

ANIMAL USE THAT REQUIRES IACUC REVIEW AND APPLICATION FORM REQUIREMENTS

1. Policy statement

As stipulated by the NACLAR Guidelines, all proposed use of animals for scientific purposes in an institution must be evaluated and monitored by an Institutional Animal Care and Use Committee (IACUC). Each institution must ensure, through the IACUC, that the care and use of animals for scientific purposes complies with the NACLAR Guidelines and relevant legislations. The intent of this policy is to outline the Institutional Animal Care and Use Committee (IACUC) requirements for the care and use of species covered under the NACLAR Guidelines 2022 and updated Animals and Birds (Care and Use of Animals for Scientific Purposes) Rules 2004.

2 Definitions

Animal	All live fish, amphibians, reptiles, birds, non-human mammals and cephalopods.
Approved Protocol	Any project that involves the use of any animal for any scientific purpose and that is approved by an IACUC.
Housing Facilities	Buildings, yards, paddocks, grounds in which animals are kept.
Institutional Animal Care and Use Committee (IACUC)	The Committee, constituted by an institution, responsible for the oversight and evaluation of all aspects of the institution's animal care and use programme.
Procedure areas	Locations where animals undergo any procedure and/or are held for less than 24 hours.
Protocol	A written description of a project put forward by a PI for review by the IACUC.
Scientific Purposes	The acquisition, development or demonstration of knowledge or techniques in any scientific discipline, including teaching, field trials, environmental studies, research, diagnosis, product testing, the production of biological products, and breeding of animals for scientific purposes.
Wildlife	All species of animals from free populations whether indigenous or otherwise.

3 Scope

This policy applies to all animals covered under NUS Animal Care and Use Programme.

4 Guidelines

4.1 Protocol submission and IACUC review

4.1.1 Applications for the following use of animals by NUS researchers in NUS premises¹ must be submitted to the NUS IACUC for review:

1. use of animals for scientific purposes including:
 - a. Research (both basic research and applied research)
 - b. Field trials and biodiversity studies
 - c. Environmental studies
 - d. Teaching/ training. All instructional use of animals, must be reviewed by the IACUC.
 - i. practical classes or workshops
 - ii. as part of the NUS undergraduate curriculum such as:
 - honours year project
 - Undergraduate Research Opportunities Programme in Science (UROPs) project
 - a project for a specific module or course offered by NUS
 - special programme involving attachment students under the supervision of NUS PI
 - e. Diagnosis
 - f. Breeding
 - g. Product testing
 - h. Production of biological products
2. holding protocol to temporary house and maintain animals for PIs
3. display, exhibition or demonstration using research animals covered under NUS Animal Care and Use Programme e.g. showcasing transgenic zebrafish during NUS open house or other public events
4. use of photographs, video and audio recordings of NUS research animals covered under NUS Animal Care and Use Programme, housing facilities, or procedure areas where animals are used, for publication/ presentations. e.g. pictures or video clips to be used in manuscripts, conference presentations, interviews, television programmes, promotional videos about student life in NUS etc.

Note: This includes use of photos, videos and sound recording taken under an observational study that is exempted from IACUC review and approval. Please refer to [IACUC policy P210 Visual and Audio Documentation of Research Animals and Animal Use Areas](#) for more details.

4.1.2 Before any **work with animals** begins, PIs must submit a protocol to the IACUC through the [IRIMS-IACUC \(Animal Oversight\)](#) online system. Please refer to Annex A for a quick guide to the IACUC protocol application process.

4.1.3 **Protocols** using animals for purposes described in section 4.1.1 must be approved by IACUC before commencing. IACUCs must not use terms such as “conditional approval,” “provisional approval,” “restricted approval”, “approved in principle” or “approved pending clarification” as this may be taken

¹ Refer to Policy “P106 Animal Use Location and IACUC Review Requirement” for more information on IACUC submission requirements for animal work performed in non-NUS facilities.

as approval to proceed with the protocol by the PI. Full IACUC approval must be received before initiation of any animal activities.

- 4.1.4 Proposed changes to an approved protocol must also be reviewed and approved by the IACUC before they can be implemented.

PIs, and those working on their protocol, must not begin work on a protocol or amendments to a protocol before written IACUC approval is obtained, and must adhere to the approved protocol and any requirements of the IACUC.

- 4.1.5 PIs should inform the IACUC in writing when each protocol is completed or discontinued; and the outcome of each protocol.
- 4.1.6 PIs should ensure that experimental records and breeding records are kept and maintained for at least three years from the completion of the protocol.

4.2 Compliance with Human Biomedical Research Act

- 4.2.1 The IACUC must ensure that the PI produces documentation of IRB approval/waiver, prior to granting IACUC approval to the protocol. PI must ensure that all human tissue and/or cells used in animals have been approved by the IRB.
- 4.2.2 Research protocols falling under HBRA 4th schedule (Restricted Research) must be submitted for review and approval to the Ministry of Health (MOH). For example, introduction of human pluripotent stem cells into a living postnatal animal must be approved by MOH. The IACUC must not allow restricted research to proceed unless the PI has obtained MOH approval. Please refer to Annex B for a checklist to determine if an animal experiment falls under restricted Human Biomedical Research (rHBR).
- 4.2.3 Research protocols falling under the HBRA 3rd Schedule (Prohibited Research)² must be rejected. For example, breeding of animals that have had any kind of human pluripotent stem cells introduced into them is prohibited.

4.3 Use of endangered animal and wildlife

- 4.3.1 Purpose-bred animals from recognised sources should be procured and used for research instead of wild caught animals. Justification should be provided if purpose-bred animals cannot be used.
- 4.3.2 PIs should use species that can be found locally for their research if animals need to be sourced from the wild. Justification should be provided if local species cannot be used.
- 4.3.3 An endangered animal that is included in CITES (see CITES in Appendix I: Section II: General), must not be used in protocols unless the protocols concerned will be of direct benefit to the conservation of that species or a closely related species, and will not further endanger the species.

An approval must be obtained from the Director-General (Wildlife Management) to kill, trap, take, keep, feed, release, import, export, or offer for sale wildlife.

² [Prohibited HBR is specified in the Third Schedule](#), HBRA. Conduct of prohibited HBR is an offence punishable by fine up to \$100,000 and or imprisonment up to 10 years (Section 30, HBRA)

5. References

1. [Guide for the Care and Use of Laboratory Animals. National Research Council, 2011.](#)
2. [Guidelines on the Care and Use of Animals for Scientific Purposes. National Advisory Committee for Laboratory Animal Research. 2022](#)
3. [Animals and Birds \(Care and Use of Animals for Scientific Purposes\) Rules 2004](#)

6 Related documents/SOPs

1. [P106 Animal Use Location and IACUC Review Requirement](#)
2. [P210 Visual and Audio Documentation of Animal Use](#)

No.	Revision	Author	IACUC approval date
1.	Created and last updated	Dr Foo Tet Wei, John	12 August 2013
2.	P101.01. Revisions to: <ol style="list-style-type: none"> 1. rename policy to "Animal Use that requires IACUC review and application form requirements" 2. add section 4.1 "IACUC submission and review" and Annex A "Types of IACUC application form to be submitted for the different kinds of animal activities" 3. remove unrelated information on acclimatization, housing and procedure room inspection 4. update policy format. 	Dr Chew Li Li	06 February 2020
3.	P101.02. Reviewed to: <ol style="list-style-type: none"> 1. ensure policies are in compliance with the NAELAR Guidelines 2022 and the updated Animals and Birds (Care and Use of Animals for Scientific Purposes) Rules 2004; and 2. up-to-date with current practices Changes made to: <ol style="list-style-type: none"> 1. under section 1 add "As stipulated by the NAELAR Guidelines, complies with the NAELAR Guidelines and relevant legislations." and update to "NAELAR Guidelines 2022 and updated Animals and Birds (Care and Use of Animals for Scientific Purposes) Rules 2004"; and 2. Under section 4.1.1(d). add "All instructional use of animals, must be reviewed by the IACUC."; and 3. Update section 4.1.2 – 4.1.6 based on NAELAR Guidelines 2022; and 4. add section 4.2 and 4.3; and 5. under section 5, updated to "Guidelines on the Care and Use of Animals for Scientific Purposes. National Advisory Committee for Laboratory Animal Research. 2022"; and 6. Annex A: section 2 to "All genotypes that will be produced from crosses performed under the breeding protocol need to be listed in section 2.2. All the crosses to be made should be stated in section 2.3 and the number of these offspring used in research should be listed in sections 2.6 and 2.7." 	Dr Chew Li Li IACUC	16 January 2023
4.	P101.03. Reviewed to update: <ol style="list-style-type: none"> 1. the definition of "Animal", IACUC application submission and processing and the title of policy P106. 2. the requirement for use of photos, videos and sound recording taken under an observational study that is exempted from IACUC review and approval. 3. the review criteria for use of wildlife. 4. Annex A and add Annex B. 	IACUC Designated reviewers Dr Chew Li Li	18 August 2025

Annex A: Guide and Overview of Animal work in National University of Singapore (NUS)

For PIs and researchers who work with live vertebrate and cephalopods, please ensure the following:

A. IACUC approval (compulsory)

B. ORMC approval (compulsory)

C. IRB approval (where applicable)

D. MOH approval if **restricted Human Biomedical Research (rHBR)** regulated under **Human Biomedical Research Act (HBRA)** is conducted **(where applicable)**

Applications to the above 3 institutional offices can be submitted and processed in parallel but IACUC's approval will be issued only after ORMC's and IRB's (if needed) approval. Please refer to [the online FAQ](#) and [IACUC Policies and Guidelines](#) for information on application criteria and processes. As applications for Ministry of Health (MOH) approval can only be submitted after approvals by IRB and IACUC, it is therefore advisable that rHBRs be submitted as a stand-alone protocol to expedite IACUC approval. For information on the regulation ([Human Biomedical Research Act](#)) and submission of an application to MOH, please contact [the Academic and Research Compliance and Integrity Office \(ARCIO\)](#).

**** IMPORTANT NOTE:** (1) [NUS IACUC MUST BE NOTIFIED when NUS staff conduct animal work in other institutions in an official \(non-personal\) capacity](#). (2) [Prohibited Human Biomedical Research under the HBRA Third Schedule](#) is **NOT ALLOWED**.

A. [Institutional Animal Care and Use Committee \(IACUC\) approval](#)

1. [Submit IACUC application via online iRIMS-IACUC \(Animal Oversight\) module](#).

- ORMC forms for the same animal work should be submitted under the "Hazard Safety" module.
- All questions in the IACUC forms serve a purpose. Providing the requested information will reduce unnecessary to and fro exchange. The IACUC Office offers Protocol Clinics for PIs and Researchers. You may contact [Dr Mohammed Zacky Ariffin](#) to arrange for a session.
- A summary of the submission timeline and review process can be found [here](#).
- [Application submission and IACUC review schedule](#) is on the [IACUC website](#)
- Procedure rooms need to be IACUC approved and AVS licensed if live animals are transported out of the centrally managed vivarium/aquarium. Procedure room inspections will be arranged by IACUC office after IACUC has reviewed and accepted the reasons and justification for the transportation of animals.

2. Researchers working with live animals need the following requisites. This can be done in parallel to an IACUC form submission, but final IACUC approval is subjected to the following requirements being met.

• [Occupational Health \(OH\) programme](#)

Submit the completed [health questionnaires](#) to [Ms Goh Sha Wee](#) or [the OH clinic](#) for review by the OH Physician. An OH serial number will be issued after review, certifying researchers fit to work with animals. Staff submitting the questionnaire need not pay upfront. They will, however, need to obtain the approval & signature from Dept/PI & submit the [authorization form](#) to OH clinic for billing.

• [RCULA/ RCUF](#)

Complete the [RCULA registration form](#). Completion of the online AALAS module is mandatory for all. Completion of Hands-on training is required for personnel handling live animals. Please contact [RCULA](#) for more information if needed. Trained, qualified individuals, based on relevant credentials, qualifications, documented training and prior experience may apply for exemption from hands-on training by submitting the "[IACUC hands-on exemption form](#)" to [DPR IACUC Office](#). Exemption is on a case-by-case basis and will not be considered if it has been more than 2 years since similar animal work was carried out.

3. An NUS userID is needed for researchers working with live animals to be included in the protocol. If needed, visitors/researchers can apply for an NUS visitor account which will take some time to process and approve. Please approach your department for assistance.

B. [Office of Risk Management and Compliance \(Safety and Health Unit\) approval](#)

1. [Submit ORMC application via online iRIMS-IBC \(Hazard Safety\) module](#).

- Approach ORMC representative, [Dr Lawrence Sie](#), for more information
- Head of Department (HoD) support is needed for all ORMC online forms submission.
- ORMC will guide PI on the necessary Ministry of Health (MOH), Animal & Veterinary Service (AVS) or other necessary permits, if required, during the application review.

C. [Institutional Review Board \(IRB\) approval](#).

1. If the animal work involves the use of human biological materials, [determine if IRB review is required](#). If so, submit [online application for IRB review and approval](#). Full IRB review is needed if the animal work falls under rHBRs. Please approach [IRB](#) for more information.

Once IACUC approval is obtained, personnel listed in the IACUC protocols can approach CM's [Ms Ong Jie Min](#) for access to [CM online website](#). Information on vivarium orientation, animal order processing and drugs order etc is on the website. Please take the time to familiarize yourself with [some pointers, notes and essentials required during the course of your animal work](#).

Amendments should likewise be submitted via [iRIMS-IACUC](#), and be reviewed and approved by IACUC before changes are made to your approved animal work.

Annex B: Restricted Human Biomedical Research (rHBR) checklist

Checklist to determine whether an animal experiment will be classified as [restricted Human Biomedical Research \(rHBR\)](#) regulated under the **Human Biomedical Research (HBR) Framework** of the [Human Biomedical Research Act \(HBRA\)](#).

(A)	The stem cells/pluripotent stem cells used are from or derived from animal or human source.	Animals	Human
	<i>Please proceed to section (B) below if human stem cells/pluripotent stem cells are used.</i>	☐	☐
(B)	Does the research involve:	Yes	No
	1. Human eggs or human embryos.	☐	☐
	2. Any of the 3 types of human-animal combination embryos stated under Fourth Schedule of HBRA (copied below).	☐	☐
	(i) cytoplasmic hybrid embryos;		
	(ii) human-animal combination embryos created by the incorporation of human stem cells (including induced pluripotent stem cells);		
	(iii) human-animal combination embryos created in-vitro by using —		
	A. human gametes and animal gametes; or		
	B. one human pronucleus and one animal pronucleus		
	3. Introduction of human stem cells (including induced pluripotent stem cells) into a prenatal animal foetus or animal embryo.	☐	☐
	4. Introduction of human pluripotent stem cells (including induced pluripotent stem cells) into a living postnatal animal but excludes the introduction of such human pluripotent stem cells into immunodeficient mice solely for the analysis of teratoma induction.	☐	☐
	5. Introduction of human stem cells (including induced pluripotent stem cells) or human neural cells into the brain of a living postnatal animal but excludes the introduction of glioblastoma stem cells into the brain of postnatal mice.	☐	☐
	6. Any entity created as a result of any process referred to in (3) (4) or (5) in this section.	☐	☐
If you have answered "Yes" to any question in section (B) above —————>		<u>Restricted HBR</u>	

*Please check with the [IACUC Office](#) if in doubt.