**APPLICATION FOR APPROVAL TO USE ANIMALS IN RESEARCH**

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| Submit completed form to the Australian Synchrotron AEC Executive Officer by email to [aec@synchrotron.org.au](mailto:aec@synchrotron.org.au) | AS-AEC application #:  Application status: Select..  Version #:  Commencement date: Click here  (AEC Use Only) |

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| **1.** **ADMINISTRATIVE DETAILS** | | | | |
| **1.1 Project title** | | | | |
| *The title should be concise and expressed in lay language, avoiding abbreviations and scientific jargon.* | | | | |
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| **1.2 Chief Investigator** | | | | |
| *The Chief Investigator has ultimate responsibility for the care and use of animals in a project. The responsibilities of the Chief Investigator are listed in the Code (Clause 2.4.5).* | | | | |
| **Title** |  | **Full name** |  | |
| **Name of employing institution** | | |  | |
| **1.3 Project purpose** | | | | |
| *Please select the most appropriate option from the list below to describe the primary purpose of the project as a whole (see notes in Appendix A.1).You must select one option only.* | | | | |
| **Select one option:**   |  | | --- | | 1. Increasing our understanding of human or animal biology | | 2. Maintaining or improving human and/or animal health and welfare | | 3. Improving animal management or production | | 4. Understanding, maintaining or improving of the natural environment | | 5. Achieving educational objectives | | | | | |
| **1.4 Project benefit** | | | | |
| *Please select the most appropriate option from the list below to describe the primary benefit of the project. You must select one option only.* | | | | |
| **Select one option:**   |  | | --- | | 1. Fundamental biology/physiology | | 2. Diseases: human | | 3. Diseases: animal | | 4. Disease: zoonotic | | 5. Environmental monitoring/ecology | | 6. Domestic animal management/production | | 7. Wildlife management/conservation | | 8. Vertebrate pest management | | 9. Production of biological products | | 10. Xenotransplantation (transplantation of living organs, tissues or cells from one species to another) | | 11. Development of techniques (remedial, surgical, diagnostic) | | 12. Education (demonstration) | | 13. Training (student use of animals) | | 14. Regulatory product testing (e.g. vaccines, chemical, drug evaluation) | | | | | |
| **1.5 Project status** | | | | |
| **a)** Is this a new project? | | | | |
| YES  NO | | | | |
| **b)** Is this application a renewal or a significantly revised current project? | | | | |
| YES  NO | | | | |
| **c)** If the answer to 1.5b is YES, provide AEC approval number, species and number of animals used to date. | | | | |
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| **1.6 Project funding** | | | | |
| **a)** Does the project already have funding?  YES  NO  Under consideration | | | | |
| **b)** Source of funding:Select | | | | **c)** Review process:Select |
| **d)** Name of funding source, ID and title (if applicable): | | | |  |
| **e)** Will the project proceed if funding is unsuccessful? Select | | | | |
| **f)** Is this project commercial-in-confidence? Select | | | | |

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| **1.7 Workplace health and safety** | | | | |
| **a)** Does the project involve any of the following agents that may be harmful to other animals or personnel? Provide details of the agent. | | | | |
| **Agent (tick all that apply)** | **Details of agent** | | | **Has a risk assessment has been done? Attach a copy of the risk assessment to the application.** |
| Recombinant DNA technology/genetically modified organisms |  | | | YES  NO |
| Infectious |  | | | YES  NO |
| Toxic |  | | | YES  NO |
| Unsealed source of radiation (e.g. radiopharmaceuticals) |  | | | YES  NO |
| Ionising radiation (e.g. CT scan) |  | | | YES  NO |
| Carcinogenic |  | | | YES  NO |
| Other |  | | | YES  NO |
| **b)** What precautions will be taken to prevent the risks associated with the above agents (if applicable)? | | | | |
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| **1.8 External animal ethics committee requirements** | | | | |
| Does this project require approval from another animal ethics committee? | | | | |
| YES  NO If YES, provide details below. | | | | |
| Name of institute and AEC | | |  | |
| External AEC application number | | |  | |
| Which AEC will be responsible for monitoring this project? | | |  | |
| Which AEC will be responsible for the annual reporting of animal use to Animal Welfare Victoria? | | |  | |
| **1.9 Permits** | | | | |
| *The Australian Synchrotron AEC is not responsible for issuing permits.*  Is the acquisition, holding or use of animals subject to any permit, legislation or regulation of the State of Victoria or Commonwealth (e.g. OGTR, protected, native or imported species)? | | | | |
| YES  NO | | | If YES, provide details of permit type and authority | |
| **1.10 Genetic modification** | | | | |
| **a)** Does this project involve genetically modified animals? | | | | |
| YES  NO | | | | |
| **b)** Do animals require approval from an Institutional Biosafety Committee (IBC)? | | | | |
| YES  NO | | | | |
| **c)** Has IBC approval been obtained? | | | | |
| YES  NO  UNDER REVIEW | | | | |
| **d)** If the answer to 1.10b is YES, indicate how GM animals are classified by the OGTR. | | Choose an item | | |

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| **2.** **GLOSSARY** | |
| Provide a description/definition of scientific terms in language that can be easily understood by an interested, intelligent person without a scientific background. | |
| **Scientific term (in alphabetical order)** | **Lay description** |
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| *Add/delete rows as necessary* | |

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| **3.** **PROJECT DESCRIPTION** | |
| *Details provided in this section are crucial for the assessment of scientific merit and necessity of animal use. The AEC must be satisfied that the use of animals is justified, based on whether the scientific value of the work outweighs the potential impact on the welfare of the animals being used.*  *It is a requirement of the Code that plain English is used to provide sufficient information for effective participation in assessing the application. Note: the use of scientific acronyms should be avoided if possible in this section of the application.* | |
| **3.1 Background of the project (lay terms only)** | |
| Provide an overview of the project, explaining the scientific significance in relation to the project design. | |
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| **3.2 Scientific or educational aims of the project (lay terms only)** | |
| Clearly state the overall and specific aims of the project. *You must not justify the aims in this section.* | |
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| **3.3 Summary of project design (lay terms only)** | |
| Briefly outline how the experiments are designed to achieve the aims of the project. *Summary only required. A full description of procedures to be used is required at section 5.1d.* | |
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| **3.4 Expected outcomes (lay terms only)** | |
| State the expected outcomes of the project. | |
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| **3.5 Potential benefits of the project (lay terms only)** | |
| Provide information about the potential benefits of the outcomes of the project and how these benefits will be measured. | |
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| **3.6 Previous work** | |
| **a)** Does this project repeat any previously reported experiments? If YES, summarise the reasons why the experiments will be repeated. | |
| YES  NO |  |
| **b)** Does the project follow on from previous or concurrent projects? If YES, how is this work different and how will it contribute to existing knowledge? | |
| YES  NO |  |
| **c)** How has information obtained from previous, similar studies been incorporated into the design of this project in order to minimise impact to animals? | |
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| **4.** **ANIMALS AND HOUSING** | | | | | | | | | |
| **4.1 Animals** | | | | | | | | | |
| **a)** Provide details of the animal requirements for the proposed experiments in the table below. | | | | | | | | | |
| **Species** | **Strain** | | **Genetically modified** | | **Gender** | **Age** | | **Number** | |
|  |  | | Choose an item | | Choose an item |  | |  | |
|  |  | | Choose an item | | Choose an item |  | |  | |
|  |  | | Choose an item | | Choose an item |  | |  | |
| **Total** | | | | | | | |  | |
| **b)** Provide justification for the choice of animal/s selected (species, strain, genetic modification, gender and age). | | | | | | | | | |
|  | | | | | | | | | |
| **c)** Where will the animals be sourced from? | | | | | | | | | |
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| |  | | --- | | **d)** How will animals be transported from the source location? | | | | | | | | | | |
| |  | | --- | | Commercial animal transport company. Provide name of company:  Monash Animal Research Platform approved transport | | Other (provide details below)  If OTHER, describe the mode of transport, type of cage/container, approximate duration of trip | | | | | | | | | | | |
| **4.2 Location of research and animal housing** | | | | | | | | | | |
| **a)** Where will the animals be housed (include facility and room number)? | | | | | | | | | | |
| Australian Synchrotron facilities  ST-G.10 PC2 Rodent holding room  ST-G.12 PC2 Rodent holding room  ST-G.13 Animal holding room (multi-species)  ST-G.14 PC1 Rodent holding room  Monash Biomedical Imaging (MBI) facilities  G12B Sheep and other large animal holding  G50 Mouse holding room  G51 Rat holding room  Other Provide details | | | | | | | | | | |
| **b)** Will animal cages/enclosures be determined by animal care staff as part of routine husbandry for the species in the facility? *Refer to the approved husbandry SOP for the species used. If NO, describe the type of housing to be used. Consult IMBL Animal Facility staff for husbandry SOPs.* | | | | | | | | | | |
| YES  NO | | If NO, describe the type of housing | | | | | | | | |
| **c)** Will the environmental conditions (i.e. animal bedding, environmental enrichment, lighting conditions, temperature, etc.) be determined by animal care staff as part of routine husbandry for the species in the facility? *Refer to the approved husbandry SOP for the species used. If NO, describe the environmental conditions that will be provided. Consult IMBL Animal Facility staff for husbandry SOPs.* | | | | | | | | | | |
| YES  NO | | If NO, describe the environmental conditions | | | | | | | | |
| **d)** What will be the minimum and maximum number of animals per cage/enclosure? | | | | | | | | | | |
| IMBL preferred cage density  Mice: 2-6 in IVC  Rats: 2-3 in IVC  Rats: 4-8 in open tiered rat rack  Rabbits: single housed (in close proximity to other cages)  Other. Provide details: | | | | | | | | | | |
| **e)** Will animals be fed in accordance to the routine husbandry for the species in the facility? If not, describe the type of food and the frequency of feeding. *Refer to the approved husbandry SOP for the species used. Consult IMBL Animal Facility staff for husbandry SOPs.* | | | | | | | | | | |
| YES  NO | | If NO, describe the type of food and the frequency of feeding | | | | | | | | |
| **f)** Are there any other specific husbandry requirements (e.g. health care, handling, isolation)? | | | | | | | | | | |
|  | | | | | | | | | | |
| **g)** Where will experimental procedures be undertaken? Tick all that apply. | | | | | | | | | | |
| **Tick all that apply:**  No experimental procedures  Australian Synchrotron facilities  ST-G.15 Surgery and procedure room (ground floor)  STX-G.05 Hutch 3B multi-species irradiation  ST-1.28 Surgery and procedure room (1st floor)  NB-G.05 Rodent procedures  NB-G.12 Near beam surgery and procedures room  NBX-G.11 Hutch 1B multi-species irradiation  NBX-G.13 Hutch 2B multi-species irradiation  ST-G.10 PC2 Rodent holding room  ST-G.12 PC2 Rodent holding room  ST-G.13 Animal holding room (multi-species)  ST-G.14 PC1 Rodent holding  Monash Biomedical Imaging (MBI) facilities  G06 Biograph PET-MRI animal preparation area  G07 Biograph PET-MRI animal scanning area  G11, 11A, 11B Large animal surgery, preparation area & animal housing for radioactive animals  G32 Skyra MRI animal preparation area  G34, G35 Skyra MRI animal preparation area  G37 Skyra MRI scanning room  G48 Somotom CT preparation area  G48C Somotom CT preparation and scanning room  G50 Mouse holding room and procedures room (monitoring etc.)  G51 Rat holding room and procedures room (monitoring etc.)  G53 Small animal surgery  G54 Inveon scanner room, PET, SPECT and CT imaging  G55, 56, 56A, 59A PC2 laboratory & small animal ultrasound & MRI preparation area & surgery  G58, 59 Bruker 9.4T MRI imaging room  Other. Provide details: | | | | | | | | | | |
| **h)** What is the maximum period of time that an individual animal or group of animals will be held in this project?  *You should consider acclimatisation period, project duration and provisions for unexpected events (e.g. transport delays, equipment issues).* | | | | | | | | | | |
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| **4.3 Management of emergencies** | | | | | | | | | | |
| Provide name and telephone number of the person(s) responsible for the management of emergencies? | | | | | | | | |
| Full name | | | | Emergency contact phone number | | | WhatsApp number (if applicable) | | | |
| Full name | | | | Emergency contact phone number | | | WhatsApp number (if applicable) | | | |
| Full name | | | | Emergency contact phone number | | | WhatsApp number (if applicable) | | | |

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| **5. EXPERIMENTAL PROCEDURES** |
| **5.1 Description of procedures** |
| **a)** Select the option that reflects the procedure type with the highest impact that will occur as part of this project (*Refer to appendix* *A.2).* |
| **Select one option:**   |  | | --- | | 1. Observation involving minor interference | | 2. Animal unconscious without recovery | | 3. Minor conscious intervention | | 4. Minor surgery with recovery | | 5. Major surgery with recovery | | 6. Minor physiological challenge | | 7. Moderate to major physiological challenge | | 8. Death as an endpoint (*Requires approval by the Minister for Agriculture. Refer to the following* [*website*](https://agriculture.vic.gov.au/livestock-and-animals/animal-welfare-victoria/animals-used-in-research-and-teaching/licensing-to-use-animals-in-research-or-teaching/death-as-an-endpoint) *for more information*). | |
| **b)** Specify how long the animals will be acclimatised before experiments/procedures. *When planning experiments, unexpected delays in transport from the supplier should be considered (e.g. extreme weather conditions).* |
| |  | | --- | | NIL (Animals are humanely killed for tissue collection without housing) | | At least 7 days housing before procedures (Standard) | | Less than 7 days housing before procedures. Provide duration:  If less than 7 days, justify why | |
| **c)** Provide a flow chart or sequence of events table. Include each procedure in sequential order. Where possible include time lines of all experimental interventions to make the process clear to the committee. Please include each time an animal is anaesthetised. If an animal is to undergo a procedure more than once, indicate the number of times it will be performed. |
|  |
| **d)** Provide full details of the procedures (sequentially) on what happens to the animals from the time they are obtained until the time the project is completed. Provide a clear step by step description specifying all procedures carried out on each animal or group of animals, including controls. For projects that include a pilot study, clearly differentiate and describe both the pilot study and the main study. You may refer to an approved Australian Synchrotron Standard Operating Procedure (SOP) if applicable to your work. Any variation from an SOP must be clearly described and justified. |
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| **e)** List each AS-AEC approved SOP cited in this application. You must not deviate from an approved Australian Synchrotron SOP unless it is clearly described and justified at 5.1d *(Code Clause 2.2.33)*. |

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| **SOP title** | **Document ID number** | **Revision #** |
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*Add/delete rows as necessary*

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| **5.2 Anaesthesia** | | | | | | | | | | |
| **a)** Do any animals undergo anaesthesia? | | | | | | | | | | |
| YES  NO | | | | | | | | | | |
| **b)** Specify the type of anaesthesia | | | | | | | | | | |
| **Tick all that apply:**  Injectable anaesthesia (complete 5.2d)  Gas anaesthesia (complete 5.2e) | | | | | | | | | | |
| **c)** How many times will the same animal undergo anaesthesia?  *If more than once, provide number of times and recovery time(s) between multiple anaesthesia.* | | | | | | | | | | |
| Once  More than once | | | | | If more than once, provide number of times and recovery time(s) between multiple anaesthesia | | | | | |
| **d)** For injectable anaesthesia, complete the table below. Include any reversal agents used. | | | | | | | | | | |
| Drug/agent |  | |  | | | |  | |  | |
| Concentration (mg/mL) |  | |  | | | |  | |  | |
| Dose (mg/kg) |  | |  | | | |  | |  | |
| Volume (mL/kg) of final stock solution |  | |  | | | |  | |  | |
| Diluent |  | |  | | | |  | |  | |
| Route of administration |  | |  | | | |  | |  | |
| Maximum size of needle/catheter |  | |  | | | |  | |  | |
| Estimated duration of anaesthesia |  | |  | | | |  | |  | |
| Procedure(s) requiring anaesthesia |  | |  | | | |  | |  | |
| **e)** For gas anaesthesia, complete the table below | | | | | | | | | | |
| Drug/agent | Isoflurane  Sevoflurane  Other: Provide details | | Isoflurane  Sevoflurane  Other: Provide details | | | | Isoflurane  Sevoflurane  Other: Provide details | | Isoflurane  Sevoflurane  Other: Provide details | |
| Dose (%) | Induction: Provide %  Maintenance: Provide % | | Induction: Provide %  Maintenance: Provide % | | | | Induction: Provide %  Maintenance: Provide % | | Induction: Provide %  Maintenance: Provide % | |
| Diluent/gas | Oxygen  Medical air  Other: Provide details | | Oxygen  Medical air  Other: Provide details | | | | Oxygen  Medical air  Other: Provide details | | Oxygen  Medical air  Other: Provide details | |
| Delivery | Induction box  Mask/nosecone  Intubation | | Induction box  Mask/nosecone  Intubation | | | | Induction box  Mask/nosecone  Intubation | | Induction box  Mask/nosecone  Intubation | |
| Size/type ET tube |  | |  | | | |  | |  | |
| Estimated duration of anaesthesia |  | |  | | | |  | |  | |
| Procedure(s) requiring anaesthesia |  | |  | | | |  | |  | |
| **5.3 Analgesia** | | | | | | | | | | |
| **a)** Do any animals undergo procedures or treatments that may cause pain or distress? | | | | | | | | | | |
| YES  NO | | | | | | | | | | |
| **b)** If the answer to 5.3a is YES, will analgesics be administered to the animals?  *Refer to the Australian Synchrotron Standard for Analgesia.* | | | | | | | | | | |
| YES  NO | | | | | | If NO, justify why not. | | | | |
| **c)** Provide details of analgesics in the table below | | | | | | | | | | |
| Drug/agent | |  | |  | | | |  | |  |
| Concentration (mg/mL) | |  | |  | | | |  | |  |
| Dose (mg/kg, mass/kg) | |  | |  | | | |  | |  |
| Volume (mL/kg) of final stock solution | |  | |  | | | |  | |  |
| Transdermal μg/mL/hr | |  | |  | | | |  | |  |
| Diluent | |  | |  | | | |  | |  |
| Route of administration | |  | |  | | | |  | |  |
| Maximum size of needle (if applicable) | |  | |  | | | |  | |  |
| Frequency and duration of use | |  | |  | | | |  | |  |
| Procedure(s) requiring analgesia | |  | |  | | | |  | |  |
| **5.4 Other agents** | | | | | | | | | | |
| **a)** Will animals be administered any compounds/drugs, diets, chemicals, hormones, biological or radioactive agents? | | | | | | | | | | |
| YES  NO | | | | | | | | | | |
| **b)** Provide details of compounds/drugs, diets, chemicals, hormones, biological or radioactive agents in the table below | | | | | | | | | | |
| Drug/agent | |  | |  | | | |  | |  |
| Purpose of use | |  | |  | | | |  | |  |
| LD50 dose according to the species (if known) | |  | |  | | | |  | |  |
| Concentration (mg/mL) | |  | |  | | | |  | |  |
| Dose (mg/kg or mass/kg) | |  | |  | | | |  | |  |
| Volume (mL/kg) of final stock solution | |  | |  | | | |  | |  |
| Diluent | |  | |  | | | |  | |  |
| Route of administration | |  | |  | | | |  | |  |
| Maximum size of needle (if applicable) | |  | |  | | | |  | |  |
| Frequency and duration of use | |  | |  | | | |  | |  |
| Adverse or side effects | |  | |  | | | |  | |  |
| Previously used by personnel listed in this application | | Choose an item | | Choose an item | | | | Choose an item | | Choose an item |

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| **6. ANIMAL WELLBEING** |
| *The planning and conduct of activities involving the care and use of animals must support and safeguard animal wellbeing. Refer to Clause 3.1 of the Code.* |
| **6.1 Repeated use of animals** |
| **a)** Does this project involve the use of any animals that have been the subject of a previous experiment under a different AEC project? |
| YES  NO |
| **b)** If YES, what was previously done to these animals (include project number and experiment description)? Justify their use in this project. |
|  |
| **6.2 Potential adverse impact on animal wellbeing** |
| **a)** List all known and potential causes of adverse impact on animal wellbeing. *You should consider both intended and unintended consequences. Experimental and non-experimental causes must be considered. Examples include transport, housing, handling, restraint, non-surgical procedures, anaesthesia, surgical procedures, humane killing.* |
|  |
| **b)** For each factor or procedure listed at 6.2a, outline how any adverse impact will be minimised. *Methods for minimising pain and distress must be incorporated into the design of the project. Details may include the use of pharmacological agents and non-pharmacological measures for avoiding and minimising pain and distress. Note you must also consider and discuss the anticipated adverse impact of any drugs to be used. Note all drugs used must also be listed in the relevant tables in section 5.* |
|  |
| **6.3 Animal monitoring** |
| *Animals must be observed, monitored and assessed at a frequency that is sufficient to ensure that any harm, including pain and distress, is promptly detected and managed. Monitoring should detect such signs at an early stage, as determined by the procedure, and ensure that the planned endpoints are detected. Animals must be monitored by a competent person who is knowledgeable about the normal behaviour and signs of pain and distress for the species.* |
| **a)** How will animals be monitored during the acclimatisation period (before procedures commence)? *Include method and frequency of monitoring (tick all that apply).* |
| |  | | --- | | Daily routine husbandry (daily cage checks for welfare, food, water, room temperature/humidity)  Weigh on arrival at the IMBL  Weekly weighing | | Other. Provide details: | |
| **b)** Who will monitor animals during the acclimatisation period? |
| |  | | --- | | IMBL animal care staff and/or Monash Animal Research Platform staff | | Other. Provide details (name(s) and experience with the species): | |
| **c)** How will animals be monitored during each procedure?  *Monitoring must be appropriate for each type of procedure. Include method and frequency of monitoring.* |
|  |
| **d)** Who will monitor animals during procedures? |
|  |
| **e)** How will animals be monitored following procedures?  *Include method, frequency and duration. Include immediate post-procedure, short-term and long-term monitoring if applicable.* |
|  |
| **f)** Who will monitor animals following procedures?  *You must identify who will be monitoring animals at each stage of the follow-up process (i.e. immediate, short-term and long-term follow-up monitoring).* |
|  |
| **g)** What arrangements will be in place to check animals on weekends and public holidays? |
|  |
| **h)** Is a monitoring sheet(s) attached to this application?  *The Australian Synchrotron AEC must approve a monitoring sheet(s) specific to this project which must be used to ensure that the impact of procedures on the animals is monitored and assessed appropriately. A copy of the monitoring sheet(s) covering all stages of the project must be attached to the application. The monitoring sheet must include the criteria that will be assessed and the intervention points and humane endpoints. The monitoring sheet(s) must be used to record all observations, treatments and actions.* |
| YES  NO |
| **6.4 Fate of the animals** |
| **a)** Specify the scientific endpoints of this project and state the reason for selecting these. |
|  |
| **b)** If animals are to be humanely euthanised, what procedure(s) will be used? *Include type of agent, route of administration and dose where applicable. Please note that CO2 is not available as a method of euthanasia at the Australian Synchrotron.* | |
|  |
| **c)** What procedure will be used for emergency euthanasia? *Include type of agent, route of administration and dose where applicable. Please note that CO2 is not available as a method of euthanasia at the Australian Synchrotron.* |
|  |
| **d)** Where will euthanasia be carried out? *Include facility and room number(s).* |
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| **e)** How will death be confirmed? |
|  |
| **f)** How will animal carcasses and tissues be disposed of? |
| According to SOP 30959 – Laboratory Waste Disposal  Other. Provide details: |

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| **7. THE 3Rs (Replacement, Reduction, Refinement)** |
| **7.1 Replacement** |
| *Replacement refers to methods that avoid, replace or partially replace the use of animals. The Code specifies that methods that replace or partially replace the use of animals must be investigated, considered and, where applicable implemented. Opportunities to replace the use of animals must be kept under review during the lifetime of a project. Refer to Clauses 1.18 – 1.20 of the Code.* |
| **a)** Justify why it is necessary to use animals in the proposed experiment and why it is not possible to use alternatives to animals? |
|  |
| **b)** What consideration has been given to the use of potential alternatives that are available to replace the use of animals in all or part of the project? Why are these alternatives not suitable? |
|  |
| **7.2 Reduction** |
| *Reduction refers to using the minimum number of animals necessary to achieve the proposed aim(s) whilst satisfying good statistical design. Reducing the number of animals should not, however, result in greater harm to the animal. Refer to Clause 1.21-1.27 of the Code.* |
| **a)** What is the total number of animals required? |
|  |
| **b)** Include a table to summarise how many animals will be allocated to each group. |
|  |
| **c)** Explain, on the basis of experimental design, why this number of animals will be required.  *Where applicable, justification must include the results of appropriate statistical procedures such as power calculations for each group or subgroup of animals. Where statistical justification is not applicable, explain why. Ensure you allow sufficient group size in the event that animals are removed due to early humane endpoint. If referencing prior research to justify animal numbers, provide a brief explanation of how the information obtained from it was used to determine the numbers proposed. Refer to the following website for assistance* [*www.3Rs-reduction.co.uk*](http://www.3Rs-reduction.co.uk)*.* |
|  |
| **d)** Could any of the animals be used by other investigators/projects? If YES, provide details. If NO, advise why not. |

|  |  |
| --- | --- |
| YES  NO | If YES, provide details. If NO, advise why |

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| --- |
| **e)** Could animal tissues be shared with other investigators? |
| YES  NO |
| **7.3 Refinement** |
| *Refinement refers to methods that alleviate or minimise potential pain and distress, and enhance animal wellbeing. Refinement applies to all aspects of animal use from their housing and husbandry to the procedures performed on them. Evidence suggests that pain and suffering can alter an animal’s behaviour, physiology and immunology. Such changes can lead to variation in experimental results that impairs both the reliability and repeatability of studies. Refer to Clauses 1.28-1.30 of the Code.* |
| **a)** What opportunities for refinement have been implemented in the proposed project to promote a positive state of wellbeing? |
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| **8.** **TECHNICAL COMPETENCY OF PERSONNEL INVOLVED IN THE PROJECT** |
| Investigators have personal responsibility for all matters that relate to the wellbeing of animals that they use, including their housing, husbandry and care. This responsibility begins when an animal is allocated to the approved project and ends with the specified fate of the animal at the completion of the project (*Code, Clause 2.4.1*).  The AEC must be assured that all personnel working on live animals in this project are appropriately experienced, or will be adequately trained and supervised in the techniques described. This includes investigators, students and animal technicians undertaking experimental procedures and/or experimental monitoring. Once the project has been approved, the Chief Investigator is responsible for ensuring that any new personnel involved in the project are added using the AS-AEC amendment request form.  External users of the Australian Synchrotron are required to provide copies of relevant competency certification obtained from their home institute. |
| List the procedure(s) each person will be performing and their level of experience with the species. Use a separate line for each species and/or procedure. If a person is not competent in a procedure, provide details of who will provide training and how competency will be obtained. Note that investigators requiring training must not perform procedures unsupervised until deemed competent. |

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| **Full name:** | | | |
| Procedures to be undertaken | Level of experience in procedure to be performed | How will training and competency be obtained if required? | Is competency certification from the home institute attached to the application? |
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| Procedures to be undertaken | Level of experience in procedure to be performed | How will training and competency be obtained if required? | Is competency certification from the home institute attached to the application? |
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| Procedures to be undertaken | Level of experience in procedure to be performed | How will training and competency be obtained if required? | Is competency certification from the home institute attached to the application? |
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*Copy and insert additional tables for each investigator as required.*

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| **9.** **DECLARATION BY PERSONNEL** | | |
| *This section must be signed by all investigators, students or animal technicians undertaking experimental procedures and/or experimental monitoring.* | | |
| **9.1 Declaration by Chief Investigator** | | |
| I hereby declare that:  I have read the [*Australian Code for the Care and Use of Animals for Scientific Purposes, 8th edition, 2013*](https://www.nhmrc.gov.au/about-us/publications/australian-code-care-and-use-animals-scientific-purposes), the[*Prevention of Cruelty to Animals Act 1986*](https://www.legislation.vic.gov.au/in-force/acts/prevention-cruelty-animals-act-1986/096)and the [*Prevention of Cruelty to Animals Regulations 2019*](https://www.legislation.vic.gov.au/in-force/statutory-rules/prevention-cruelty-animals-regulations-2019/002) and accept the responsibilities detailed therein.  I accept responsibility for the conduct of all procedures and the care of animals detailed in this application, in accordance with the requirements of the Code, the Act, the Regulations and the AEC.  I will only undertake procedures for which I have been listed for under section 8.  I have listed each person engaged in this project under Section 8 and consider that they have the qualifications, experience and training appropriate for their role in the project; and that they are competent to perform procedures described to the extent of their role. If any person is not already skilled in the procedures, I will ensure that they obtain all necessary training in advance of performing any procedure independently.  I am aware that prior to commencing procedures, all personnel must be certified as competent in all procedures for which they will independently undertake by the Australian Synchrotron Animal Welfare Officer.  All personnel have been made aware of their role and responsibilities in this project, and have been given copies of all necessary documentation. | | |
| **Full name** | **Signature** | **Date** |
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| **9.2 Declaration by co-investigator(s)** | | |
| I hereby declare that:  I have read the [*Australian Code for the Care and Use of Animals for Scientific Purposes, 8th edition, 2013*](https://www.nhmrc.gov.au/about-us/publications/australian-code-care-and-use-animals-scientific-purposes), the[*Prevention of Cruelty to Animals Act 1986*](https://www.legislation.vic.gov.au/in-force/acts/prevention-cruelty-animals-act-1986/096)and the [*Prevention of Cruelty to Animals Regulations 2019*](https://www.legislation.vic.gov.au/in-force/statutory-rules/prevention-cruelty-animals-regulations-2019/002) and accept the responsibilities detailed therein to the extent of my involvement with this project.  I have read this application and agree to my participation in the proposed work.  I accept responsibility for the conduct of all experimental procedures detailed in this application that I will undertake.  I will only undertake procedures for which I have been listed for under section 8.  I am aware that I must not conduct procedures on live animals unsupervised until I have been trained in those procedures. I must be certified as competent in all procedures for which I will independently undertake by the Australian Synchrotron Animal Welfare Officer prior to commencing procedures. | | |
| **Full name** | **Signature** | **Date** |
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| **10.** **DECLARATION BY FACILITY MANAGER** | | |
| *The signature of the Australian Synchrotron Animal Facilities Manager is required if animals are to be housed or have procedures performed at the Australian Synchrotron.*  I have been consulted and made aware of the requirements of this application. I confirm that the Australian Synchrotron has the resources required to house/hold the species and number of animals requested in this application. All documentation for the care and management of the requested species has been approved by the AEC in accordance with the requirements of the Code. | | |
| **Full name** | **Signature** | **Date** |
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| **11. CONTACT DETAILS OF PERSONNEL INVOLVED IN THE PROJECT** | | | |
| **Full name** | **Phone number** | **WhatsApp number**  (if applicable) | **Email** |
| ***Chief Investigator*** | | | |
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| ***Co-investigator(s)*** | | | |
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| **APPENDIX I: EXPLANATORY NOTES** | |
| **Guidance for completion of specific questions** | |
| **A.1 Project purpose (Refers to question 1.3)**  **You must select only one option. Select the most appropriate option from those listed below to describe the primary purpose of the project as a whole.** | |
| Increasing our understanding of human or animal biology | Projects that aim to increase the basic understanding of the structure, function and behaviour of animals, including humans, and processes involved in physiology, biochemistry and pathology. |
| Maintaining or improving human and/or animal health and welfare | Projects that aim to produce improvements in the health and welfare of animals, including humans.  *Examples*  *Use of a sheep flock to donate blood to produce microbiological media*  *Production of commercial anti-serum, antivenom.* |
| Improving animal management or production | Projects that aim to produce improvements in domestic or captive animal management or production. |
| Understanding, maintaining or improving of the natural environment | Projects that aim to increase the understanding of the animals’ environment or its role in it, or aim to manage wild or feral populations. These include studies to determine population levels and diversity and may involve techniques such as radio tracking. |
| Achieving educational objectives | The purpose of the project is not to acquire new knowledge, rather to pass on established knowledge or training to others. This includes interactive or demonstration classes in methods of animal husbandry, management, examination and treatment.  *Examples*  *Animals used by veterinary schools to teach examination procedures such as pregnancy diagnosis*  Sheep used in shearing demonstration classes for students  Animals used to teach animal care to TAFE students. |

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| **A.2 Impact of activities (Refers to question 5.1a)**  **You must select only one option. Select the most appropriate option from those listed below that reflects the activity with the highest impact on animal welfare.** | |
| 1. Observation involving minor interference | Animals are not interacted with or, where there is interaction, it would not be expected to compromise the animal’s welfare any more than normal handling, feeding etc. There is no pain or suffering involved.  *Examples:*  *Laboratory animals in cages*  *Feeding trial, such as digestible energy determination of feed in a balanced diet*  *Behavioural or growth study with minor environmental manipulation*  *Teaching of normal, non-invasive husbandry such as handling, grooming etc.* |
| 2. Animal unconscious without recovery | Animal is rendered unconscious under controlled circumstances with little or no pain or distress. Capture methods are not required. Any pain is minor and brief and does not require analgesia. Procedures are carried out on the unconscious animal which is then killed without regaining consciousness.  *Examples:*  *Laboratory animals killed painlessly for dissection, biochemical analysis, etc.*  *Teaching surgical techniques on live anaesthetised patients which are not allowed to recover following the procedure.* |
| 3. Minor conscious intervention | Animals are subjected to minor procedures that would normally not require anaesthesia or analgesia. Any pain is minor and analgesia usually unnecessary, although some distress may occur as a result of trapping or handling.  *Examples:*  *Capture and release (with or without tagging) of animals (including fish) in the wild.*  *Trapping and humane euthanasia for collection of specimens.*  *Ear notching for DNA sampling of a new line of GM animals.*  *Injections, blood sampling in conscious animals.*  *Minor dietary or environmental deprivation or manipulation, such as feeding nutrient-deficient diets for short periods.*  *Stomach tubing, shearing.* |
| 4. Minor operative procedure with recovery | Animals are rendered unconscious, with as little pain or distress as possible. A minor procedure such as cannulation or skin biopsy is carried out and the animals are allowed to recover (although the animal may later be humanely killed). Depending on the procedure, pain may be minor or moderate and post-operative analgesia may be appropriate.  *Examples:*  *Biopsies or blood sampling under anaesthesia or sedation.*  *Cannulations under anaesthesia or sedation.*  *Sedation/anaesthesia for relocation, examination or injections/blood sampling.*  *Field capture using chemical restraint methods.* |
| 5. Minor physiological challenge | Animal remains conscious for some or all of the procedure. There is interference with the animals’ physiological or psychological processes. The challenge may cause only a small degree of pain/distress or any pain/distress is quickly and effectively alleviated.  *Examples:*  *Electrofishing*  *Minor infection, minor or moderate phenotypic modification, early oncogenesis.*  *Arthritis studies with pain alleviation.*  *Prolonged deficient diets, induction of metabolic disease.*  *Polyclonal antibody production*  *Antiserum production* |
| 6. Surgery with recovery | Animals are rendered unconscious, with as little pain or distress as possible. A major procedure is carried out and the animals are allowed to recover (although the animal may later be humanely killed). Post-operative pain is usually at a level requiring analgesia.  *Examples:*  *Orthopaedic surgery*  *Abdominal or thoracic surgery*  *Transplant surgery*  *Mulesing, surgical castration*  *Surgery under anaesthesia for implantation of telemetry devices* |
| 7. Moderate to major physiological challenge | Animal remains conscious for some or all of the procedure. There is interference with the animals’ physiological or psychological processes. The challenge causes a moderate or severe impact that is not quickly or effectively alleviated.  *Examples:*  *Major infection*  *Major phenotypic modification*  *Oncogenesis without pain alleviation*  *Arthritis studies with no pain alleviation*  *Uncontrolled metabolic disease*  *Isolation or environmental deprivation for extended periods*  *Monoclonal antibody raising in mice* |
| 8. Death as an endpoint | A deliberate measure in the procedure and where there will be no intervention to kill the animal humanely before death occurs in the course of the procedure or procedures. These procedures must not be conducted unless approved by the Minister for Agriculture and are undertaken in accordance with any conditions determined by the Minister. It does not include death by natural causes, animals which are euthanased as part of the project, animals which are euthanased if something goes wrong, animals euthanased for dissection or for use as museum specimens or accidental deaths.  *Examples:*  *Lethality testing (including LD50, LC50)* |