animals to be used.** |
| **(a) Will any statistical analysis (e.g., Chi-square test, Fisher's Exact test, Student's t-test, and ANOVA) be used?**  **If yes, please complete the whole of Section E4, and attach printout from statistical software.**  **If no, please skip Section E4.** |
| Yes  No |
| **(b) Indicate the statistical method(s) and provide the following parameters to justify the number of animals to be used. *(Please provide reference for software used for the calculations)***  i. The effect size of biological interest (δ): The effect size stands for how large a biological effect would be of scientific interest. |
| <Please Specify> |
| ii. The standard deviation (σ):  (Please provide reference) |
| <Please Specify> |
| iii. The significant level (α): (Up to 300 words) |
| <Please Specify> |
| iv. The desired power of the experiment (1 - β): (Up to 300 words) |
| <Please Specify> |
| v. The alternative hypothesis (i.e., a one- or two-sided test): (Up to 300 words) |
| <Please Specify> |

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| **E6. Will you be using pregnant animals?** |
| Yes  No |
| **If yes, please discuss how you will take care of the offspring. (Up to 300 words).** |
| <Please Specify> |

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| **Section F: Transport of Animals** |
| **F1. Briefly discuss transport of animals in between facilities in Singapore and the method of containment to be utilised.**  (This section refers to transport of animals from a location facility to the next. It does not refer to the transportation of animals by the supplier to the facility.) |
| |  |  |  |  | | --- | --- | --- | --- | | **Species** | **From** | **To** | **Describe the method of containment to be utilized.**  *(See ANIMAL TRANSPORT GUIDE in the IACUC Website)* | |  |  |  |  |   *\*Add more rows if required.* |

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| **Section G: Description of Experimental Design & Animal Procedures** |
| **G1. Explain the experimental design and specify all animal procedures. Your description should allow the IACUC to understand the experimental course of an animal from its entry into the experiment to the endpoint of the study. *A complete copy of the research protocol is required, and a study flowchart must be included for clarity and to facilitate IACUC evaluation. (Provide separate attachment if necessary.)***  **Attach Study Flowchart.** |
| <Please Specify> |

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| **G2. Animal Procedure Schedule:** |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **Species** | **Sequence** | **Timepoint** | **No. of Animals per cage** | **Procedure** | **Resultant**  **Effects** | **Remedy** | **Qualified**  **Person**  **Performing** | |  |  |  |  |  |  |  |  |   *\*Add more rows if required.* |

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| **G3. Dosing, such as Injection, Oral, Topical Administration, Inhalation or Other Route.** |
| Not Applicable |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **Species** | **Substance** | **Administration method** | **Route** | **Site** | **Dosage** | **Volume** | **Frequency** | |  |  |  |  |  |  |  |  |   *\*Add more rows if required.* |
| **Will non-pharmaceutical grade compound be used for relieving of pain or research dosing?** |
| Yes  No |
| **If yes, please provide scientific justification and confirm that the pharmaceutical grade compound is not available.**  **If no, please tick if the following will be complied with:** |
| 1.The route of administration and the chemical properties of the compound are appropriate for the study (e.g., the purity, grade, stability in and out of solution, solution vehicle properties, pH, osmolality, and compatibility of the solvent and other components of final preparation).  2.The method of preparation, labeling (i.e., preparation and use-by dates), administration and storage of formulations are appropriately considered with the aim of maintaining their stability and quality (i.e., to prevent inadvertent co-administration of infectious agents or contaminants). |

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| **G4. Blood Withdrawals: Volume, Frequency, Withdrawal Sites and Methodology.**  [Note: No more than 10% of blood volume in a single day and no more than 20% over a 2-week period.] |
| Not Applicable |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Species** | **Route** | **Site** | **Volume** | **Frequency** | |  |  |  |  |  |   *\*Add more rows if required.* |

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| **G5. Non-Survival Procedures:** |
| Not Applicable |
| <Please Specify> |

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| **G6. Radiation: Dosage and Frequency.** |
| Not Applicable |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Species** | **Type of Radiation** | **Dose** | **Site/ Route** | **Volume** | **Frequency** | |  |  |  |  |  |  |   *\*Add more rows if required.* |

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| **G7.**  **Methods of Restraint: Chemicals, Restraint Chairs, Collars, Vests, Harnesses, Slings, etc. When possible, animal should be trained to tolerate restraint prior to study and provided positive reinforcement during or following the restraint. Animals that do not adapt to restraint should be removed from this study.** |
| Chemical methods. See Section I. |
| Physical methods.   |  |  |  |  | | --- | --- | --- | --- | | **Species** | **Methods of Restraint** | **Description** | **Duration of Restraint** | |  |  |  |  |   *\*Add more rows if required.* |

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| **G8. Animal Identification Methods: Ear-Tags, Tattoos, Collars, Cage Cards, etc.**  (i) In accordance with NACLAR Guidelines and IACUC Guidebook, SingHealth IACUC discourages the use of toe clipping as a method of identification. Principal Investigators must provide strong scientific justification in their protocol application and prior IACUC approval must be obtained before performing the procedure. (ii) "As a method of identification of small rodents, toe clipping should be used only when no other individual identification method is feasible." - The Guide for the Care and Use of Laboratory Animals. Notwithstanding (i) and (ii) above, with proper scientific justification which may include the necessity for early determination of genotype and/or identification, toe clipping may be allowed in neonatal mice up to 7 days of age without anaesthesia. Anaesthesia is required when performed on mice between 8 and 14 days of age. |
| |  |  | | --- | --- | | **Species** | **Identification Methods** | |  |  |   *\*Add more rows if required.* |

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| **G9. Other Procedures: Survival Studies, Tail Biopsies, etc.** |
| Not Applicable |
| <Please Specify> |

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| **G10. Resultant Effects: Pain, Distress, Ascites Production, etc.** |
| Not Applicable |
| <Please Specify> |

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| **Section H: Humane Endpoint Criteria** | |
| **H1. At any given time during the research study, animals that suffer from severe or chronic pain and distress that cannot be relieved with therapeutic intervention, must be painlessly euthanised.**  List the criteria used to determine when therapeutic intervention or euthanasia needs to be administered (if it is called for), and what treatments are allowable without interfering with expected results. Complete in “Comments” section below. Death as an endpoint must always be scientifically justified. If PI plans to use more than 1 species, please copy format of this whole section H1, paste below Section H1, and fill in the blanks for each species used. | |
| 1. Species: | <Please Specify> |
| Please select from the list below, the criteria to be used as a means for therapeutic intervention or euthanasia. | |
| Tumour size (specify growth in diameter or volume under comments).  More than 20% bodyweight loss over 1 week or more OR more than 10% over 24 hours  Inability to eat or drink.  Behavioural abnormalities such as CNS signs, vocalisation, hunched posture, shivering, decreased activity, immobility.  Clinical symptomatology such as ruffled fur-coat, lameness, paralysis, dyspnea, vomiting, edema, not eating or drinking, abnormal discharge.  Signs of toxicity.  Wound infection or dehiscence.  Severe or chronic pain.  Severe bleeding. | |
| Others | <Please Specify> |
| Comments: | |
| <Please Specify> | |
| 1. How will observation be made? (e.g., Twice daily [or other interval] observation of animal; In cage [visual through cage wall or by removing cage from rack]; or physical exam; or measuring body weight, etc.) | |
| <Please Specify> | |
| 1. Who will make these observations? (SEMC staff? PI? Team collaborators? Vet? etc.) | |
| <Please Specify> | |
| 1. What action(s) will be taken? (i.e. How will one alleviate the situation?) | |
| <Please Specify> | |

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| **Section I: Pre-Medication, Anaesthesia, Analgesia, Sedation and Antibiotics** |
| **I1. Specify the pre-medications, anaesthetics, analgesics, sedatives, and antibiotics that are to be used. Include the drug name, dosage, route, and frequency/duration.** |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Species** | **Type** | **Drug Name**  *(See DRUGS FORMULARY TABLE in the IACUC Website)* | **Dosage** | **Route** | **Frequency/ Duration** | **Notes** | |  |  |  |  |  |  |  |   *\*Add more rows if required.* |

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| **Section J: Survival Surgery** |
| **J1. Will there be any survival surgical procedure?** |
| Yes  No  If yes, please complete Section J2 to J4. |

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| **J2. Identify and describe the surgical procedure(s) to be performed**. **Include the aseptic methods to be utilised, suture materials used and when sutures will be removed.**  If PI plans for Survival Surgery for more than 1 species, please copy format of this whole section, paste below Section J2, and fill in the blanks for each species used. | |
| **Species:** | <Please Specify> |
| **i. Pre-Operative Aseptic Preparation** | |
| <Please Specify> | |
| **ii. Operative Procedure** | |
| <Please Specify> | |
| **iii. Post-Operative Procedures** | |
| <Please Specify> | |
| **iv. Who will perform the surgery and what are their qualifications and/or experience?**  **Attach record of formal training in animal surgery (if any) and publication references.** | |
| <Please Specify> | |
| **v. Where will surgery be performed?** | |
| <Please Specify> | |
| **vi. Describe post-operative care and monitoring required, highlight, and identify the individual responsible. State parameters to be monitored. Attach post-operative care checklist.** | |
| <Please Specify> | |
| **J3. Has major surgery been performed on these animals prior to being placed in this study?** | |
| <Please Specify> | |
| **J4. Will more than one survival surgery be performed on animal while in this study?** | |
| <Please Specify> | |

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| **Section K: Pain & Distress Category** | |
| The proper use of animals is imperative. This includes avoidance or minimisation of discomfort, distress, and pain consistent with sound scientific practice. Unless evidence to the contrary is established, investigators should consider procedures causing pain and/or distress to human beings will also cause pain and/or distress to animals. | |
| **K1. Number of NEW animals used per year.**  *Please make sure that the annual number of animals shown in this table match with the annual number of animals shown under Section D.*  If PI plans to use more than 1 species, please copy format of this whole section, paste below Section K1, and fill in the blanks for each species used. | |
| **Species:** | <Please Specify> |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Index of Severity** | **Year 1** | **Year 2** | **Year 3** | **Total** | | Minimal, Transient, or No Pain or Distress |  |  |  |  | | Pain or Distress Relieved by Appropriate Measures |  |  |  |  | | Unrelieved Pain\* |  |  |  |  | | **TOTAL** |  |  |  |  | | |
| \* For this category, scientific justification is required to explain why the use of anaesthetics, analgesics, sedatives, or tranquilizers during and/or following painful or distressful procedure is contraindicated.  Please justify unrelieved pain: | |
| <Please Specify> | |

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| **Section L: Method of Euthanasia/Animal Disposal at the End of the Study** |
| **L1. Indicate the proposed method, and if chemical agent is used, specify the dosage and route of administration.**  If the method(s) of euthanasia include those not recommended by the Animal and Veterinary Service (AVS) like decapitation or cervical dislocation without anaesthesia, provide scientific justification why such methods be used. Indicate the method of carcass disposal. |
| |  |  |  |  | | --- | --- | --- | --- | | **Animal Species** | **Method**  For small animals: CO2 Inhalation followed by physical method. For large animals: Injectable agents following sedation. | **Description**  For small animals: the flow of CO2 into the euthanasia chamber should be at a rate to displace 30 to 70% of the chamber volume per minute over at least 5 minutes, followed by cervical dislocation or decapitation.  For large animals: Intracardiac overdose of saturated Sodium Pentobarbital. | **Carcass Disposal**  **Method**  The carcass is placed in double biohazard bag and stored in minus 20°C freezer (if required) for eventual collection by SembCorp for incineration. | |  |  |  |  |   \*Add more rows if required. |
| **L2. How will death be verified or assured?** |
| <Please Specify> |

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| **Section M: Hazardous Agents** |
| **M1. Will you be using Hazardous Agents?** |
| Yes  No |

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| **M2. Please indicate hazardous agent and attach relevant document.** |
| Radionuclides  Biological Agents  Hazardous Chemicals or Drugs  Recombinant DNA |
| **Type/Name of Agent:**  **Please upload MSDS or Certificate of Analysis.**  If PI plans to use more than 1 type of Hazardous Material, please copy format of this whole section, paste below Section M2, and fill in the blanks for each species used. |
| <Please Specify> |
| **Describe the practices and procedures required for the safe handling and disposal of contaminated animal and/or material associated with this study. Also describe the methods for the removal of waste (radioactive/ biological/ chemicals or drugs) and, if applicable, the monitoring of radioactivity/waste:** |
| <Please Specify> |

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| **Section N: Biological Material/Animal Products for Use in Animals** |
| **N1. Will you be using Biological Material/Animal Products?** |
| Yes  No  If yes, please complete Section N2 and N3. |
| **N2. Please specify material and its source.**  **Please upload relevant documents for each material listed.** |
| |  |  |  | | --- | --- | --- | | **Material** | **Source** | **Details** | |  |  |  |   *\*Add more rows if required.* |

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| **N3. If derived from human (i.e., human tumours, tissues, antiserum are selected), has it been tested for HIV, mycoplasma, hepatitis, others? If yes, complete table below. If not tested, ABSL2 level of containment will apply.**  **Attach Material Safety Data Sheet (MSDS), when required. If not using human derived samples, state “No human derived samples used”.** | |
| |  |  | | --- | --- | | **Type (Hepatitis, HIV, Mycoplasma, etc.)** | **Comments** | |  |  |   *\*Add more rows if required.* | |
| **a) Was the material derived from rodent or passaged through rodents?** | |
| Yes  No | |
| **b) Has the material been tested for rodent pathogens using methods such as PCR or MAP Mouse Antibody Production/ RAP-Rat Antibody Production/HAP-Hamster Antibody Production? Please indicate if this has been done.** | |
| Yes | Please attach copy of result(s) |
| No | Please make arrangement to discuss this with your animal facility administrator. |

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| **Section O: Special Concerns or Requirements of Study** |
| **O1. Special Concerns or Requirements of Study:** |
| Not Applicable  If Not Applicable, skip this Section. |
| List any special housing, equipment, animal care (i.e., special caging, water, feed, or waste disposal, etc.).  If applicable, list the staff (research or animal holding) involved in ensuring the special needs are met. |
| <Please Specify> |
| **O2. Will food or fluid be regulated or restricted?**  [Note: Written record must be maintained for each individual animal on bodyweight, food, or fluid restriction to document (daily/periodically) food and fluid consumption, hydration status and any behavioural and clinical changes used as criteria for temporary or permanent removal of animal from protocol.] |
| Yes  No |
| If yes, please provide justification and method for assessing the health and well-being of the animals. |
| <Please Specify> |

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| **Section P: Unnecessary Duplication in Research** |
| **P1. Is this protocol a Regulatory Study?** |
| Yes  No  *Currently there are no GLP studies within the SingHealth animal care programme.* |
| **P2. Has this study been previously conducted?** |
| Yes  If the study has been conducted previously, explain why it is scientifically necessary to duplicate the experiment: |
| <Please Specify> |
| No  Please provide literature search to verify this study has not been conducted previously. |
| |  |  |  |  | | --- | --- | --- | --- | | **Date of Search:** | **Database Name:** | **Years Covered in Search:** | **Keywords:** | | DDMMMYYYY |  |  |  |   *\*Add more rows if required.* |

Please submit application to an appropriate vet below for completion of Vet Checklist before submission to IACUC Secretariat.

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| **Name** | **Profile** | **Email** |
| Dr Edgar Pena Macabe | Big Animals (Academia/NLARF) | edgar.macabe.pena@singhealth.com.sg |
| Dr Bryan Ogden | Big and Small Animals (Academia/NLARF) | bryan.ogden@singhealth.com.sg |
| Dr Sebastian Jose David | Big and Small Animals (Academia/Duke-NUS) | sebastian.jose.david@singhealth.com.sg |
| Dr Mynn Michele Dy Varela | Big and Small Animals (Duke-NUS) | mynn.michele.dy.varela@singhealth.com.sg |

*Note: For veterinary matters, contact:*

*SingHealth Experimental Medicine Centre*

*20 College Road, The Academia, Discovery Tower, Level 6, Singapore 169856*

*Email:*[*bryan.ogden@singhealth.com.sg*](mailto:bryan.ogden@singhealth.com.sg)

*Contact Tel: 6576 7040*

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| **Section Q: Declaration by Principal Investigator** | | |
| 1. I accept full responsibility for ensuring that the project will be conducted in accordance with the guidelines for the Care and Use of Laboratory Animals, and the procedures described in the approved protocol. 2. I assure that all personnel who will use this protocol and work with animals will have received appropriate training/instructions in procedural and handling techniques, and/or animal welfare considerations. 3. I confirm that this protocol bears no unnecessary duplication of previous studies and that I have conducted a due diligence literature review to confirm as such. 4. I confirm that any photo taking, and video recording of the animal facility will be subject to review and approval by the Animal Research Facility. 5. I understand that all research projects undertaken by any SingHealth Principal Investigator and/or performed within any SingHealth Institution must obtain the requisite approvals from the appropriate regulatory compliance, ethics, and safety committees, prior to beginning the project. 6. I confirm that I am solely accountable to the IACUC and my Department for the accuracy of the protocol and the proper conduct of the project, even if I have given my delegate(s) the rights to amend the protocol, submit progress reports, etc. 7. I assure that I will not initiate any change in the protocol without prior written approval from IACUC. 8. I understand that failure to comply with all applicable regulations, institutional and IACUC policies and requirements may result in the suspension or termination of this study. 9. I certify that the tested materials to be used have not since been passed through rodent species outside of the animal facility in question and/or the material is derived from the original tested sample. To the best of my knowledge, the material(s) is not contaminated with rodent pathogens. 10. I certify that if I am using genetically engineered (GE) animal(s) [i.e., animal(s) that contains additional or altered genetic material using tools intended to give the animal a new trait or characteristic] or human stem cells implanted in animals in this IACUC protocol, I must clearly state this fact in Sections C and G of this application. | | |
| PI Signature: | PI Name | <Please Specify> |
| Department | <Please Specify> |
| Institution | <Please Specify> |
| Date | DDMMMYYYY |

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