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MINISTRY OF HEALTH MALAYSIA

GUIDELINES FOR ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES

IN THE MINISTRY OF HEALTH (MOH) INSTITUTIONS AND FACILITIES (MOH-AG)

GUIDELINES FOR ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES

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ANIMAL CARE AND USE COMMITTEE
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PREFACE FROM DEPUTY DIRECTOR GENERAL

It is with great pride and a deep sense of responsibility that I introduce the "Guidelines for Ethical Conduct in the Care and Use of Animals for Scientific Purposes in the Ministry of Health, Institutions, and Facilities (MOH-AG)." These guidelines, meticulously crafted by a dedicated team of veterinary experts, researchers, and stakeholders, underscore our unwavering commitment to the highest standards of ethical conduct in all matters concerning animal use and care in scientific activities.

The Ministry of Health recognizes the pivotal role that animals play in advancing healthcare, medical science, and our collective understanding of the natural world. As we embark on this ethical journey, we are guided by the principles of compassion, responsibility, and the moral imperative to ensure that every living being involved in scientific research, testing, or training is treated with dignity and care.

Our commitment to transparency, accountability, and the highest standards of animal welfare is evident throughout this document. It encompasses robust protocols for animal housing, husbandry, health monitoring, pain management, and the ethical review process. It also highlights the importance of fostering a culture of respect, empathy, and responsibility among all individuals engaged in animal-related activities.

As Deputy Director General of Health for Research and Technical Support, I am acutely aware of the profound responsibility we bear in balancing the pursuit of scientific knowledge with our ethical duty to safeguard the welfare of animals. These guidelines not only establish a framework for ethical conduct but also challenge us to go beyond compliance actively seek ways to minimize harm, and continuously improve our practices.

In closing, I extend my gratitude to all those who have contributed to the development of these guidelines, and I call upon researchers, educators, and all relevant institutions to embrace this ethical mandate. Together, we affirm our dedication to advancing scientific knowledge, improving healthcare, and protecting the welfare of animals, thus ensuring a harmonious and ethical future for all.

DATUK DR. NOR FARIZA BINTI NGAH

Deputy Director General of Health
(Research and Technical Support)
Ministry of Health Malaysia

PREFACE FROM CHAIRMAN ACUC-MOH

The welfare of animals used in scientific research, testing, and teaching is an ethical imperative that requires our utmost attention and commitment. As we delve into the realms of scientific discovery, it is our responsibility to ensure that every living being involved in these endeavours is treated with the highest degree of care, respect, and compassion. More than 20 years since the first publication of Principles and Guide to Ethical Use of Laboratory for the Ministry of Health, I am proud to announce the publication of the second "Guidelines for Ethical Conduct in the Care and Use of Animals for Scientific Purposes in the Ministry of Health (MOH), Institutions, and Facilities (MOH-AG)," stands as a testament to our dedication to upholding these principles.

The guidelines presented herein represent a culmination of extensive collaboration, research, and ethical reflection. They have been developed with input from experts in various scientific fields, animal welfare organizations, and representatives from academia, healthcare institutions, and the broader scientific community.

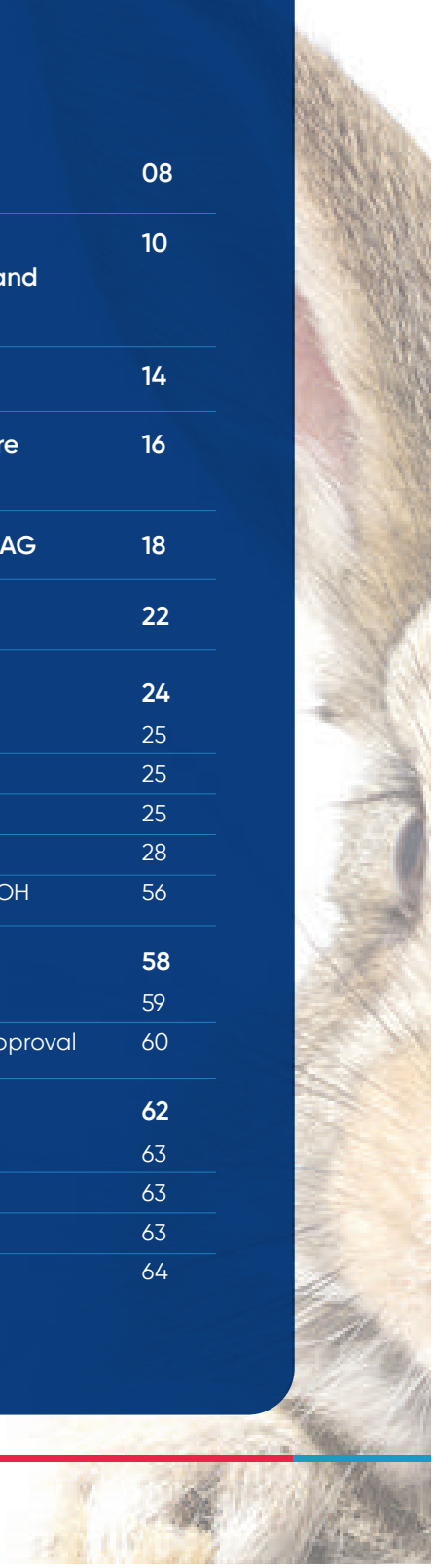
I would like to thank the Secretariat and committee of the ACUC-MOH and all those who contributed to the publication of this guideline. Together, we affirm our commitment to advancing science, improving healthcare, and safeguarding the welfare of animals, and in doing so, we uphold the principles of compassion and ethics that are at the core of our mission.

DR HJ TAHIR BIN ARIS

Chairman of ACUC-MOH &
Director of
Institute for Medical Research
(2019-2023)

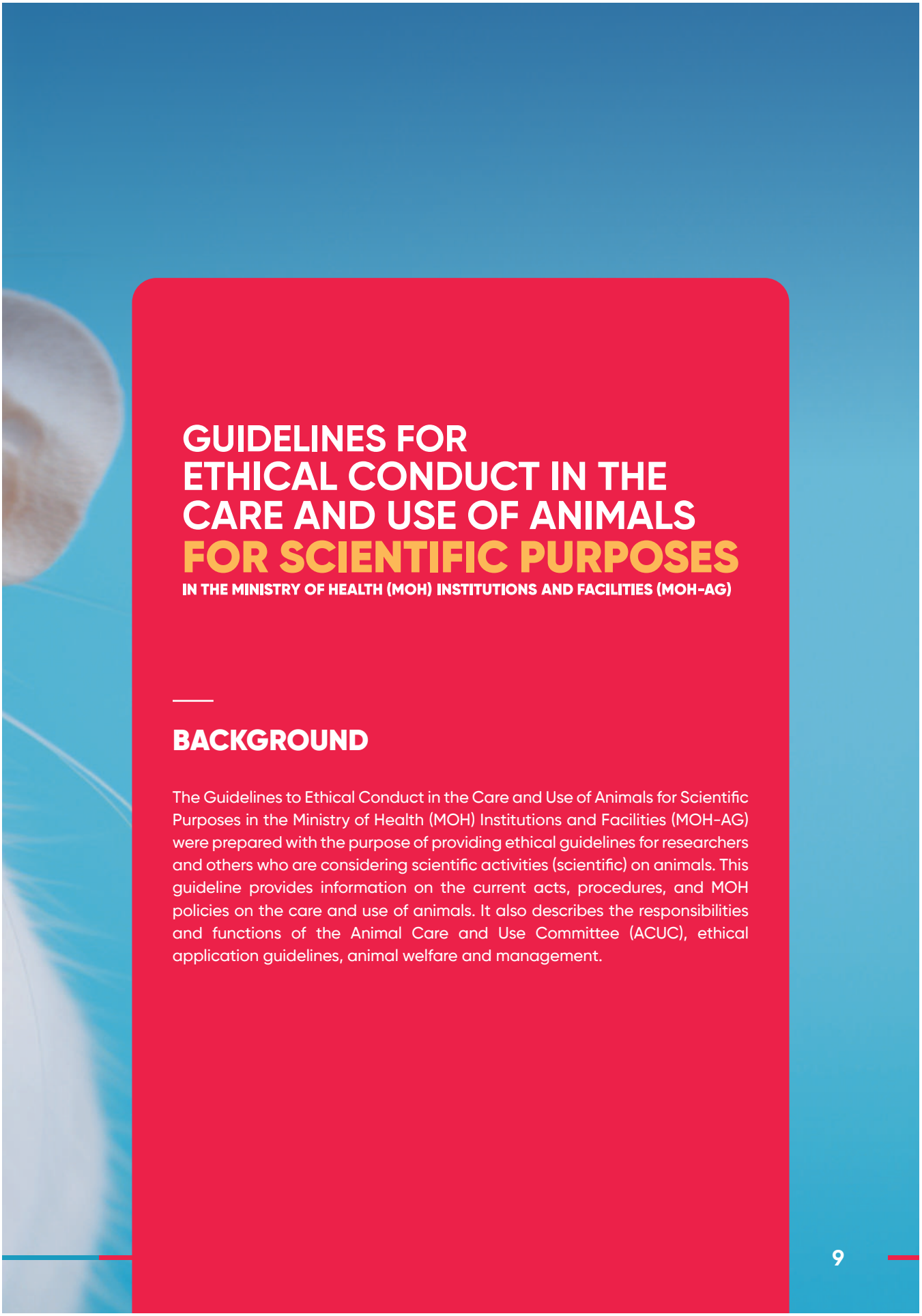
CONTENTS

1.0	Background	08
2.0	Introduction - Purpose of The Malaysian Code of MOH Guidelines for Ethical Conduct In The Care and Use Of Animals (MOH-AG)	10
3.0	Current Acts and Regulations	14
4.0	Policy of The Ministry of Health Regarding the Care and Use of Animals for Scientific Purposes	16
5.0	Definitions of Terms Used in The Context of MOH-AG	18
6.0	Abbreviations	22
7.0	Functions and Operating Principles	24
	7.1 Name	25
	7.2 Functions	25
	7.3 Operating Principles	25
	7.4 Application Forms	28
	7.5 Flow chart of Application for Approval of ACUC-MOH	56
8.0	Responsibilities of Applicants and Institutions	58
	8.1 Responsibilities of Applicants	59
	8.2 Responsibilities of Institutions for ACUC-MOH Approval	60
9.0	Project Planning	62
	9.1 Choice of animal	63
	9.2 Monitoring	63
	9.3 Consultation	63
	9.4 Design of experiments	64



10.0	**Acquisition and Care of Animals in Breeding and Holding Facilities**	**74**
	10.1 Animals Obtained from Interstate or Overseas	75
	10.2 Transportation of Animals	75
	10.3 Admission of New Animals into Holding Areas	75
	10.4 Care of Animals in Holding and Breeding Facilities	76
	10.5 Management and Personnel	78
	10.6 Routine Husbandry Procedures	80
	10.7 Identification of Animals	80
	10.8 Disposal of Carcasses and Waste Material	81
	10.9 Non-human Primates	81
11.0	**Veterinary Care**	**84**
	11.1 Attending Veterinarian	85
	11.2 Components of Veterinary Care	85
12.0	**Reference**	**86**
13.0	**Appendix**	**88**
14.0	**Appreciation**	**97**
15.0	**Animal Care and Use Committee Ministry of Health (ACUC-MOH)**	**98**

1.0 BACKGROUND



GUIDELINES FOR ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES

IN THE MINISTRY OF HEALTH (MOH) INSTITUTIONS AND FACILITIES (MOH-AG)

BACKGROUND

The Guidelines to Ethical Conduct in the Care and Use of Animals for Scientific Purposes in the Ministry of Health (MOH) Institutions and Facilities (MOH-AG) were prepared with the purpose of providing ethical guidelines for researchers and others who are considering scientific activities (scientific) on animals. This guideline provides information on the current acts, procedures, and MOH policies on the care and use of animals. It also describes the responsibilities and functions of the Animal Care and Use Committee (ACUC), ethical application guidelines, animal welfare and management.

2.0 INTRODUCTION

PURPOSE OF THE MALAYSIAN CODE OF MOH GUIDELINES FOR ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS (MOH-AG)

INTRODUCTION

PURPOSE OF THE MALAYSIAN CODE OF MOH GUIDELINES FOR ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS (MOH-AG)

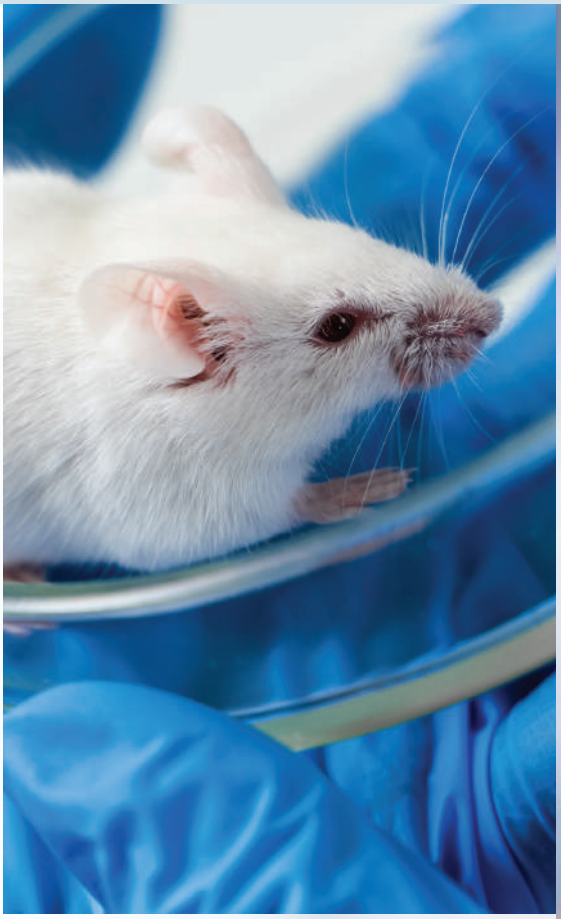
Handling of animals in any activity should consider animal welfare requirements. This obligation is the responsibility of researchers and others who are considering scientific activities on animals under the Animal Welfare Act 2015. It is, therefore, necessary for the personnel to take reasonable steps to ensure the need of the following animal requirements are met:

- a suitable environment;
- a suitable diet;
- able to exhibit its normal behaviour pattern;
- to be housed with or apart from other animals; and
- to be protected from pain, suffering, injury and disease.

The principles set out in the guidelines are for the guidance of researchers, institutions, ACUC and personnel involved in the care and use of animals for scientific activities in MOH.

The guideline emphasises the responsibilities of personnel and institutions using animals to:

- ensure that the use of animals is justified, taking into consideration the scientific or educational benefits and the potential effects on the welfare of the animals;
- ensure that the welfare of animals is always considered;
- promote the development and use of techniques that replace the use of animals in scientific activities;



- minimise the number of animals used in projects; and
- refine methods and procedures to avoid pain or distress in animals used in scientific activities.

There are complex ethical judgments to be made regarding the use of animals for scientific activities. The guidelines require ACUC to determine whether the case for animal use is justified and to ensure adherence to the principles of Replacement, Reduction and Refinement (3Rs). ACUC applies a set of principles outlined in the guidelines that govern the ethical conduct of personnel whose work involves using animals for scientific activities.

Replacement:

Techniques that totally or partially replace the use of animals for scientific activities must be sought and used wherever possible.

Reduction:

1. Each project must use, at most, the minimum number of animals necessary to ensure scientific and statistical validity.
2. The principle of reducing the number of animals used should not be implemented at the expense of greater suffering of individual animals.
3. Scientific activities involving the use of animals must only be repeated if essential for the purpose or design of the project.
4. Teaching activities must involve, at most, the minimum number of animals required to reach the educational objectives. Overproduction of animals bred for scientific activities should be avoided so that the need to kill healthy animals is minimised.

Refinement:

1. Animals must be suitable for scientific activities, considering their genetic and biological characteristics, including behaviour, genetic attributes and nutritional, microbiological and general health status.
2. The design and management of animal accommodation should meet species-specific needs. Special consideration is required where the requirements of the project preclude this.
3. Animals should be transported, housed, fed, watered, handled and used under conditions that meet species-specific needs. The welfare of the animals must be a primary consideration in the provision of care, which should be based on behavioural and biological needs.
4. Personnel who use animals for scientific activities must employ the best available scientific and educational techniques and be competent in the procedures they perform or must be under the direct supervision of a person competent in the procedure.
5. Scientific activities should be designed to avoid both pain and distress in animals. If this is not possible, pain or distress must be minimised.
6. Pain and distress cannot be evaluated easily in animals. Therefore, personnel must assume that animals experience these in a manner similar to humans unless there is evidence to the contrary. Decisions regarding animal welfare must be based on this assumption.
7. An animal with signs of pain or distress not predicted in the proposal must have the pain or distress alleviated promptly. Alleviation of such pain or distress must take precedence over completing scientific activities. If this is not possible, the animal must be euthanised without delay.
8. Scientific activities that may cause pain or distress of a kind or degree for which anaesthesia would typically be used in medical or veterinary practice must be carried out using an anaesthetic agent appropriate to the species and the procedure.
9. Pain management appropriate to the species, the procedure and the circumstances must be provided.
10. The use of local or general anaesthetic, analgesic or tranquillising agents must be appropriate to the species and should at least parallel their use in current medical or veterinary practice.
11. Where it is established that the purpose of the project precludes the use of anaesthetic or analgesic agents to alleviate pain, the planned endpoint of the project must be as early as feasible to avoid or minimise pain or distress in the animals.
12. Neuromuscular blocking agents must not be used without appropriate general anaesthesia, except in animals where sensory awareness has been eliminated. If such agents are used, continuous or frequent monitoring of paralysed animals is essential to ensure that the depth of anaesthesia is adequate to prevent pain or distress.
13. Death as an endpoint must be avoided wherever possible.
14. Scientific activities involving the use of animals must be of minimum duration compatible with the objectives of the project.

3.0 CURRENT ACTS AND REGULATION

CURRENT ACTS AND REGULATION

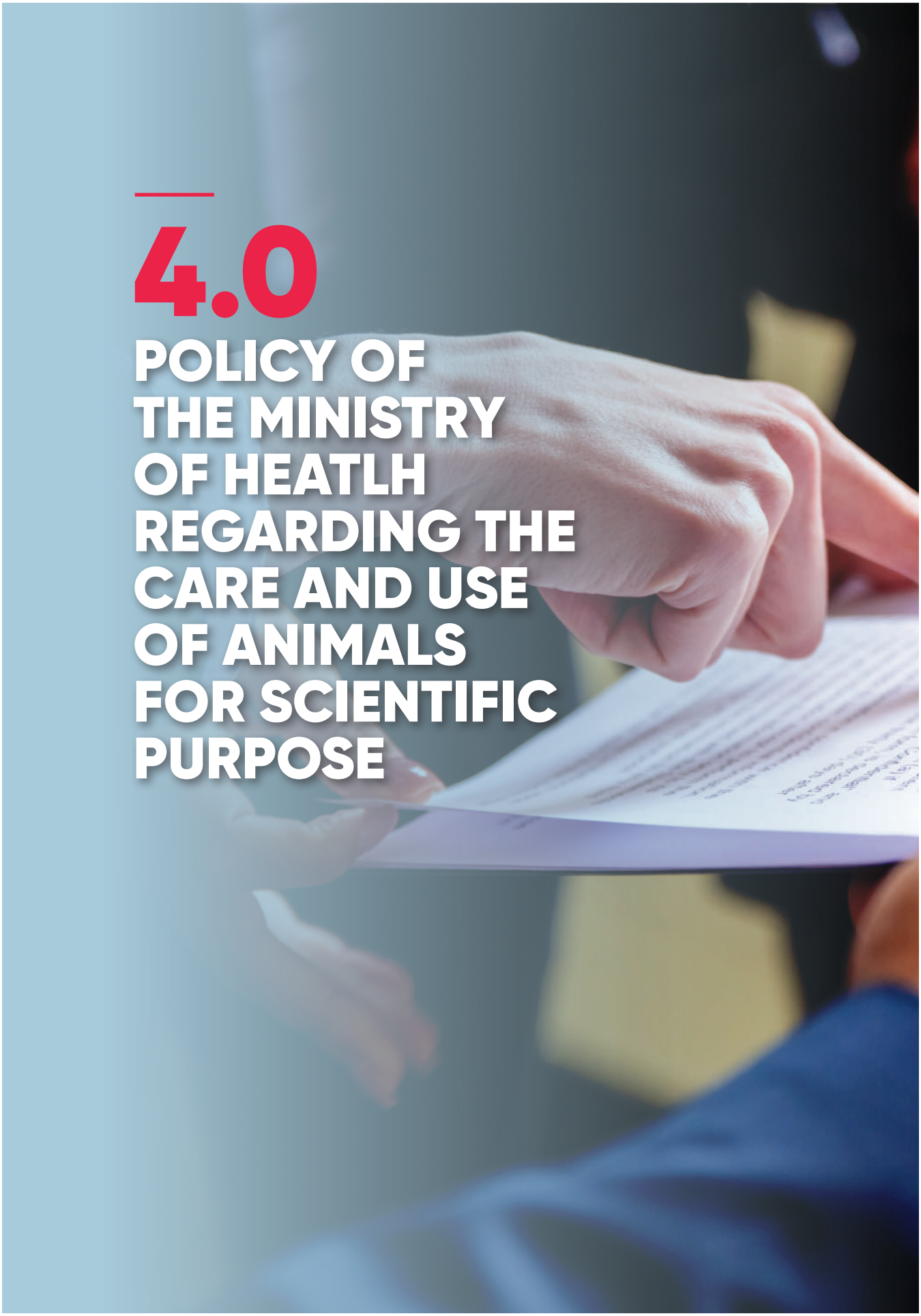
The use of animals for scientific activities in Peninsular Malaysia and Federal Territory of Labuan is governed by the Animal Welfare Act 2015.

The Animal Welfare Act 2015 (Act 772) was gazetted and enacted on December 29, 2015. The AWA 2015 comprises 9 parts and 64 sections. Of particular interest to the Malaysian research communities is Part II—Animal Welfare Board, sections 3 to 14, which defines the functions and membership of the Animal Welfare Board (AWB); Part III—Licensing, sections 15 to 23, deal with licensing matters for keeping and using animals; Part IV—Matters related to animal welfare, where section 26 explicitly states that the use of animals in research, testing, and teaching is only permissible with a license from the Board, while section 27 is on animal transportation; Part V—Cruelty to animals, where section 29 lists types of cruelty offences, and section 30 that states the powers of Animal Ethics Committee or IACUC in the euthanasia of research animals, apart from powers that are already given to the veterinary authority. Section 33 in Part V explicitly mentioned that any person who fails to exercise reasonable care and supervision relating to the protection of the animal from cruelty or animal welfare commits an offence under this act. It was decided that the use of animals in schools other than institutions of higher learning (as defined by the Malaysian Education Act 1996 [MEA 1996]) is not regulated by the AWA 2015.

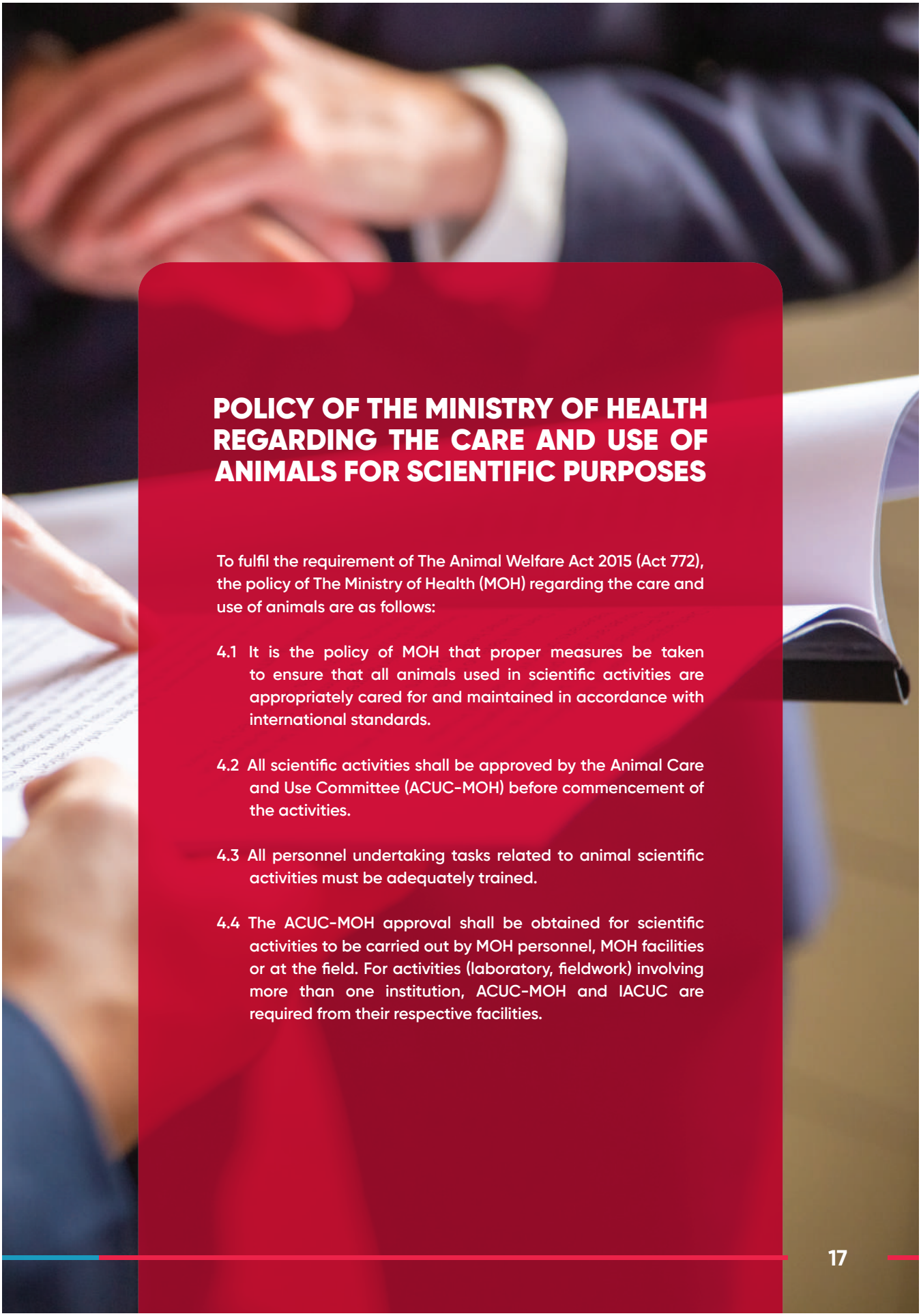
The use of non-domesticated species, which may include non-human primates and other wildlife species for research, is governed by the Wildlife Conservation Act 2010 (WCA 2010). In addition, the protection of aquatic mammals and fisheries species is under the purview of the Malaysian Fisheries Act 1985 (FA 1985). The scope and geographical coverage of the laws within Malaysia are defined by the legislative framework that led to the formation of the Federation of Malaysia in 1963. States in Peninsular Malaysia and the three Federal Territories (Kuala Lumpur, Putrajaya, and Labuan) enforced the Animal Welfare Act 2015 (AWA 2015), AA 2013, WCA 2010, and FA 1985. In contrast, the eastern Malaysian states of Sabah and Sarawak had legislation that only focused on the extraction, conservation, and use of wildlife and fisheries in their respective states, for example, the Wildlife Conservation Enactment 1997, Sabah (WCE 1997); Wildlife Protection Ordinance 1998, Sarawak (WPO 1998); and Inland Fisheries and Aquaculture Enactment 2003, Sabah (IFAE 2003). However, the states of Sabah and Sarawak had the autonomy and provision to adopt the Federal acts where applicable and/or when there was a necessity.

Other Acts, regulations and guidelines related to the use of animals are as follows:

1. The Malaysian Code for the Care and Use of Animals for Scientific Purposes (MyCode)
2. Biosafety Act 2007
3. Access to Biological Resources and Benefit Sharing Act 2017 (Act 795)
4. Fisheries Act 1985 (Act 713)
5. Wildlife Conservation Act 2010 (Act 716)
6. Wildlife Conservation Enactment 1997, Sabah (WCE 1997)
7. Wildlife Protection Ordinance 1998, Sarawak (WPO 1998)
8. Inland Fisheries and Aquaculture Enactment 2003, Sabah (IFAE 2003)
9. Sabah Animal Welfare Enactment 2015
10. The Veterinary Public Health Ordinance, Laws of Sarawak (1999)



4.0 POLICY OF THE MINISTRY OF HEATLH REGARDING THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSE



POLICY OF THE MINISTRY OF HEALTH REGARDING THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES

To fulfil the requirement of The Animal Welfare Act 2015 (Act 772), the policy of The Ministry of Health (MOH) regarding the care and use of animals are as follows:

4.1 It is the policy of MOH that proper measures be taken to ensure that all animals used in scientific activities are appropriately cared for and maintained in accordance with international standards.

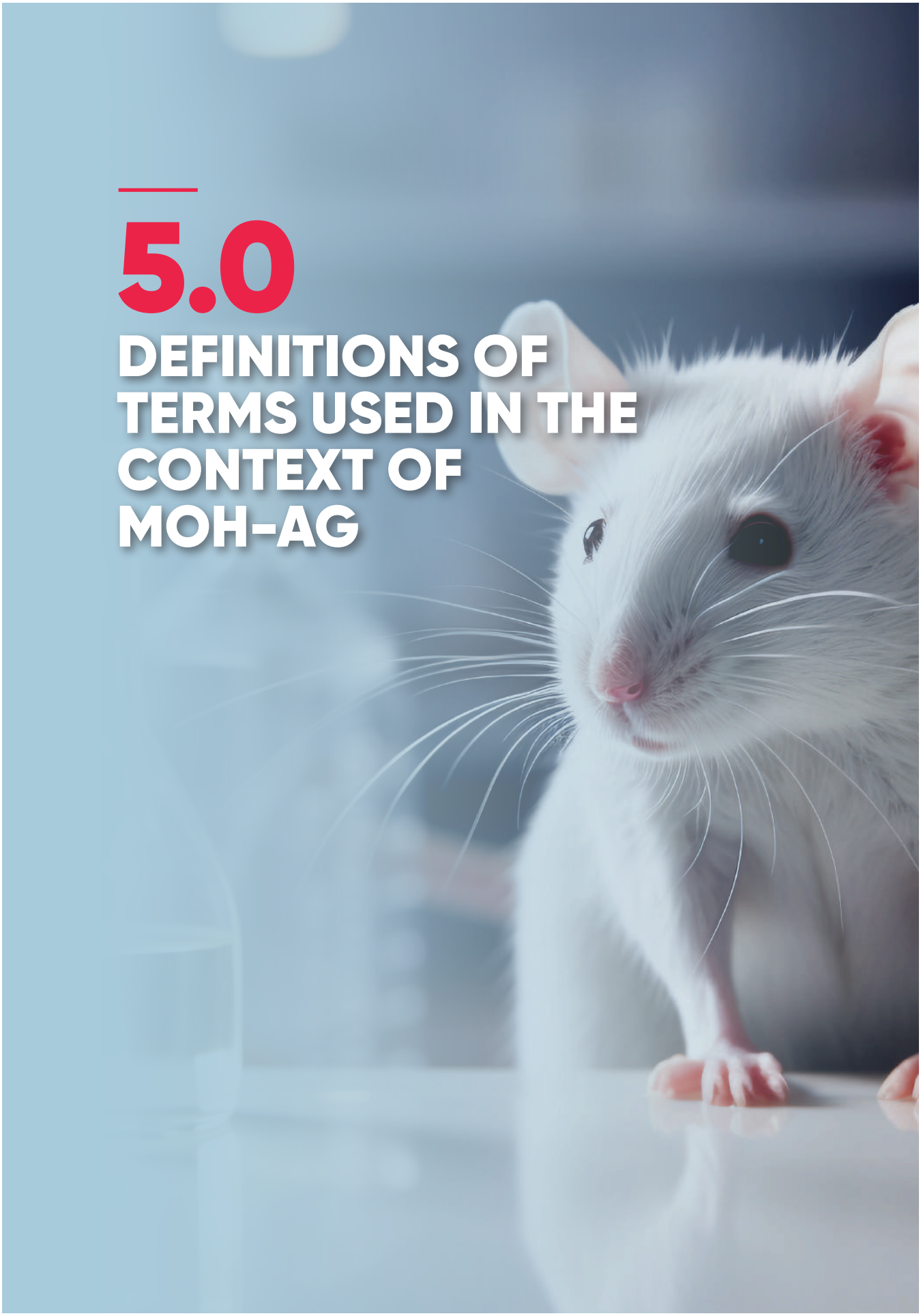
4.2 All scientific activities shall be approved by the Animal Care and Use Committee (ACUC-MOH) before commencement of the activities.

4.3 All personnel undertaking tasks related to animal scientific activities must be adequately trained.

4.4 The ACUC-MOH approval shall be obtained for scientific activities to be carried out by MOH personnel, MOH facilities or at the field. For activities (laboratory, fieldwork) involving more than one institution, ACUC-MOH and IACUC are required from their respective facilities.

5.0

DEFINITIONS OF TERMS USED IN THE CONTEXT OF MOH-AG



DEFINITIONS OF TERMS USED IN THE CONTEXT OF MOH-AG

5.1 **Analgesia**: the temporary abolition or diminution of pain perception.

5.2 **Anaesthesia**: a state of controllable, reversible insensibility in which sensor perception and motor responses are both markedly depressed.

5.3 **Animals**: any living creature other than human being, and include any beast, bird, reptile or insect, but does not include wildlife under the Wildlife Conservation [Act 716]

5.4 **Animal Care and Use Committee Ministry of Health (ACUC-MOH)**: a committee constituted in accordance with the terms of reference and membership laid down in the Code.

5.5 **Animal welfare**: an animal's quality of life-based on an assessment of an animal's physical and psychological state as an indication of how the animal is coping with the ongoing situation as well as a judgment about how the animal feels (see also 'Animal well-being' and 'Distress').

5.6 **Animal well-being**: an animal's present state concerning its relationship with all aspects of its environment, both internal and external. It implies a positive mental state, successful biological function, positive experiences and freedom from adverse conditions.

5.7 **Applicant**: any personnel applying for the ACUC-MOH

5.8 **Biological product**: products derived from animals to be used for scientific activities, which are not limited to blood products, tissues, urine, faecal, vaccines, antisera, semen, antibodies, proteins, cell lines and others.

5.9 **Clone**: a genetic copy of another living or dead animal. It is not a twin derived by the fertilisation of an egg by a sperm (see Somatic cell nuclear transfer).

5.10 **Compliance**: acting in accordance with this guideline

5.11 **Conflict of interest**: a situation in which an ACUC-MOH member has an interest that may either influence or appear to influence their objectivity in exercising their duties as a member of the ACUC-MOH.

5.12 **Consensus**: the outcome of a decision-making process whereby the legitimate concerns of members of the ACUC-MOH are addressed, and as a result, all members accept the final decision, even though it may not be an individual's preferred option.

5.13 **Death as an end-point**: when the death of an animal is the deliberate measure used for evaluating biological or chemical processes, responses or effects. That is, the personnel will not intervene to kill the animal humanely before death occurs in the course of a scientific activity. Moribund animals shall be considered as death as an end-point.

5.14 **Distress**: the state of an animal that has been unable to adapt entirely to stressors, which manifests as abnormal physiological or behavioural responses. It can be acute or chronic and may result in pathological conditions.

5.15 **Ethics**: a framework in which actions can be considered good or bad, right or wrong. Ethics is applied in the evaluation of what should or should not be done when animals are proposed for use or are used for scientific activities

5.16 **Euthanasia**: the humane killing of an animal, in the interests of its welfare, to alleviate pain and distress (see humane killing).

5.17 **Facilities**: places where animals are kept, including hospitals, laboratories, fields, yards, paddocks, tanks, ponds and buildings.

5.18 **Fields**: any area of open land such as jungle, swamp area and others

5.19 **Genetic modification (of animals)**: the use of any technique for the improvement of genes or other genetic material, but not including the use of natural processes such as sexual reproduction.

5.20 **Humane killing**: the process of killing an animal with minimal pain and distress (see Euthanasia).

5.21 **Institution**: Any institution, company, organisation, association, body or person that uses or intends to use animals for scientific activities and is licensed to do so.

5.22 **Livestock**: animals that are used in commercial agriculture and aquaculture.

5.23 **Manipulation**: Any interference with the normal physiological, behavioural or anatomical integrity of the animal by deliberately depriving it of its usual care or subjecting it to a procedure which is unusual or abnormal when compared with that to which animals of that type would be subjected to under normal management or practice and which involves exposing it to any parasite, microorganism, drug, chemical, biological product, radiation, electrical stimulation, or environmental condition or any enforced activity, restraint, nutrition, or surgical intervention.

5.24 **Monitoring**: Measures undertaken to assess the well-being of animals in accordance with the guidelines. This occurs at different levels. For example, at the level of the researcher and animal facility manager, monitoring is undertaken to assess the well-being of animals that are used and cared for, and at the level of the ACUC-MOH, monitoring is undertaken to assess the adequacy of standards of animal care and use.

5.25 **Pain**: an unpleasant sensory and emotional experience associated with actual or potential tissue damage. It may elicit protective actions, result in learned avoidance and distress and may modify species-specific traits of behaviour, including social behaviour.

5.26 **Personnel**: any person who uses animals for scientific activities.

5.27 **Project**: Any scientific activities involving animals that form a discrete piece of work. A project cannot commence until ACUC-MOH and/or IACUC have approved it.

5.28 **Proposal**: a written application to carry out a project for consideration by ACUC-MOH and/or IACUC.

5.29 **Scientific activity**: any research, testing and teaching involving animals.

5.30 **Standard Operating Procedure (SOP)**: detailed description of a standardised procedure.

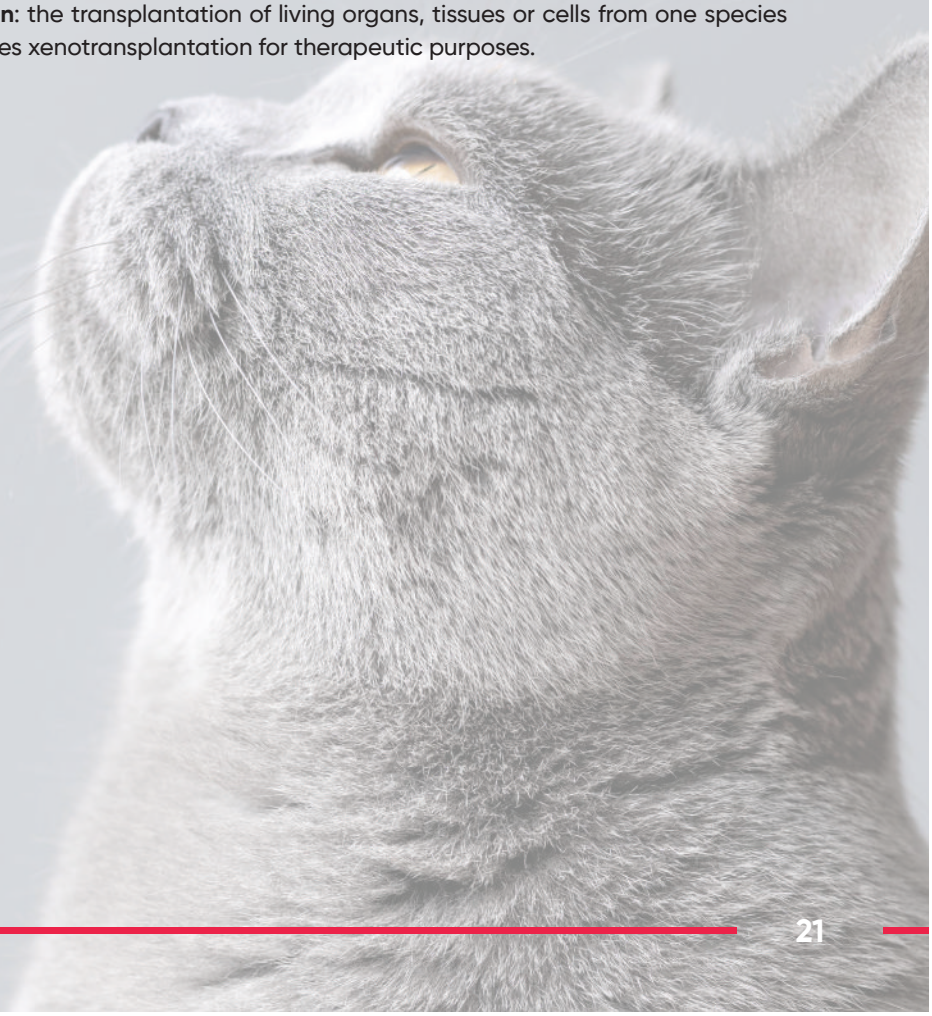
5.31 **Teaching**: developing, imparting or demonstrating knowledge or techniques in any area of science at the tertiary level.

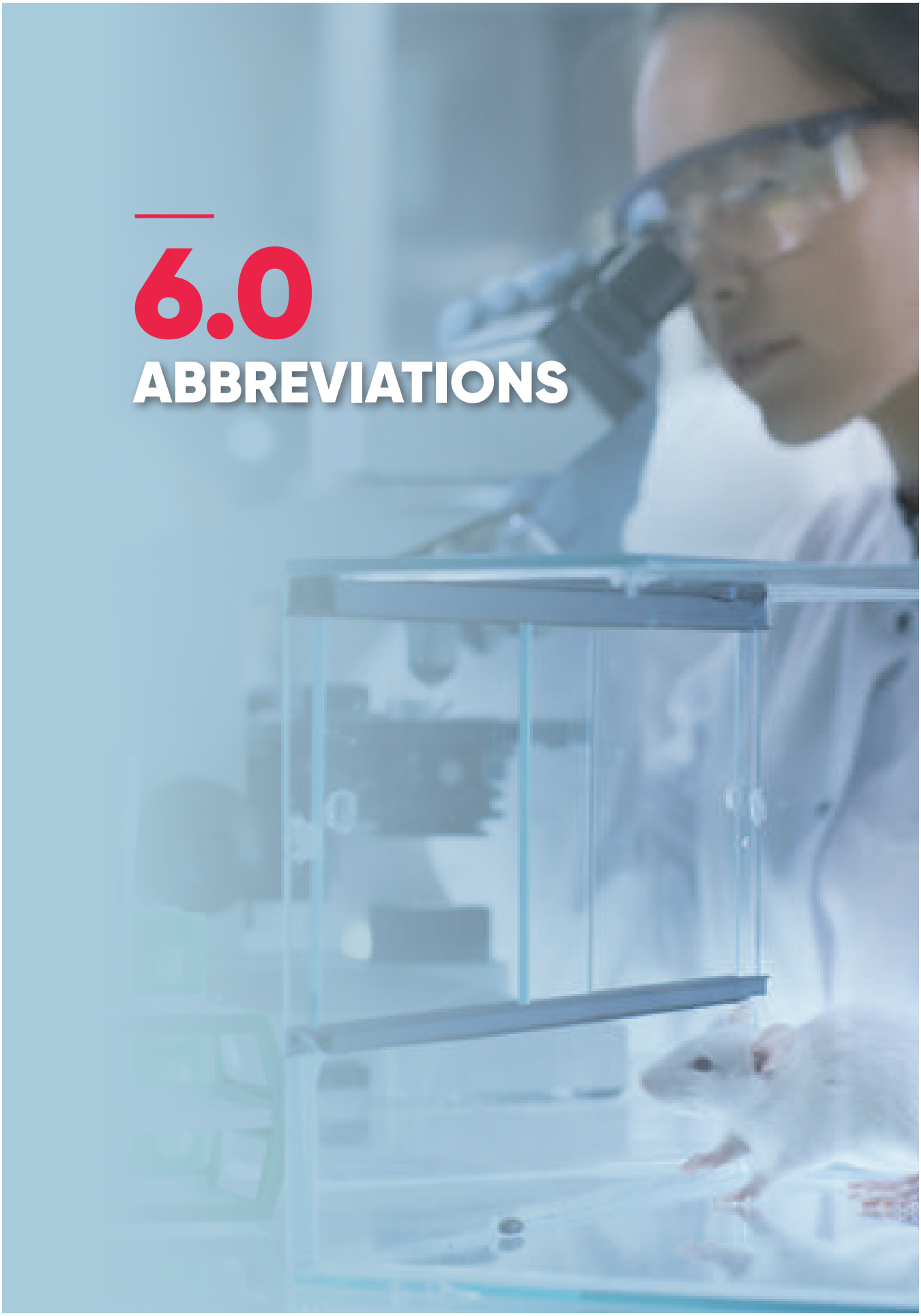
5.32 **Testing**: any testing or diagnostic work related to animals

5.33 **Vertebrate pest animals**: animals, including non-indigenous (introduced and feral) and native species, that are generally regarded, or have been declared under State or Territory legislation, as a 'pest species'.

5.34 **Voucher specimen**: any specimen, usually but not always a dead animal, that serves as a basis of study and is retained as a reference. 'Type' specimen is a particular voucher specimen that serves as a basis for taxonomic description of that subspecies.

5.35 **Xenotransplantation**: the transplantation of living organs, tissues or cells from one species to another. It includes xenotransplantation for therapeutic purposes.

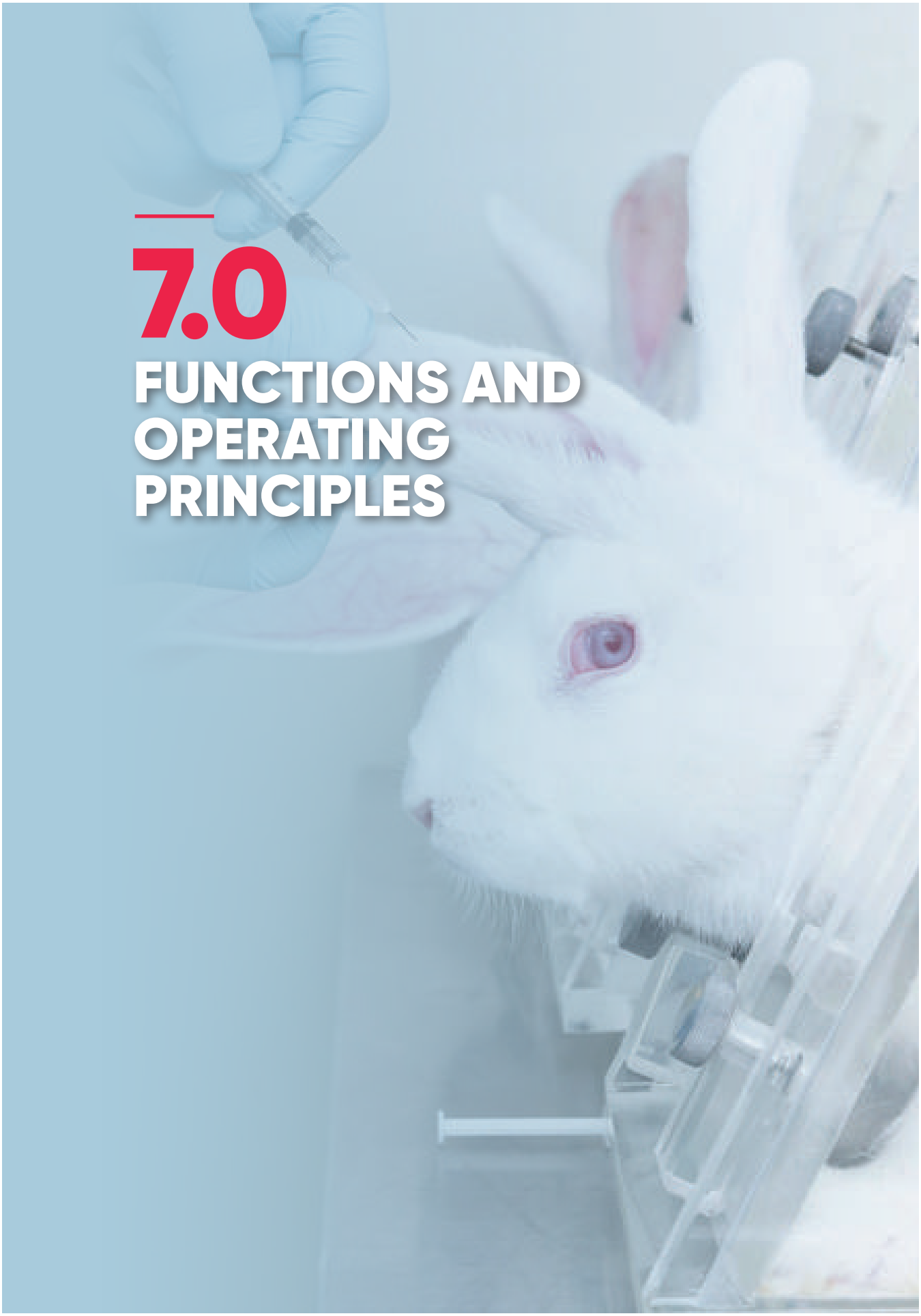




6.0 ABBREVIATIONS

ABBREVIATIONS

ACUC	Animal Care and Use Committee
AWA	Animal Welface Act
IACUC	Institutional Animal Care and Use Committee
NIH	National Institutes of Health
NMRR	National Medical Research Register
MOH	Ministry of Health
MOH-AG	Ministry of Health Animal Guideline
OSHA	Occupational Safety and Health Act



7.0 FUNCTIONS AND OPERATING PRINCIPLES

FUNCTIONS AND OPERATING PRINCIPLES

7.1 NAME

The committee is known as the 'Animal Care and Use Committee Ministry of Health' (ACUC-MOH)

7.2 FUNCTIONS

The primary functions of the Animal Care and Use Committee are:

7.2.1 To review all animal activities including type, sex, age, weight, quantity and quality of the animal models; for the appropriate procedures and conditions surrounding animals before and throughout the study.

7.2.2 To approve, suggest amendments or reject the use of animals in all animal research activities.

7.2.3 To evaluate the animal research facilities at least annually and to recommend appropriate action to correct deficiencies found.

7.2.4 To update users with the latest information regarding policy act and regulations.

7.2.5 To inspect all of the animal facilities, including animal study areas based on guidelines to ethical conduct in the care of use in animals for scientific activities.

7.2.6 To review and investigate legitimate concerns involving the care and use of animals at the research facility resulting from public complaints and from reports of non-compliance received from facility personnel or employees.

7.2.7 To make recommendations to the Ministry of Health top management regarding any aspects of the research facility's animal program, facilities, or personnel training.

7.3 OPERATING PRINCIPLES

For the applicants

7.3.1 All research needs to be registered with the National Medical Research Registry (NMRR) prior to applying to the ACUC-MOH committee for review and approval.

7.3.2 Applications for testing and teaching can directly be submitted to ACUC-MOH for review and approval

7.3.3 The applicants will need to fill up the respective forms for research (ACUC 01 (R)/2023), for testing (ACUC 02 (D)/2023) and for teaching (ACUC 03 (T)/2023) available at the NMRR website (www.nmrr.gov.my) and submit it to **the ACUC-MOH committee** (as in Section 7.4)

7.3.4 The ACUC-MOH Secretary will received the applications, protocol and supporting documents for review

7.3.5 Based on the category of biomedical experiments (Table 1), the Secretary in consultation with the Chairman and committee members will decide if the application should require

a. partial committee review; or
b. full committee review; or
c. committee meeting together with the applicants

7.3.6 After review, the proposals will be categorised either to be approved, revised or rejected.

7.3.7 The ACUC-MOH approval shall be obtained for scientific activities to be carried out by MOH personnel, MOH facilities or at the field. For activities (laboratory, fieldwork) involving more than one institution, ACUC-MOH and IACUC are required from their respective facilities.

Table 1 : Categories of biomedical experiments based on increasing ethical for non-human species	
Categories	**Examples and Comments**
Category A Experiments involving either no living materials or use of non-living materials or use of plants, bacteria, protozoa, or invertebrate animal species.	Biochemical, botanical, bacteriological, microbiological, or invertebrate animal studies, tissue cultures, studies on tissues obtained from autopsy or from slaughterhouse, studies on embryonated eggs, invertebrate animals have nervous systems and respond to noxious stimuli, and therefore must also be treated humanely.
Category B Experiments on vertebrate animal species that are expected to produce little or no discomfort.	Mere holding of animals captive for experimental purposes; simple procedures such as injections of relatively harmless substances and blood sampling; physical examinations; experiments on completely anesthetized animals which do not regain consciousness; food/water deprivation for short periods (a few hours); standard methods of euthanasia that induce rapid unconsciousness, such as anaesthetic overdose or decapitation preceded by sedation or light anaesthesia.
Category C Experiments that involve some minor stress or pain (short-duration pain) to vertebrate animal species.	Exposure of blood vessels or implantation of chronic catheters with anaesthesia; behavioural experiments on awake animals that involve short-term stressful restraint; immunization employing Freud`s adjuvant; noxious stimuli from which escape is possible; surgical procedures under anaesthesia that may result in some minor post-surgical discomfort. Category C procedures incur additional concern in proportion to the degree and duration of unavoidable stress or discomfort.
Category D Experiments that involve significant but unavoidable stress or pain to vertebrate animal species.	Deliberate induction of behavioural stress in order to test its effect; major surgical procedure under anaesthesia that result in significant postoperative discomfort; induction of an anatomical or physiological deficit that will result in pain or distress; application of noxious stimuli from which escape is impossible; prolonged periods (up to several hours or more) of physical restraint; maternal deprivation with substitution of punitive surrogates; induction of aggression; procedures that produce pain in which anaesthetics are not used, such as toxicity testing with death as death as end point; production of radiation sickness, certain injections, and stress and shock research that would result in pain approaching the pain tolerance threshold i.e. the point at which intense emotional reactions occur. Category D experiments present an explicit responsibility on the investigator to explore alternative designs to ensure that animal distress is minimized or eliminated.
Category E Procedures that involve inflicting severe pain near, at, or above the pain tolerance threshold of unanaesthetised, conscious animals.	Use of muscle relaxants or paralytic drugs such as succinyl choline or other curariform drugs used alone for surgical restraint without the use of anaesthetics; severe burn or trauma infliction on unanaesthetised animals; attempts to induce psychotic-like behaviour; killing by use of microwave ovens designed for domestic kitchens or by strychnine; inescapably severe stress or terminal stress. Category E experiments are considered highly questionable or unacceptable irrespective of the significance of anticipated results. Many of these procedures are specifically prohibited in national policies and therefore may result in withdrawal of federal funds and/or institutional USDA registration.

7.4 APPLICATION FORMS

ACUC 01 (R)/2023

ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH FORM)

Application for Ethics Approval for Research Projects

1. Please refer to the **GUIDELINES TO ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES IN MINISTRY OF HEALTH (MOH) INSTITUTIONS AND FACILITIES (MOH-AG)**

2. Please complete the application form in accordance to the guideline. Incomplete application will be returned to the applicant resulting in delay in the granting of approval.

3. A typewritten application for **Ethics Approval for Research Projects form (ACUC 01 (R)/2023)** shall be submitted for approval.

4. All applications shall include: -

   i. A complete research proposal that include the procedural part that uses animals in research.
   ii. Gantt chart - highlight the part involving animals only.
   iii. Recommended at least three (3) recent articles used for literature review as a guide in terms of use **animal breed, number of animals, and procedures carried out on animals.**
   iv. Certificate/declaration if the animal used is a type of living modified organisms (LMOs) according to the definition of the Biosafety Act 2007.

5. All application need to be submitted to:

   Secretary
   Animal Care and Use Committee (ACUC)
   Ministry of Health, Malaysia (MOH)
   c/o Laboratory Animal Resource Unit
   Special Resource Centre
   Institute for Medical Research
   Jalan Pahang, 50588 Kuala Lumpur
   Tel: 03-26162750
   Email: *acuc-moh@moh.gov.my*

6. The applicants are responsible to ensure that all facets of animal care and use meet the requirement of the Guidelines to ethical conduct in the care and use of animals for scientific purposes in Ministry of Health (MOH) institutions and facilities (MOH-AG)

7. The Code of Practice embodies the principle of the 3R's (reduction, replacement and refinement of animal use) which are important to be considered when designing and carrying out scientific activities.

8. Approval from ACUC-MOH will be based on the duration of the approved research project and not exceeding the limits specified by Animal Welfare Act 2015.

9. The approval of ACUC-MOH is valid only for any activities to be carried out by MOH personnel and facilities.

10. A Final Report pertaining to animal work is required to be submitted at the end of the purpose of completion or extension of the scientific activities. In addition, applicants may also apply for renewal by sending a Continuation letter before expiry.

JAWATANKUASA PENGGUNAAN & PENJAGAAN HAIWAN (ACUC)
KEMENTERIAN KESIHATAN MALAYSIA (MOH)
ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH)

BORANG PERMOHONAN KELULUSAN
ETIKA PENGGUNAAN HAIWAN DALAM PROJEK PENYELIDIKAN
(ETHICS APPROVAL FOR RESEARCH PROJECTS FORM)

1. MAKLUMAT PEMOHON (KETUA PENYELIDIK) *APPLICANT'S INFORMATION (PRINCIPAL INVESTIGATOR)*	
NAMA *NAME*	
JAWATAN / **GRED** *POSITION / GRADE*	
ALAMAT PEJABAT *OFFICE ADDRESS*	
NO TELEFON *TELEPHONE NUMBER*	
E-MEL *E-MAIL*	
BERPENGALAMAN / **TERLATIH UNTUK MENGENDALIKAN HAIWAN** *EXPERIENCE / TRAINED WORKING WITH ANIMALS* **YA** / **TIDAK** *YES / NO*	

2. BUTIRAN MAKLUMAT PENYELIDIK BERSAMA & AHLI PENYELIDIK YANG TERLIBAT MENJALANKAN PROSEDUR KERJA SEPANJANG KAJIAN DIJALANKAN *INFORMATION ON CO-INVESTIGATOR AND RESEARCH PERSONNEL INVOLVED*				
Bil. *No*	**Nama dan alamat** *Name and address*	**Jawatan** *Position*	**No telefon/ e-mel** *Telephone /e-mail*	**Latihan/ Pengalaman pengendalian haiwan** *Experience/ trained working with animals* YA / TIDAK *YES / NO*

Latar Belakang Penyelidik berkaitan dengan (i) penyelidikan (ii)penggunaan haiwan makmal dan (iii) latihan yang berkaitan

Sila lampirkan muka surat tambahan jika ruang ini tidak mencukupi

** Information(s) regarding investigator(s) in (i) research (ii) animal work and (iii) training on animal use*

***Please attach additional pages if required*

3. KETERANGAN MENGENAI PROJEK YANG AKAN MELIBATKAN PENGGUNAAN HAIWAN MAKMAL *INFORMATION REGARDING ANIMAL PROCEDURE*	
TAJUK *TITLE*	
OBJEKTIF *OBJECTIVE*	
NO. RUJUKAN NMRR *PROJECT REFERENCE NUMBER APPROVED BY THE INSTITUTIONS*	
SILA SERTAKAN SALINAN SURAT KELULUSAN CADANGAN PROJEK / NO. RUJUKAN PROJEK DARI INSTITUT TUAN/PUAN, JIKA ADA *PLEASE ATTACH A COPY OF APPROVAL LETTER OF PROJECT PROPOSAL / PROJECT REFERENCE NUMBER FROM THE INSTITUTE*	
TARIKH MULA *START DATE*	
TARIKH AKHIR *END DATE*	

4. ADAKAH PROJEK INI TELAH DIBINCANG DENGAN PEGAWAI VETERINAR? *HAS THE PROJECT BEEN DISCUSSED WITH THE VETERINARY OFFICER?*				
		Ya *Yes*		**Tidak** *No*
NAMA PEGAWAI VETERINAR BERTUGAS *ATTENDING VETERINARIAN*				

5. MAKLUMAT MENGENAI HAIWAN YANG AKAN DIGUNAKAN *INFORMATION ON THE ANIMAL USED*		
5.1	**Spesis/ strain atau stok haiwan** *Species/ animal stock or strain*	
5.2	**Adakah permit/ lesen diperlukan bagi penggunaan haiwan yang dinyatakan diatas?** *Is a permit/license required for the use of animals mentioned above?*	
	Jika **YA**, nyatakan no. permit/ lesen yang diperolehi dari Jabatan berkenaan *If **YES**, state the permit / license number obtained from the concerned Department*	
5.3	**Umur** *Age*	
5.4	**Jantina** *Sex*	
5.5	**Berat** *Animal weight*	
5.6	**Jumlah** *Total number animal*	
5.7	**Terangkan bagaimana jumlah bilangan haiwan yang akan digunakan ditentukan. contoh : 6 ekor x 3 ujikaji x 2 pengulangan ujikaji = 36 haiwan. (masukkan carta alir atau jadual jika perlu)** *Explain how the total number of animals to be used was determine. E.g : 6 animals x 3 treatments x 2 replicates = 36 animals. (include a flow chart or table if necessary)*	
5.8	**Sumber haiwan diperolehi** *Animal source*	
5.9	**Lokasi penyelidikan yang akan dijalankan** *Research facility*	
5.10	**Kaedah pengangkutan haiwan ke lokasi penyelidikan** *Transportation to research facility*	

6. PENJAGAAN HAIWAN SEPANJANG PROJEK PENYELIDIKAN *ANIMAL CARE*						
Suhu bilik / tempat penyimpanan haiwan *Room / Animal storage temperature*						
Jenis sangkar *Type of cage*		Plastik *Plastic*		Logam *Metal*		Akuarium *Aquarium*
		Tangki *Tank*		*Individual Ventilated Cage (IVC)*		
	Lain-lain. Sila nyatakan : *Others. Please specify :*					
Kepadatan stok haiwan *Stocking density*	Untuk Akuakultur, sila nyatakan saiz & isipadu ruang penyimpanan haiwan: *For aquaculture, specify the size and volume for animal storage:*					
Bahan alas sangkar *Bedding*						
Kekerapan menukar bahan alas sangkar *Frequency of bedding changes*						
Makanan *Feed*						
Sumber air minuman *Water source*						

7. KETERANGAN MENGENAI PROJEK PENYELIDIKAN YANG AKAN MELIBATKAN PENGGUNAAN HAIWAN MAKMAL. *DESCRIPTION ON RESEARCH PROJECT INVOLVING THE USE OF LABORATORY ANIMALS.*		
7.1	**Latar belakang ringkas dan kewajaran projek penyelidikan serta prosedur yang akan dilakukan ke atas haiwan termasuk penjagaan haiwan pra, semasa dan pasca projek* (Penerangan secara layman dan mudah difahami):** *Brief background and appropriateness of diagnostic testing and procedures that will be performed on animals including animal care pre, during and after the project* (Explanation in layman's terms and easy to understand):*	
7.2	**Terangkan justifikasi penggunaan haiwan dalam projek penyelidikan ini** *Justify the use of animals in the research project*	
7.3	**Berikan ringkasan prosedur ke atas haiwan dalam bentuk carta alir*** *Make a summary of the procedure on the animal in the form of flow chart**	
7.4	**Adakah penyelidikan ini melibatkan bahan-bahan toksik yang berjadual (tidak melibatkan bahan-bahan yang ditegah/ dilarang)** *Does testing involve the use of scheduled toxic substances (does not include prohibited substance):*	☐ Ya; Nyatakan: _____ *Yes; State* ☐ Tidak *No*
7.5	**Adakah penyelidikan ini melibatkan agen-agen berjangkit:** *Does this research project involve use of infectious agents:*	☐ Ya; Nyatakan: _____ *Yes; State* ☐ Tidak *No*
7.6	**Adakah penyelidikan ini melibatkan haiwan jenis LMOs:** *Does the research involved animal(s) from LMOs (Living Modified Organisms):*	☐ Ya; Nyatakan: _____ *Yes; State* ☐ Tidak *No*
7.7	**Sila nyatakan "Takat Akhir Haiwan" (Humane End-Point) yang dijangkakan dalam penyelidikan ini:** *Please specify and list the possible "Humane End-Point" for animal(s) used in this research project:*	

8. SENARAI PERALATAN, UBATAN DAN LAIN-LAIN BAHAN KIMIA / REAGEN YANG AKAN DIGUNAKAN KE ATAS HAIWAN
LIST OF EQUIPMENT / INSTRUMENT, DRUG AND OTHER CHEMICALS / REAGENTS THAT WILL BE USED ON THE ANIMAL

8.1 Senarai peralatan
List of equipment / instrument

Bil. *No.*	**Nama Peralatan** *Equipments / instruments*

8.2 Ubat pelali (anaesthetic)
Anaesthetic drug

Bil. *No.*	**Nama Ubat** *Drug*	**Kepekatan** *Concentration (e.g: mg/ml)*	**Dos** *Dosage (mg/kg)*	**Cara ubat diberikan** *Route of administration (e.g: intramuscular, intraperitoneal, subcutaneous, etc.)*

8.3 Bahan kimia/ reagent
Chemical name / reagent

Bil. *No.*	**Nama bahan kimia/ reagent** *Chemical name/ reagent*	**Kepekatan** *Concentration (e.g: mg/ml)*	**Dos** *Dosage (mg/kg)*	**Cara ubat diberikan** *Route of administration (e.g: intramuscular, intraperitoneal, subcutaneous, etc.)*

8.4 Nyatakan apa yang akan berlaku kepada haiwan selepas tamat projek penyelidikan?
(Please explain the status of animals after the end of research project)

Kuantiti spesis (species quantity)	**Untuk dikekalkan/dijual/didermakan/ dipindahkan/digunakan** *(to be retained / sold to/ donated to/transfer to/ adopted by) (specify location or to/by whom and purpose if animal are retained)*	**Untuk dimatikan** *(to be euthanized)* **Pembuangan bangkai** *(carcass disposal)*

9. KLASIFIKASI PROJEK PENYELIDIKAN *CLASSIFICATION OF RESEARCH PROJECT* **Tandakan (X) pada ruangan kotak yang disediakan** *Mark (X) in the box provided*		
Kategori yang dipilih Category chosen	**Categories**	**Examples and Comments**
	Category A Experiments involving either no living materials or use of non-living materials or use of plants, bacteria, protozoa, or invertebrate animal species.	Biochemical, botanical, bacteriological, microbiological, or invertebrate animal studies, tissue cultures, studies on tissues obtained from autopsy or from slaughterhouse, studies on embryonated eggs, invertebrate animals have nervous systems and respond to noxious stimuli, and therefore must also be treated humanely.
	Category B Experiments on vertebrate animal species that are expected to produce little or no discomfort.	Mere holding of animals captive for experimental purposes; simple procedures such as injections of relatively harmless substances and blood sampling; physical examinations; experiments on completely anesthetized animals which do not regain consciousness; food/water deprivation for short periods (a few hours); standard methods of euthanasia that induce rapid unconsciousness, such as anaesthetic overdose or decapitation preceded by sedation or light anaesthesia.
	Category C Experiments that involve some minor stress or pain (short-duration pain) to vertebrate animal species.	Exposure of blood vessels or implantation of chronic catheters with anaesthesia; behavioural experiments on awake animals that involve short-term stressful restraint; immunization employing Freud`s adjuvant; noxious stimuli from which escape is possible; surgical procedures under anaesthesia that may result in some minor post-surgical discomfort. Category C procedures incur additional concern in proportion to the degree and duration of unavoidable stress or discomfort.
	Category D Experiments that involve significant but unavoidable stress or pain to vertebrate animal species.	Deliberate induction of behavioural stress in order to test its effect; major surgical procedure under anaesthesia that result in significant postoperative discomfort; induction of an anatomical or physiological deficit that will result in pain or distress; application of noxious stimuli from which escape is impossible; prolonged periods (up to several hours or more) of physical restraint; maternal deprivation with substitution of punitive surrogates; induction of aggression; procedures that produce pain in which anaesthetics are not used, such as toxicity testing with death as death as end point; production of radiation sickness, certain injections, and stress and shock research that would result in pain approaching the pain tolerance threshold i.e. the point at which intense emotional reactions occur. Category D experiments present an explicit responsibility on the investigator to explore alternative designs to ensure that animal distress is minimized or eliminated.

	Category E Procedures that involve inflicting severe pain near, at, or above the pain tolerance threshold of unanaesthetized, conscious animals.	Use of muscle relaxants or paralytic drugs such as succinylcholine or other curariform drugs used alone for surgical restraint without the use of anaesthetics; severe burn or trauma infliction on unanaesthetized animals; attempts to induce psychotic-like behaviour; killing by use of microwave ovens designed for domestic kitchens or by strychnine; inescapably severe stress or terminal stress. Category E experiments are considered highly questionable or unacceptable irrespective of the significance of anticipated results. Many of these procedures are specifically prohibited in national policies and therefore may result in withdrawal of federal funds and/or institutional USDA registration.

10. DENGAN INI SAYA JUGA MENGAKU BAHAWA SAYA TELAH MEMBACA AKTA KEBAJIKAN HAIWAN 2015,DAN MEMATUHI SEMUA SYARAT PENGGUNAAN HAIWAN YANG DITETAPKAN BAWAH AKTA INI DAN PERATURAN-PERATURAN YANG BERKAITAN.

I, HEREBY DECLARE THAT I HAVE READ THE ANIMAL WELFARE ACT 2015, AND COMPLY TO ALL THE CONDITIONS FOR THE USE OF ANIMALS SET UNDER THIS ACT AND OTHER RELATED REGULATIONS.

Tarikh
Date : _____

_____
(Cop dan tandatangan Ketua Penyelidik)
(Stamp and signature of Principal Investigator)

UNTUK KEGUNAAN JAWATANKUASA ACUC-MOH
FOR ACUC-MOH USE ONLY

Tarikh borang diterima
Date of form received : _____

Keputusan Jawatankuasa Penjagaan dan Penggunaan Haiwan, Kementerian Kesihatan Malaysia
Decision of Ministry of Health Animal Care and Use Committee

☐ **Diluluskan**/*Approved*

☐ **Diluluskan dengan pembetulan kecil**/ *Approved pending with minor modification*

☐ **Kelulusan ditangguhkan untuk justifikasi dan penjelasan**/ *Withhold approval pending justification and clarification*

☐ **Tidak diluluskan**/ *Not Approved*

Tarikh keputusan dibuat
Date : _____

No. rujukan kelulusan ACUC-MOH
Ref. No. of ACUC-MOH approval : _____

MINISTRY OF HEALTH MALAYSIA

ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH FORM)

Application for Ethics Approval for Testing Involving Animals

1. Please refer to the **GUIDELINES TO ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES IN MINISTRY OF HEALTH (MOH) INSTITUTIONS AND FACILITIES (MOH-AG).**

2. Please complete the application form in accordance to the guideline. Incomplete application will be returned to the applicant resulting in delay in the granting of approval.

3. A typewritten application for **Ethics Approval for Testing Involving Animals form (ACUC 02 (D)/2023)** shall be submitted for approval.

4. All applications shall include: -
   i. A complete research proposal that include the procedural part that uses animals in research
   ii. Gantt chart - highlight the part involving animals only
   iii. The information fully describes the part of the procedure that uses animals in diagnostic tests
   iv. Guidelines / Standard Operating Procedure (SOP) to explain the procedure for the use of laboratory animals
   v. **Recommended at least three (3) recent** articles used for literature review as a guide in terms of use **animal breed, number of animals, and procedures carried out on animals**
   vi. Certificate/declaration if the animal used is a type of living modified organisms (LMOs) according to the definition of the Biosafety Act 2007

5. All application need to be submitted to:

   Secretary
   Animal Care and Use Committee (ACUC)
   Ministry of Health, Malaysia (MOH)
   c/o Laboratory Animal Resource Unit
   Special Resource Centre
   Institute for Medical Research
   Jalan Pahang, 50588 Kuala Lumpur
   Tel: 03-26162750
   Email: *acuc-moh@moh.gov.my*

6. The applicants are responsible to ensure that all facets of animal care and use meet the requirement of the Guidelines to ethical conduct in the care and use of animals for scientific purposes in Ministry of Health (MOH) institutions and facilities (MOH-AG).

7. The Code of Practice embodies the principle of the 3R's (reduction, replacement and refinement of animal use) which are important to be considered when designing and carrying out scientific activities.

8. For Testing purpose approval from ACUC-MOH will be a maximum of **2 years.**

9. Approval from ACUC-MOH will be based on the duration of the approved research project and not exceeding the limits specified by Animal Welfare Act 2015.

10. The approval of ACUC-MOH is valid only for any activities to be carried out by MOH personnel and facilities.

11. A Final Report pertaining to animal work is required to be submitted at the end of the purpose of completion or extension of the scientific activities. In addition, applicants may also apply for renewal by sending a Continuation letter before expiry.

MINISTRY OF HEALTH MALAYSIA

JAWATANKUASA PENGGUNAAN & PENJAGAAN HAIWAN (ACUC)
KEMENTERIAN KESIHATAN MALAYSIA (MOH)
ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH)

BORANG PERMOHONAN KELULUSAN ETIKA PENGGUNAAN HAIWAN DALAM PENGUJIAN
(ETHICS APPROVAL FOR TESTING INVOLVING ANIMALS FORM)

1. MAKLUMAT PEMOHON (PENGENDALI UTAMA) *APPLICANT'S INFORMATION (PROGRAMME COORDINATOR)*	
NAMA *NAME*	
JAWATAN / **GRED** *POSITION / GRADE*	
INSTITUSI / **AGENSI** *INSTITUTION / AGENCY*	
NO TELEFON *TELEPHONE NUMBER*	
E-MEL *E-MAIL*	
LATIHAN / **PENGALAMAN PENGENDALIAN HAIWAN** *EXPERIENCE / TRAINED WORKING WITH ANIMALS* **YA** / **TIDAK** *YES / NO*	

2. MAKLUMAT UJIAN DIAGNOSTIK **DIAGNOSTIC TESTING INFORMATION**	
TAJUK *TITLE*	
TARIKH MULA *START DATE*	
TARIKH AKHIR *END DATE*	
KEKERAPAN *FREQUENCY*	Adakah ujian diagnostik ini akan diteruskan selepas ini pada tahun akan datang? *Will the diagnostic testing continue in few years?* Jika **YA**, sila nyatakan tarikh seterusnya *If **YES**, please state the date*

3. BUTIRAN MAKLUMAT PERSONEL **(TERMASUK PENYELIDIK/ PENYELIDIK BERSAMA/ STAF MAKMAL/ PELAJAR)** *INFORMATION ON PERSONNEL INVOLVED* *(PRINCIPAL INVESTIGATOR/ CO-INVESTIGATOR/ CO-ORDINATOR/ PERSONNEL/ PARTICIPANT/ STUDENT)*					
Bil. *No*	**Nama dan alamat** *Name and address*	**Kelayakan** *Qualification*	**Jawatan** *Position*	**No telefon/ e-mel** *Telephone /e-mail*	**Latihan/ Pengalaman pengendalian haiwan** *Experience/ trained working with animals* YA / TIDAK *YES / NO*

Latar Belakang Penyelidik berkaitan dengan (i) penyelidikan (ii)penggunaan haiwan makmal dan (iii) latihan yang berkaitan

****Sila lampirkan muka surat tambahan jika ruang ini tidak mencukupi***

**Information(s) regarding investigator(s) in (i) research (ii) animal work and (iii) training on animal use*

***Please attach additional pages if required*

4. ADAKAH UJIAN DIAGNOSTIK INI TELAH DIBINCANG DENGAN PEGAWAI VETERINAR? *IS THE PROJECT HAS BEEN DISCUSSED WITH THE VETERINARY OFFICER?*				
		Ya *Yes*		**Tidak** *No*
NAMA PEGAWAI VETERINAR BERTUGAS *ATTENDING VETERINARIAN*				

5. MAKLUMAT MENGENAI HAIWAN YANG AKAN DIGUNAKAN *INFORMATION ON THE ANIMAL USED*		
5.1	**Spesis/ strain atau stok haiwan** *Species/ animal stock or strain*	
5.2	**Adakah permit/ lesen diperlukan bagi penggunaan haiwan yang dinyatakan diatas?** *Is a permit/license required for the use of animals mentioned above?*	
	Jika **YA**, nyatakan no. permit/ lesen yang diperolehi dari Jabatan berkenaan *If **YES**, state the permit / license number obtained from the concerned Department*	
5.3	**Umur** *Age*	
5.4	**Jantina** *Sex*	
5.5	**Berat** *Animal weight*	
5.6	**Jumlah** *Total number animal*	
5.7	**Sumber haiwan diperolehi** *Animal source*	
5.8	**Lokasi ujian diagnostik yang akan dijalankan** *Location of diagnostic testing to be conducted*	
5.9	**Pengangkutan haiwan ke lokasi ujian diagnostik dijalankan** *Transportation to research facility*	

6. PENJAGAAN HAIWAN SEPANJANG UJIAN DIAGNOSTIK *ANIMAL CARE*						
Suhu bilik / tempat penyimpanan haiwan *Room / Animal storage temperature*						
Jenis sangkar *Type of cage*		Plastik *Plastic*		Logam *Metal*		Akuarium *Aquarium*
		Tangki *Tank*		*Individual Ventilated Cage (IVC)*		
	Lain-lain. Sila nyatakan : *Others. Please specify :*					
Kepadatan stok haiwan *Stocking density*	Untuk Akuakultur, sila nyatakan saiz & isipadu ruang penyimpanan haiwan: *For aquaculture, specify the size and volume for animal storage:*					
Bahan alas sangkar *Bedding*						
Kekerapan menukar bahan alas sangkar *Frequency of bedding changes*						
Makanan *Feed*						
Sumber air minuman *Water source*						

	7. KETERANGAN MENGENAI UJIAN DIAGNOSTIK YANG AKAN MELIBATKAN PENGGUNAAN HAIWAN MAKMAL. *DESCRIPTION ON DIAGNOSTIC TESTING INVOLVING THE USE OF LABORATORY ANIMALS.*	
7.1	**Latar belakang ringkas dan kewajaran ujian diagnostik serta prosedur yang akan dilakukan ke atas haiwan termasuk penjagaan haiwan pra, semasa dan pasca projek* (Penerangan secara layman dan mudah difahami) :** *Brief background and appropriateness of diagnostic testing and procedures that will be performed on animals including animal care pre, during and after the project* (Explanation in layman's terms and easy to understand):*	
7.2	**Terangkan justifikasi penggunaan haiwan dalam ujian diagnostik** *Justify the use of animals in diagnostic testing*	
7.3	**Berikan ringkasan prosedur ke atas haiwan dalam bentuk carta alir*** *Make a summary of the procedure on the animal in the form of flow chart**	
7.4	**Adakah ujian ini melibatkan bahan-bahan toksik yang berjadual:** *Does testing involve the use of scheduled toxic substances:*	☐ Ya; Nyatakan: _____ *Yes; State* ☐ Tidak *No*
7.5	**Adakah penyelidikan ini melibatkan agen-agen berjangkit:** *Does this research project involve use of infectious agents:*	☐ Ya; Nyatakan: _____ *Yes; State* ☐ Tidak *No*
7.6	**Adakah penyelidikan ini melibatkan haiwan jenis LMOs:** *Does the research involved animal(s) from LMOs (Living Modified Organisms):*	☐ Ya; Nyatakan: _____ *Yes; State* ☐ Tidak *No*
7.7	**Sila nyatakan "Takat Akhir Haiwan" (Humane End-Point) yang dijangkakan dalam penyelidikan ini:** *Please specify and list the possible "Humane End-Point" for animal(s) used in this research project:*	

8. SENARAI PERALATAN, UBATAN DAN LAIN-LAIN BAHAN KIMIA / REAGEN YANG AKAN DIGUNAKAN KE ATAS HAIWAN

LIST OF EQUIPMENT / INSTRUMENT, DRUG AND OTHER CHEMICALS / REAGENTS THAT WILL BE USED ON THE ANIMAL

8.1 Senarai peralatan
List of equipment / instrument

Bil. *No.*	**Nama Peralatan** *Equipments / instruments*

8.2 Ubat pelali (anaesthetic)
Anaesthetic drug

Bil. *No.*	**Nama Ubat** *Drug*	**Kepekatan** *Concentration (e.g: mg/ml)*	**Dos** *Dosage (mg/kg)*	**Cara ubat diberikan** *Route of administration (e.g: intramuscular, intraperitoneal, subcutaneous, etc.)*

8.3 Bahan kimia/ reagent
Chemical name / reagent

Bil. *No.*	**Nama bahan kimia/ reagent** *Chemical name/ reagent*	**Kepekatan** *Concentration (e.g: mg/ml)*	**Dos** *Dosage (mg/kg)*	**Cara ubat diberikan** *Route of administration (e.g: intramuscular, intraperitoneal, subcutaneous, etc.)*

8.4 Nyatakan apa yang akan berlaku kepada haiwan selepas tamat projek penyelidikan?
(Please explain the status of animals after the end of research project)

Kuantiti spesis (species quantity)	**Untuk dikekalkan/dijual/didermakan/ dipindahkan/digunakan** *(to be retained / sold to/ donated to/transfer to/ adopted by) (specify location or to/by whom and purpose if animal are retained)*	**Untuk dimatikan** *(to be euthanized)* **Pembuangan bangkai** *(carcass disposal)*

9. KLASIFIKASI UJIAN DIAGNOSTIK *CLASSIFICATION OF DIAGNOSTIC TESTING* **Tandakan (X) pada ruangan kotak yang disediakan** *Mark (X) in the box provided*		
Kategori yang dipilih Category chosen	**Categories**	**Examples and Comments**
	Category A Experiments involving either no living materials or use of non-living materials or use of plants, bacteria, protozoa, or invertebrate animal species.	Biochemical, botanical, bacteriological, microbiological, or invertebrate animal studies, tissue cultures, studies on tissues obtained from autopsy or from slaughterhouse, studies on embryonated eggs, invertebrate animals have nervous systems and respond to noxious stimuli, and therefore must also be treated humanely.
	Category B Experiments on vertebrate animal species that are expected to produce little or no discomfort.	Mere holding of animals captive for experimental purposes; simple procedures such as injections of relatively harmless substances and blood sampling; physical examinations; experiments on completely anesthetized animals which do not regain consciousness; food/water deprivation for short periods (a few hours); standard methods of euthanasia that induce rapid unconsciousness, such as anaesthetic overdose or decapitation preceded by sedation or light anaesthesia.
	Category C Experiments that involve some minor stress or pain (short-duration pain) to vertebrate animal species.	Exposure of blood vessels or implantation of chronic catheters with anaesthesia; behavioural experiments on awake animals that involve short-term stressful restraint; immunization employing Freud`s adjuvant; noxious stimuli from which escape is possible; surgical procedures under anaesthesia that may result in some minor post-surgical discomfort. Category C procedures incur additional concern in proportion to the degree and duration of unavoidable stress or discomfort.
	Category D Experiments that involve significant but unavoidable stress or pain to vertebrate animal species.	Deliberate induction of behavioural stress in order to test its effect; major surgical procedure under anaesthesia that result in significant postoperative discomfort; induction of an anatomical or physiological deficit that will result in pain or distress; application of noxious stimuli from which escape is impossible; prolonged periods (up to several hours or more) of physical restraint; maternal deprivation with substitution of punitive surrogates; induction of aggression; procedures that produce pain in which anaesthetics are not used, such as toxicity testing with death as death as end point; production of radiation sickness, certain injections, and stress and shock research that would result in pain approaching the pain tolerance threshold i.e. the point at which intense emotional reactions occur. Category D experiments present an explicit responsibility on the investigator to explore alternative designs to ensure that animal distress is minimized or eliminated.

	Category E Procedures that involve inflicting severe pain near, at, or above the pain tolerance threshold of unanaesthetized, conscious animals.	Use of muscle relaxants or paralytic drugs such as succinylcholine or other curariform drugs used alone for surgical restraint without the use of anaesthetics; severe burn or trauma infliction on unanaesthetized animals; attempts to induce psychotic-like behaviour; killing by use of microwave ovens designed for domestic kitchens or by strychnine; inescapably severe stress or terminal stress. Category E experiments are considered highly questionable or unacceptable irrespective of the significance of anticipated results. Many of these procedures are specifically prohibited in national policies and therefore may result in withdrawal of federal funds and/or institutional USDA registration.

10. DENGAN INI SAYA JUGA MENGAKU BAHAWA SAYA TELAH MEMBACA AKTA KEBAJIKAN HAIWAN 2015,DAN MEMATUHI SEMUA SYARAT PENGGUNAAN HAIWAN YANG DITETAPKAN BAWAH AKTA INI DAN PERATURAN-PERATURAN YANG BERKAITAN.

I, HEREBY DECLARE THAT I HAVE READ THE ANIMAL WELFARE ACT 2015, AND COMPLY TO ALL THE CONDITIONS FOR THE USE OF ANIMALS SET UNDER THIS ACT AND OTHER RELATED REGULATIONS.

Tarikh
Date : _____

_____
(Cop dan tandatangan Ketua Penyelidik)
(Stamp and signature of Principal Investigator)

UNTUK KEGUNAAN JAWATANKUASA ACUC-MOH
FOR ACUC-MOH USE ONLY

Tarikh borang diterima
Date of form received : _____

Keputusan Jawatankuasa Penjagaan dan Penggunaan Haiwan, Kementerian Kesihatan Malaysia
Decision of Ministry of Health Animal Care and Use Committee

☐ **Diluluskan**/*Approved*

☐ **Diluluskan dengan pembetulan kecil**/ *Approved pending with minor modification*

☐ **Kelulusan ditangguhkan untuk justifikasi dan penjelasan**/ *Withhold approval pending justification and clarification*

☐ **Tidak diluluskan**/ *Not Approved*

Tarikh keputusan dibuat
Date : _____

No. rujukan kelulusan ACUC-MOH
Ref. No. of ACUC-MOH approval : _____

MINISTRY OF HEALTH MALAYSIA

ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH FORM)

Application for Ethics Approval for Teaching Involving Animals

1. Please refer to the **GUIDELINES TO ETHICAL CONDUCT IN THE CARE AND USE OF ANIMALS FOR SCIENTIFIC PURPOSES IN MINISTRY OF HEALTH (MOH) INSTITUTIONS AND FACILITIES (MOH-AG)**.

2. Please complete the application form in accordance to the guideline. Incomplete application will be returned to the applicant resulting in delay in the granting of approval.

3. A typewritten application for **Ethics Approval for Teaching Involving Animals (ACUC 03 (T)/2023)** shall be submitted for approval.

4. All applications shall include: -
   i. A complete research proposal that include the procedural part that uses animals in research
   ii. Gantt chart - highlight the part involving animals only
   iii. **Recommended at least three (3) recent articles** used for literature review as a guide in terms of use **animal breed, number of animals, and procedures carried out on animals**
   iv. Certificate/declaration if the animal used is a type of living modified organisms (LMOs) according to the definition of the Biosafety Act 2007

   Please include relevant supporting documents such as SOP, surgical protocol and other documents regarding the procedure to be performed on the animal.

5. All application need to be submitted to:

   Secretary
   Animal Care and Use Committee (ACUC)
   Ministry of Health, Malaysia (MOH)
   c/o Laboratory Animal Resource Unit
   Special Resource Centre
   Institute for Medical Research
   Jalan Pahang, 50588 Kuala Lumpur
   Tel: 03-26162750
   Email: *acuc-moh@moh.gov.my*

6. The applicants are responsible to ensure that all facets of animal care and use meet the requirement of the Guidelines to ethical conduct in the care and use of animals for scientific purposes in Ministry of Health (MOH) institutions and facilities (MOH-AG).

7. The Code of Practice embodies the principle of the 3R's (reduction, replacement and refinement of animal use) which are important to be considered when designing and carrying out scientific activities.

8. Approval from ACUC-MOH will be based on the duration of the approved research project and not exceeding the limits specified by Animal Welfare Act 2015.

9. For teaching purposes approval from ACUC-MOH will be a maximum of 1 year or based on the duration of animal work.

10. The approval of ACUC-MOH is valid only for any activities to be carried out by MOH personnel and facilities.

11. A Final Report pertaining to animal work is required to be submitted at the end of the purpose of completion or extension of the scientific activities. In addition, applicants may also apply for renewal by sending a Continuation letter before expiry.

MINISTRY OF HEALTH MALAYSIA

JAWATANKUASA PENGGUNAAN & PENJAGAAN HAIWAN (ACUC)
KEMENTERIAN KESIHATAN MALAYSIA (MOH)
ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH)

BORANG PERMOHONAN KELULUSAN ETIKA PENGGUNAAN HAIWAN DALAM PEMBELAJARAN/ LATIHAN

(ETHICS APPROVAL FOR TEACHING INVOLVING ANIMALS FORM)

1. MAKLUMAT PEMOHON (PENGENDALI UTAMA) *APPLICANT'S INFORMATION (PROGRAM COORDINATOR)*	
NAMA *NAME*	
JAWATAN / **GRED** *POSITION / GRADE*	
INSTITUSI / **AGENSI** *INSTITUTION / AGENCY*	
NO TELEFON *TELEPHONE NUMBER*	
E-MEL *E-MAIL*	
BERPENGALAMAN / **TERLATIH UNTUK MENGENDALIKAN HAIWAN** *EXPERIENCE / TRAINED WORKING WITH ANIMALS* **YA** / **TIDAK** *YES / NO*	

2. MAKLUMAT LATIHAN / PEMBELAJARAN / DEMONSTRASI *TRAINING / LEARNING / DEMONSTRATION INFORMATION*	
TAJUK *TITLE*	
TARIKH MULA *START DATE*	
TARIKH AKHIR *END DATE*	
KEKERAPAN *FREQUENCY*	Adakah Latihan/ pembelajaran/ demonstrasi ini akan diadakan lagi selepas ini pada tahun yang sama? Will this training / learning / demonstration be held again later in the same year? Jika **YA**, sila nyatakan tarikh latihan seterusnya *If **YES**, please state the next training date*

3.	**BUTIRAN MAKLUMAT PERSONEL (TERMASUK PENSYARAH/ FASILITATOR/ KOORDINATOR/ STAF/ PESERTA/ PELAJAR)** *INFORMATION ON PERSONNEL INVOLVED (LECTURER/ FACILITATOR/ CO-ORDINATOR/ PERSONNEL/ PARTICIPANT/ STUDENT)*			
Bil. *No*	**Nama dan alamat** *Name and address*	**Jawatan** *Position*	**No telefon/ e-mel** *Telephone /e-mail*	**Berpengalaman/ Terlatih untuk mengendalikan haiwan** *Experience/ trained working with animals* YA / TIDAK *YES / NO*

Sila lampirkan muka surat tambahan jika ruang ini tidak mencukupi
**Please attach additional pages if required*

4. ADAKAH LATIHAN / PEMBELAJARAN / DEMONSTRASI INI TELAH DIBINCANG DENGAN PEGAWAI VETERINAR? *IS THE TRAINING / LEARNING / DEMONSTRATION HAS BEEN DISCUSSED WITH THE VETERINARY OFFICER?*				
		Ya *Yes*		**Tidak** *No*

5. MAKLUMAT MENGENAI HAIWAN YANG AKAN DIGUNAKAN *INFORMATION ON THE ANIMAL USED*		
5.1	**Spesis/ strain atau stok haiwan** *Species/ animal stock or strain*	
5.2	**Adakah permit/ lesen diperlukan bagi penggunaan haiwan yang dinyatakan diatas?** *Is a permit/license required for the use of animals mentioned above?*	
	Jika **YA**, nyatakan no. permit/ lesen yang diperolehi dari Jabatan berkenaan *If **YES**, state the permit / license number obtained from the concerned Department*	
5.3	**Umur** *Age*	
5.4	**Jantina** *Sex*	
5.5	**Berat** *Animal weight*	
5.6	**Jumlah** *Total number animal*	
5.7	**Sumber haiwan diperolehi** *Animal source*	
5.8	**Lokasi ujian diagnostik yang akan dijalankan** *Location of diagnostic testing to be conducted*	
5.9	**Kaedah pengangkutan haiwan ke lokasi penyelidikan** *Transportation to research facility*	

Jika haiwan ditempatkan selama lebih daripada 3 jam di fasiliti haiwan, sila nyatakan cara penjagaan haiwan yang disimpan :
If animals are housed for more than 3 hours in the animal facility, please state the appropriate housing and caring of the animal:

<table>
<tr><th colspan="7">6. PENJAGAAN HAIWAN SEPANJANG UJIAN DIAGNOSTIK
ANIMAL CARE</th></tr>
<tr><td>Suhu bilik / tempat penyimpanan haiwan
Room / Animal storage temperature</td><td colspan="6"></td></tr>
<tr><td rowspan="3">Jenis sangkar
Type of cage</td><td></td><td>Plastik
Plastic</td><td></td><td>Logam
Metal</td><td></td><td>Akuarium
Aquarium</td></tr>
<tr><td></td><td>Tangki
Tank</td><td></td><td colspan="3">Individual Ventilated Cage (IVC)</td></tr>
<tr><td colspan="6">Lain-lain. Sila nyatakan :
Others. Please specify :</td></tr>
<tr><td rowspan="2">Kepadatan stok haiwan
Stocking density</td><td colspan="6">Untuk Akuakultur, sila nyatakan saiz & isipadu ruang penyimpanan haiwan:
For aquaculture, specify the size and volume for animal storage:</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Bahan alas sangkar
Bedding</td><td colspan="6"></td></tr>
<tr><td>Kekerapan menukar bahan alas sangkar
Frequency of bedding changes</td><td colspan="6"></td></tr>
<tr><td>Makanan
Feed</td><td colspan="6"></td></tr>
<tr><td>Sumber air minuman
Water source</td><td colspan="6"></td></tr>
</table>

7. KETERANGAN MENGENAI LATIHAN / PEMBELAJARAN / DEMONSTRASI YANG AKAN MELIBATKAN PENGGUNAAN HAIWAN MAKMAL. *DESCRIPTION ON TRAINING / LEARNING / DEMONSTRATION INVOLVING THE USE OF LABORATORY ANIMALS.*	
7.1	**Latar belakang ringkas dan kewajaran latihan/ pembelajaran/ demonstrasi serta prosedur yang akan dilakukan ke atas haiwan termasuk penjagaan haiwan pra, semasa dan pasca projek* (Penerangan secara layman dan mudah difahami) :** *Brief background and appropriateness of training / learning / demonstration and procedures that will be performed on animals including animal care pre, during and after the project* (Explanation in layman's terms and easy to understand):*
7.2	**Terangkan justifikasi penggunaan haiwan dalam Latihan / pembelajaran / demonstrasi** *Justify the use of animals in Training / learning / demonstration*
7.3	**Berikan ringkasan prosedur ke atas haiwan dalam bentuk carta alir*** *Make a summary of the procedure on the animal in the form of flow chart**

**sila lampirkan muka surat tambahan jika ruang ini tidak mencukupi*
**please attach additional pages if required*

8. SENARAI PERALATAN, UBATAN DAN LAIN-LAIN BAHAN KIMIA / REAGEN YANG AKAN DIGUNAKAN KE ATAS HAIWAN

LIST OF EQUIPMENT / INSTRUMENT, DRUG AND OTHER CHEMICALS / REAGENTS THAT WILL BE USED ON THE ANIMAL

8.1 Senarai peralatan
List of equipment / instrument

Bil. *No.*	**Nama Peralatan** *Equipments / instruments*

8.2 Ubat pelali (anaesthetic)
Anaesthetic drug

Bil. *No.*	**Nama Ubat** *Drug*	**Kepekatan** *Concentration (e.g: mg/ml)*	**Dos** *Dosage (mg/kg)*	**Cara ubat diberikan** *Route of administration (e.g: intramuscular, intraperitoneal, subcutaneous, etc.)*

8.3 Bahan kimia/ reagent
Chemical name / reagent

Bil. *No.*	**Nama bahan kimia/ reagent** *Chemical name/ reagent*	**Kepekatan** *Concentration (e.g: mg/ml)*	**Dos** *Dosage (mg/kg)*	**Cara ubat diberikan** *Route of administration (e.g: intramuscular, intraperitoneal, subcutaneous, etc.)*

8.4 Nyatakan apa yang akan berlaku kepada haiwan selepas tamat projek penyelidikan?
(Please explain the status of animals after the end of research project)

Kuantiti spesis (species quantity)	**Untuk dikekalkan/dijual/didermakan/ dipindahkan/digunakan** *(to be retained / sold to/ donated to/transfer to/ adopted by) (specify location or to/by whom and purpose if animal are retained)*	**Untuk dimatikan** *(to be euthanized)* **Pembuangan bangkai** *(carcass disposal)*

9. KLASIFIKASI UJIAN DIAGNOSTIK *CLASSIFICATION OF DIAGNOSTIC TESTING* **Tandakan (X) pada ruangan kotak yang disediakan** *Mark (X) in the box provided*		
Kategori yang dipilih Category chosen	**Categories**	**Examples and Comments**
	Category A Experiments involving either no living materials or use of non-living materials or use of plants, bacteria, protozoa, or invertebrate animal species.	Biochemical, botanical, bacteriological, microbiological, or invertebrate animal studies, tissue cultures, studies on tissues obtained from autopsy or from slaughterhouse, studies on embryonated eggs, invertebrate animals have nervous systems and respond to noxious stimuli, and therefore must also be treated humanely.
	Category B Experiments on vertebrate animal species that are expected to produce little or no discomfort.	Mere holding of animals captive for experimental purposes; simple procedures such as injections of relatively harmless substances and blood sampling; physical examinations; experiments on completely anesthetized animals which do not regain consciousness; food/water deprivation for short periods (a few hours); standard methods of euthanasia that induce rapid unconsciousness, such as anaesthetic overdose or decapitation preceded by sedation or light anaesthesia.
	Category C Experiments that involve some minor stress or pain (short-duration pain) to vertebrate animal species.	Exposure of blood vessels or implantation of chronic catheters with anaesthesia; behavioural experiments on awake animals that involve short-term stressful restraint; immunization employing Freud`s adjuvant; noxious stimuli from which escape is possible; surgical procedures under anaesthesia that may result in some minor post-surgical discomfort. Category C procedures incur additional concern in proportion to the degree and duration of unavoidable stress or discomfort.
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	Category E Procedures that involve inflicting severe pain near, at, or above the pain tolerance threshold of unanaesthetized, conscious animals.	Use of muscle relaxants or paralytic drugs such as succinylcholine or other curariform drugs used alone for surgical restraint without the use of anaesthetics; severe burn or trauma infliction on unanaesthetized animals; attempts to induce psychotic-like behaviour; killing by use of microwave ovens designed for domestic kitchens or by strychnine; inescapably severe stress or terminal stress. Category E experiments are considered highly questionable or unacceptable irrespective of the significance of anticipated results. Many of these procedures are specifically prohibited in national policies and therefore may result in withdrawal of federal funds and/or institutional USDA registration.

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I, HEREBY DECLARE THAT I HAVE READ THE ANIMAL WELFARE ACT 2015, AND COMPLY TO ALL THE CONDITIONS FOR THE USE OF ANIMALS SET UNDER THIS ACT AND OTHER RELATED REGULATIONS.

Tarikh
Date _____

_____
(Cop dan tandatangan Ketua Penyelidik)
(Stamp and signature of Principal Investigator)

UNTUK KEGUNAAN JAWATANKUASA ACUC-MOH
FOR ACUC-MOH USE ONLY

Tarikh borang diterima
Date of form received : _____

Keputusan Jawatankuasa Penjagaan dan Penggunaan Haiwan, Kementerian Kesihatan Malaysia
Decision of Ministry of Health Animal Care and Use Committee

☐ **Diluluskan**/*Approved*

☐ **Diluluskan dengan pembetulan kecil**/ *Approved pending with minor modification*

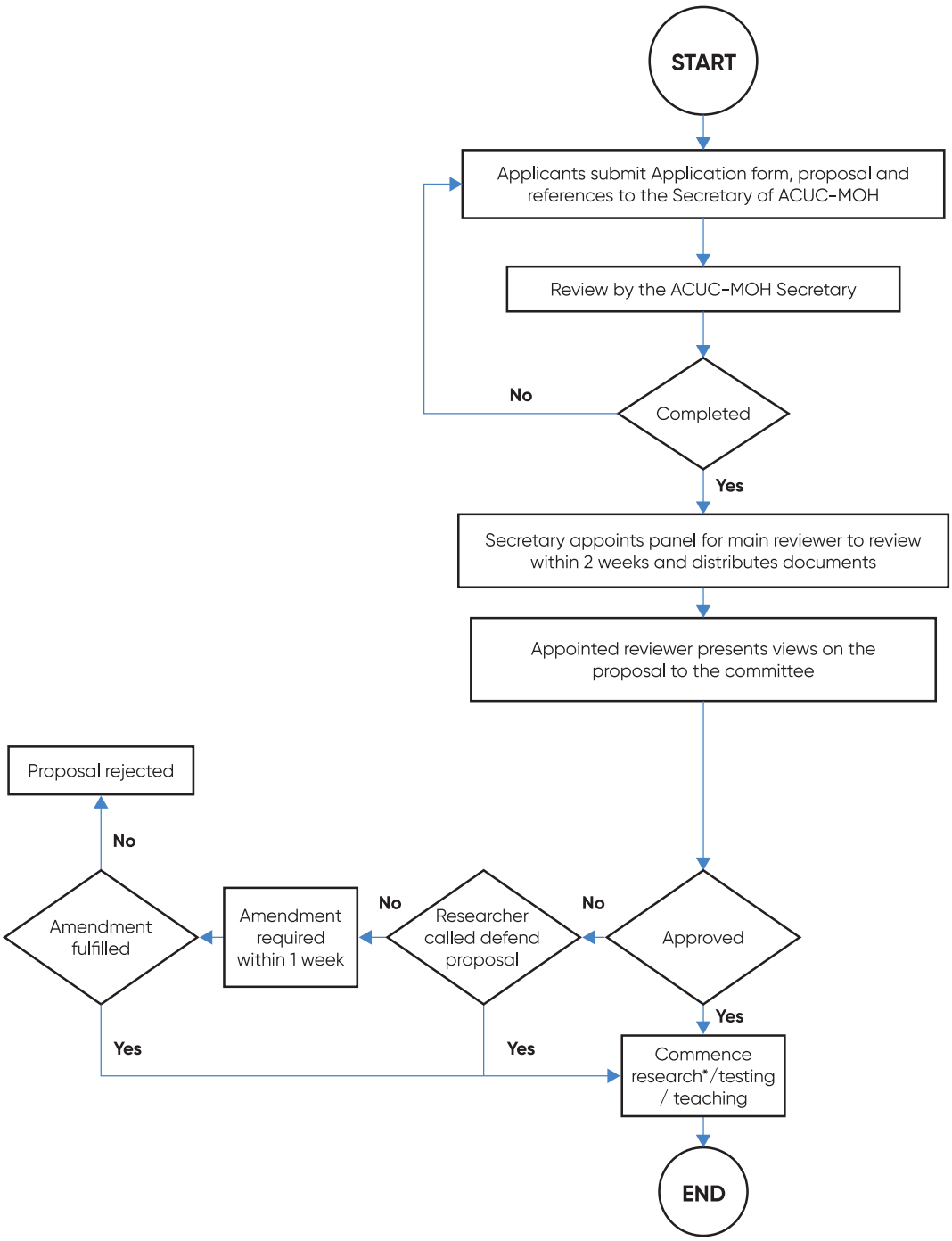
☐ **Kelulusan ditangguhkan untuk justifikasi dan penjelasan**/ *Withhold approval pending justification and clarification*

☐ **Tidak diluluskan**/ *Not Approved*

Tarikh keputusan dibuat
Date : _____

No. rujukan kelulusan ACUC-MOH
Ref. No. of ACUC-MOH approval : _____

7.5 FLOW CHART FOR THE APPLICATION FOR APPROVAL OF ACUC-MOH



** for research : A Final Report form is required to be submitted by applicants to Secreteriat ACUC-MOH*

8.0 RESPONSIBILITIES OF APPLICANTS AND INSTITUTIONS

RESPONSIBILITIES OF APPLICANTS AND INSTITUTIONS

8.1 RESPONSIBILITIES OF APPLICANTS

8.1.1 Scientific and teaching activities must not commence until written approval has been obtained from the ACUC-MOH. No animal experimentation should be carried out without the approval of the project by the ACUC-MOH

8.1.2 Applicants who use animals for scientific activities (research, testing and teaching) have personal responsibility for all matters relating to the welfare of these animals. They have an obligation to treat the animals with respect and to consider their welfare as an essential factor when planning or conducting projects.

8.13 The use of animals for scientific activities needs to comply with the 3R Principles; Replacement, Reduction and Refinement.

8.1.4 The acquisition, care and use of animals for all scientific activities in Malaysia must be in accordance with MOH-AG and with the relevant Federal and State legislations.

8.1.5 A Final Report pertaining to animal work is required to be submitted at the end of the purpose of completion or extension of the scientific activities. In addition, applicants may also apply for renewal by sending a Continuation letter before expiry.

8.1.6 The ACUC-MOH approval shall be obtained for scientific activities to be carried out by MOH personnel, MOH facilities or at the field. For activities (laboratory, fieldwork) involving more than one institution, ACUC-MOH and IACUC are required from their respective facilities.

8.1.7 Projects involving more than one IACUC

Where projects are to be conducted at more than one institution, procedures must be in place to ensure that:

a. Animals will be well cared for in all phases of the project
b. The responsible IACUC is in a position to inspect the animals during all phases of the project;
c. Before any work commences, each IACUC approves the scientific and teaching activities being conducted by members of its institution;
d. Clear communication channels are established between all involved IACUC and investigators; and
e. Such arrangements between institutions should ensure that all parties involved are aware of and can meet their respective responsibilities under the requirements of MOH-AG and the relevant legislation.

Where parts of a project take place at different institutions, each IACUC may choose to approve and monitor only those parts that take place at their institution. Notwithstanding this arrangement, it is essential that each IACUC is cognisant of all aspects of the project and ensures that any cumulative impact of procedures

on animals is considered. Such arrangements should be part of an understanding between the institutions involved.

8.1.8 Non-compliance with MOH-AG

Applicants are responsible for compliance with MOH-AG. Any non-compliances with MOH-AG shall be reported to ACUC-MOH for further investigation and action which may result in withdrawal of the approval.

8.1.9 Project Report

A Final Report pertaining to animal work is required to be submitted at the end of the scientific activities.

For research projects that have been completed or discontinued, a report should be submitted to the ACUC-MOH at the end of the project. This report should advise if:

a. The stated research aims were achieved;
b. The number of animals used varied from the number approved and if so, why any major discrepancies occurred;
c. The well-being of the animals was consistent with that anticipated in the proposal;
d. Conclusions as to how procedures in future projects could be modified to reduce any impact on animal welfare; and
e. There are any publications and presentations that have resulted from the project.

Following a review of the Annual/Final Report & Application for Continuation form, the ACUC-MOH may determine on the basis of the report and further consultation with the investigator, that the project may continue, be suspended, require modification or be discontinued.

8.2 RESPONSIBILITIES OF INSTITUTIONS FOR ACUC-MOH APPROVAL

8.2.1 Institutions in MOH using animals for scientific activities must ensure, through an ACUC-MOH that all animal use conforms to the requirements of the parent Act, its subsidiary legislations and standards of MOH-AG

8.2.2 Ensuring that applicants are aware of their responsibilities under the MOH-AG, including by the provision of educational programmes, continuing training and workshops.

8.2.3 Responding promptly and effectively to recommendations and advice from the ACUC-MOH to ensure that all care and use of animals for scientific activities within the institution remains in accordance with MOH-AG.

8.2.4 Providing applicants with information on potential disease hazards and other occupational safety and health issues associated with the care and use of animals, in accordance to the Occupational Safety and Health Act (OSHA) 1994.

8.2.5 Ensuring that there are adequate numbers of appropriately trained and skilled personnel to care for the animals and appropriate veterinary services are available and that there is access to diagnostic services.

9.0 PROJECT PLANNING

PROJECT PLANNING

9.1 CHOICE OF ANIMAL

9.1.1 Investigators must ensure that the choice of species is appropriate for the purpose of the project.

9.1.2 Requirements for known genetic constitution, freedom from specific diseases, documented health, nutritional and environmental histories and other relevant factors should be taken into account.

9.1.3 When definition of the biological status of animals is necessary, investigators must ensure that the supplier can provide adequate proof that all requirements can be met.

9.1.4 Where relevant, species and individual animals should be chosen on the basis that the proposed experiments will result in the least pain and distress. In making the decision, all aspects of the biological nature of the animals including their behavioural characteristics and cognitive development should be taken into account.

9.2 MONITORING

9.2.1 Applicants and personnel should ensure that all intensively managed animals are observed daily (or more frequently if circumstances require it) to assess their health and welfare (Animal Monitoring form [Appendix 1])

9.2.2 Applicants must make arrangements to ensure they, or other responsible personnel, can be contacted in the event of emergencies.

9.2.3 Identifications and Record keeping

a. All animals should be identified. Methods of identification include: room, rack, cage cards, colour stains, ear notches, tags and tattoos.
b. Identification cards should include such information as strain or stock of animal, name of the responsible investigator and pertinent dates.
c. Applicants and personnel must ensure that records of the use and monitoring of animals used for scientific activities are maintained. Records should include the origin, health status of issued animals and notation of procedures.
d. Applicants and personnel must make these records available for assessment by the ACUC-MOH

9.3 CONSULTATION

9.3.1 Applicants should consult veterinarians and relevant experts when necessary

9.3.2 The attending veterinarian must be consulted on the following:

a. The humane animal handling and sampling methods including the correct equipment to be used.
b. The use of tranquilisers, analgesics and anaesthetics.
c. Pre-surgical, surgical and post-surgical care by laboratory workers in accordance with established veterinary medical and nursing procedures.

d. The use of paralytics

e. The withholding of tranquilisers, anaesthesia, analgesia or euthanasia when scientifically necessary.

9.4 DESIGN OF EXPERIMENTS

Before embarking on projects which necessarily involve inflicting discomfort or pain, such as some studies of pain itself or injury or shock, the investigator should carefully consider the scientific justification for undertaking the project.

To ensure the humane use of animals, the following principles should be adhered to:

a. The adoption of techniques and procedures, including in vitro biological systems, which permit the use of the least number of animals.

b. The adoption of techniques and the use of a species which will provide valid scientific data.

c. The use of appropriate statistical design.

d. The reduction of variation associated with genetic, microbiological and environmental factors by using animals specially bred for experimental purposes.

9.4.1 Pain and Distress

In practical terms, it is difficult to evaluate pain and other unpleasant sensations, such as discomfort and distress.

a. The investigator must regularly assess and be aware of the signs of distress in animals under experiment and must limit distress to acceptable levels. Distress may be apparent as aggressive and abnormal behaviour, changes in normal sounds, abnormal appetite, decline in body weight, impaired reproduction and reduced resistance to disease.

b. The investigator must assume that the pain experienced by mammals, and possibly other vertebrates is similar to the pain in humans, and hence the indications for analgesia and anaesthesia should parallel those accepted in human and veterinary medical practice. The Grimace Scale can be used as reference.

c. The investigator must at the beginning of an investigation/research introduce the procedures one at a time, to allow animals to adjust without periods of excessive stress:
   - Change of location;
   - Changes of feed; and
   - Change of experimental procedures.

d. Investigators must anticipate and take all possible steps to avoid or minimise pain and distress including:

   i. To choose the most appropriate and humane method for each experiment.
   ii. To attend and undergo technical skill courses for competency in specific animal research.
   iii. To ensure the technical skills and competence of all people involved in animal research.

9.4.2 Anaesthesia and analgesia

Any procedure which causes pain, distress or injury, apart from brief simple procedures which involve trivial pain, must be performed under general or local anaesthesia or analgesia.

a. Investigators must ensure that the techniques of sedation, anaesthesia and analgesia used are appropriate for the particular species of animal used, and that the techniques are in accordance with latest or current laboratory animal practices available in the institution or veterinary or human clinical practice.
b. Investigators must monitor all anaesthetised animals continuously.
c. Anaesthesia and analgesia must be performed only by the veterinarian, or under the supervision of a veterinarian.
d. Training in surgical or anaesthetic techniques must be under the direct and constant supervision of a veterinarian.
e. Investigators must ensure that the choice and administration of anaesthetic, analgesic and tranquilising agents is suitable for the species and the purpose of the project.
f. These anaesthetic, analgesic and tranquilising agents must be used within the context of the pain management plan.
g. Research personnel should consult the veterinarian or trained personnel in the choice and use of these drugs.
h. If a procedure needs to be conducted without the use of an anaesthetic, analgesic or tranquilizer, the procedure must be supervised directly by the responsible investigator and approved by ACUC-MOH.
i. Muscle relaxant or paralytic drugs must always be used with drugs known to produce adequate analgesia for restraining animals.
j. Electro-immobilisation devices must not be used to produce analgesia.
k. If during an experiment, there is evidence that animals are experiencing severe pain and distress that cannot be alleviated quickly, the investigator must ensure that the animal be humanely killed without delay, even if the objective of the investigation has not been achieved.
l. The investigator must ensure the use of analgesics and anaesthetics controlled under the Poisons Act 1952 (Revised 1989) are in accordance with the specific legal requirements.

9.4.3 Animal welfare monitoring of pain and distress

a. Investigators should be familiar with the normal behaviour patterns of the animal species chosen.

b. Deviations from normal behaviour patterns are often the first indications that animals are experiencing pain or distress. Any changes in patterns of sleeping, feeding, drinking, grooming, exploratory behaviour, performance in learning or discriminatory tasks, reproduction or social behaviour should be noted and recorded, assessed and acted on if appropriate.

c. Animals must be monitored appropriately for clinical signs of acute pain or distress, these signs may include one or more of the following:

    i. Aggressive and/or abnormal behaviour (some species may become unduly submissive);
    ii. Abnormal stance or movements;

iii. Abnormal sounds;
iv. Altered cardiovascular and/or respiratory function;
v. Abnormal appetite;
vi. Rapid decline in body weight;
vii. Altered body temperature;
viii. Vomiting; and
ix. Abnormal defecation and urination.

Indicators of sustained pain or distress may include:

i. Loss of body weight or failure to gain weight;
ii. Failure to display normal grooming behaviour;
iii. Failure to thrive;
iv. Impaired reproductive ability; and
v. Reduced resistance to disease.

9..4.4 Study endpoints

a. The investigator should develop humane study endpoints when preparing a project application.

b. Death as an end-point is generally ethically unacceptable, and must be fully justified if it is required in a study. When death as an end-point cannot be avoided, the experiments must be designed to result in the death of as few animals as possible.

c. The best practice indicates that end-points earlier than the moribund condition should always be used.

d. Animals can generally be considered to be in a moribund state when:

i. They have lost more than 20% of their prestudy body weight; or
ii. They have lost more than 10% of their prestudy body weight in 24 hours; or
iii. A tumour grows to more than 10% of the animal's weight; or
iv. Life-threatening abscesses developed; or
v. Body temperature falls below a preset level (as determined by pilot studies which indicate that the level set is predictive of death); or
vi. Animals self-mutilate; or
vii. Animals obviously become incapacitated and are not able to eat, rest or perform normal activities.
viii. All animals found in the moribund state must be euthanised unless there is a specific justification to do otherwise.

9.4.5 Repeated use of animals for scientific activities

Individual animals must not be used in more than one scientific activities without ACUC-MOH approval. When considering approval for the reuse of animals, the ACUC-MOH must take into account:

a. The pain or distress and any potential long-term or cumulative effects caused by any previous procedures.

b. The total time that an animal will be used.

c. The pain or distress likely to be caused by the next and subsequent procedures.

d. Whether an animal has recovered fully from the previous procedure before being used in the next procedure.

9.4.6 Handling, restraint and confinement of animal

a. Animals must be handled only by persons authorised and competent in methods which minimise pain and distress and do not cause injury.

b. Restraint devices must be suitable in size, design, and operation to minimise discomfort or injury to the animal.

c. When restraint devices are used, they must be specifically designed to accomplish research goals that are impossible or impractical to accomplish by other means or to prevent injury to animals or personnel.

d. The following are important guidelines for restraint:

   i. Restraint devices are not to be considered normal methods of housing

   ii. Restraint devices must not be used simply as a convenience in handling or managing animals.

   iii. The period of restraint must be the minimum required to accomplish the research objectives.

   iv. Animals to be placed in restraint devices must be acclimated to adapt to the equipment and personnel.

   v. Provisions must be made for the monitoring of the animal at appropriate intervals, as determined by the ACUC.

   vi. Veterinary care must be provided if lesions or illnesses associated with restraint are observed.

e. The presence of lesions, illness, or severe behavioural change often necessitates temporary or permanent removal of the animal from restraint.

f. Tranquillising or anaesthetic agents may aid restraint but may prolong recovery from the procedure. When these agents have been used, greater attention may be required in assessing the recovery of animals.

g. Prolonged periods of restraint or confinement should be avoided. However, when prolonged restraint or confinement of animals is proposed, such as housing animals in metabolic cages, consideration must be given to the animals' biological and behavioural needs.

h. Animals subjected to prolonged periods of restraint and confinement must be assessed regularly by a veterinarian or other person deemed qualified by the institution not otherwise involved in the project. If any negative impact on an animal is detected, the animal must be removed from the restraint or the method of restraint must be modified to minimise the impact.

9.4.7 Withholding of food and water

a. Projects involving the withholding or severe restriction of food or water must be designed to produce no continuing detrimental effect on the animal. In these studies, the changes in fluid balance or body weight must be monitored, recorded and maintained within the limits approved by the ACUC-MOH.

b. When experimental situations require food or fluid restriction, at least minimal quantities of food and fluid must be available to provide for the development of young animals and to maintain the long-term well-being of all animals.

c. Food and water restriction for research purposes should be scientifically justified, and a programme must be established to monitor physiological or behavioural indices, such as weight loss or state of dehydration for temporary or permanent removal of an animal from the experimental protocol.

d. In the case of conditioned-response research protocols, use of a highly preferred food and fluid as positive reinforcement, instead of restriction is recommended.

9.4.8 Animal welfare and animal health research

When studying ways to improve the health or welfare of animals, Investigators may need to replicate the problem, such as injury, trauma, nutritional disorder, physical exertion, disease, or environmental stress. Investigators must ensure that:

- The principal aim of the project is to improve animal welfare or health.
- Alternative methods cannot achieve the outcome of the project.
- All possible steps are taken to minimise any pain or distress.

9.4.9 Modifying animal behaviour

a. Positive reinforcement is the preferred method to motivate an animal to modify its behaviour or to perform specific tasks. Inducements used in biological stress must be as mild as possible.

b. Severe deprivation of water, food, social interaction, or sensory stimuli must not be used.

c. Painful or noxious stimuli must be avoided. If their use is necessary, the level and duration of the stimulus must be minimized, and escape from the stimulus must be available.

9.4.10 Scientific and teaching activities involving hazards to other animals or humans

a. Proposals for using animals in teaching must be approved by the ACUC-MOH and comply with all relevant legislation and institutional requirements.

b. Animals must not be used when other techniques, such as audio-visual aids, will achieve the teaching objectives satisfactorily.

c. If animals have to be used, the following principles apply:

i. Lower orders of life, e.g., Bacteria, fungi, protozoa, and insects, should have preference over vertebrates.

ii. The number of animals used should be kept to the minimum to achieve the stated scientific objective

iii. If animals are handled, manipulated, or intervened with by trainees, there must be close supervision by authorised and trained personnel.

iv. Anaesthesia and euthanasia of animals and surgical interference should be carried out by students only if it is essential for training. Close supervision has to be provided by adequately trained and qualified personnel.

v. Trainees must be trained to handle animals humanely.

9.4.11 Animal models of disease

Animal models of disease are only allowed if the investigators can show the scientific validity of their resemblance to human disease/conditions. Death as an endpoint in these studies should be avoided.

9.4.12 Humane killing and euthanasia

a. When it is necessary to kill an animal, humane procedures must be used. These procedures must avoid pain or distress, be reliable, and produce rapid loss of consciousness until death occurs. The procedures should also be compatible with the scientific or educational aims.

b. The procedures must be performed only by personnel approved as competent by the ACUC-MOH or under the direct supervision of a veterinarian.

c. Animals should be killed in a quiet, clean environment that is away from other animals where possible.

d. Death must be established before disposal of the carcass occurs.

e. Dependent offspring of animals being killed must also be killed or appropriate provision made for their care.

f. Methods of killing must be appropriate to the developmental stage and species of the animal (refer to the most current edition of the American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals).

9.4.13 Genetic modification

a. All projects involving genetic modification of animals must be conducted in accordance with the appropriate country legislation, requirements, and guidelines of the individual institutions' research and ethics committees.

b. Proposal to produce a new strain or hybrid of a genetically modified animal must include sufficient information to allow the ethics committee to consider the potential impact of introducing a new gene or altering the expression of existing genes on all the animals involved in the breeding program, as well as the reasons to support the creation of the said genetically modified animal.

c. The investigator must state implicitly in the proposal any potential side-effects due to the genetic manipulation that may impact negatively on the welfare of the parent animal or offspring and the means that will be used to deal with such eventualities.

d. The investigator must provide monitoring details for expected and unexpected adverse effects of genetic modification to the ethics committee.

e. Proposals for creating genetically modified animals that are expected to cause pain or distress in the animal must contain information on any special needs and details of specialist care that will be provided to minimise these negative impacts. Humane endpoints must also be defined.

f. The breeding procedures used to establish a colony of genetically modified animals (from newly-created genetically modified animals or those from an outside source) must be carried out based on the scientific activities of performing research with these animals.

g. A final report must be submitted to the ACUC-MOH after the project and/or when the strain is regarded as breeding stock.

h. Investigators must assess, through detailed monitoring, the welfare and genetic stability of newly created genetically modified animals and their offspring across several generations and forward a summary of these observations to the ACUC-MOH. The frequency of reporting should be determined by the ACUC-MOH, considering the nature of the genetic modification.

9.4.14 Induction of tumour

a. Investigators must monitor animals closely for signs of pain and distress, sudden changes in body condition, and other signs of tumour growth and spread.

b. Animals with induced tumours must be killed humanely before predictable death occurs, wasting becomes advanced, or the tumour becomes large enough to cause ulceration or severely limit normal behaviour. Animals must be euthanized as early as possible when tumour is at the minimum size necessary to obtain valid results.

c. In tumour therapy studies, endpoints compatible with a reliable therapy assessment must be as early as possible.

9.4.15 Post mortem examination

For animals that died unexpectedly or were euthanised due to unforeseen complications, a necropsy must be performed by a person with appropriate qualifications and experience. Records of post-mortem examination should be kept. Forms of digital images or post-mortem findings are encouraged.

9.4.16 Surgery and post-operative care

a. Surgery must be performed only by or under the supervision of a veterinarian, following the rights to practices prescribed by the Veterinary Surgeons Act 1974.

b. Surgical procedures must be carried out under appropriate local or general anaesthesia.

c. The depth of anaesthesia must be adequately monitored throughout the procedure.

d. There must also be appropriate monitoring and management of potential side effects, such as hypothermia, cardiovascular, and respiratory depression.

e. Anaesthetic monitoring records for major surgeries must be kept.

f. The comfort of animals must be promoted throughout the post-operative period.

g. Attention should be given to warmth, hygiene, fluid and food intake, and infection control.

h. The use of analgesic, tranquilizing, and antibiotic agents may be needed to minimize post-operative pain or distress.

i. Care should be taken to ensure that animals recovering from anaesthesia do not injure themselves by uncoordinated movements and that conditions are such that they are not disturbed, attacked, or killed by other animals in the same enclosure.

j. Clinical records of an animal's state must be kept, including observations and administration of any drugs, fluids, or other treatments, and made accessible to all personnel involved in the post-operative care of the animal.

k. Investigators must ensure that adequate monitoring, treatment, and care of post-operative animals is provided and that they are fully informed of each animal's state.

l. The duties of all personnel must be clearly defined, and procedures must be established for identifying and responding to post-operative emergencies, including management of pain and distress.

m. Any post-operative animal observed to be in a state of severe pain or distress that cannot be alleviated quickly must be euthanized without delay.

9.4.17 Blood sampling and tissue harvesting from laboratory animals

a. Blood sampling can be done with anaesthesia or without anaesthesia as mentioned in the table below:

General anaesthesia required	Not Required General anaesthesia	General anaesthesia required, non-recovery
• Saphenous vein • Tail vein • Sublingual vein • Retro-orbital	• Saphenous vein • Tail vein / Temporary cannula • Jugular vein • Blood vessel cannulation	• Cardiac puncture • Abdominal/thoracic blood vessel • Retro-orbital • Decapitation

b. Investigators need to ensure that the techniques of sedation, anaesthesia, and analgesia used are appropriate for the particular species of animal used and that the techniques follow the current veterinary and human clinical practice.

c. Efforts must constantly be made to refine scientific techniques to reduce the blood sample's volume.

d. Blood removal from animals must comply with published guidelines

e. More animals should be used if the sample volume threatens the animal's welfare.

f. Tissue harvesting and biopsy procedures must be undertaken by or under the direct supervision of personnel experienced in the techniques involved and must utilize proper restraint and surgical and anaesthetic procedures.

g. Exsanguination and removal of body organs to result in death without general anaesthesia must not be allowed.

9.4.18 Toxicology studies

a. If suitable non-animal tests are available, they must be used.

b. Investigation of the safety of agents intended for use in human beings, animals, the household, and the environment, and of naturally occurring toxins must be performed by personnel with the appropriate training.

c. Investigators must not allow painful, distressing, or lingering death of animals unless no other endpoint is feasible and the goals of the project are the prevention, alleviation, or cure of a life-threatening disease or situation in humans or animals.

9.4.19 Experiments involving hazards to humans and animals

a. Hazards may arise from sources that include:
   - Viruses;
   - Bacteria;
   - Fungi;
   - Parasites;
   - Radiation;
   - Radioactivity;
   - Corrosive substances;
   - Toxins;
   - Allergens;

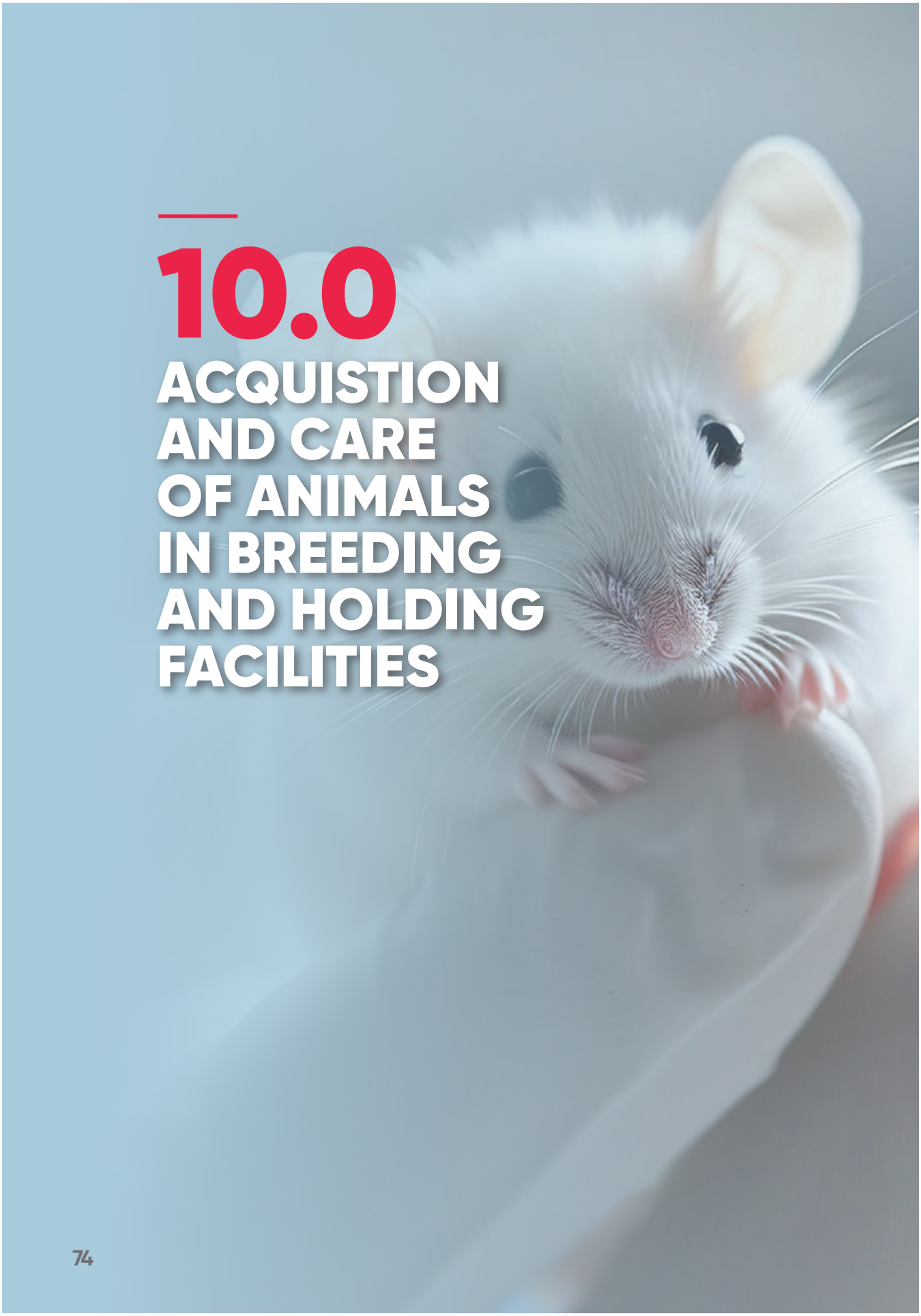
b. Experiments involving hazards to humans or animals shall follow the relevant country legislation.

c. Protocol should include a subscription of any intended use of hazardous compounds or organisms. They should describe specific safety measures and disposal protocols to prevent contamination of caging, other animals, research personnel, or trainees.

d. Animals being administered infectious organisms should be isolated, taking into account risks to other animals and people.

e. Investigators must not allow the experiments to proceed to the painful or distressful or lingering death of animals unless no other experimental endpoint is feasible, and the goals of the experiments are the prevention, alleviation, treatment, or care of a life-threatening disease or situation in human beings or animals. When death as an endpoint cannot be avoided, the experiment must be designed to result in the death of as few animals as possible. The investigator must also ensure that the animal's suffering or pain is minimised. Use appropriate sedation, analgesia, or anaesthesia to relieve the animal's pain and suffering.

f. Precautions, security, and emergency plans to contain hazardous agents should be appropriate to a worst-case scenario.



10.0 ACQUISTION AND CARE OF ANIMALS IN BREEDING AND HOLDING FACILITIES

ACQUISITION AND CARE OF ANIMALS IN BREEDING AND HOLDING FACILITIES

Housing conditions, practices, and procedures involved in the care of animals in breeding and holding facilities of scientific and teaching institutions must be approved and monitored by ACUC-MOH.

10.1 ANIMALS OBTAINED FROM INTERSTATE OR OVERSEAS

It is the responsibility of the principal investigator to consult the relevant authorities (Department of Veterinary Services (DVS), Malaysian Quarantine and Inspection Services (MAQIS), Department of Wildlife and National Park (DWNP) Peninsular Malaysia, Department of Fisheries (DOF), Access to Biological Resources and Benefit Sharing Act 2017 (Act 795) and Department of Civil Aviation (DCA)) to ensure compliance with all requirements governing the import, export, capture, handling and transportation of animals and to include details in the proposal. All imported animals must be accompanied by health permits/certificates from exporting countries before receiving into the facilities.

10.2 TRANSPORTATION OF ANIMALS

10.2.1 Confinement, movement, noise, and changes in the environment and workers during transportation can cause discomfort and stress to the animals.

10.2.2 The extent of distress condition will depend on the animal's health, temperament, species, age and sex, the number of animals traveling together and their social relationships, the period without food or water, the duration and mode of transportation, environmental conditions, particularly extremes of temperature, and the care given during the journey.

10.2.3 The conditions and duration of the transportation must ensure minimal impact on animal health and welfare.

10.2.4 Containers must be secure and escape-proof. Adequate nesting or bedding material should be provided, and animals must be protected from sudden movements and extreme temperatures.

10.2.5 Food, water, and aeration (or their alternatives) must be provided when necessary.

10.2.6 Transportation by air should follow International Air Transport Association (IATA) regulations, and domestic transportation of animals must follow the relevant codes of practice established under the guidance of the Animal Welfare Act 2015.

10.2.7 Both suppliers and recipients of animals must ensure that all procedures during transportation are satisfactory, with animals received by authorized personnel.

10.3 ADMISSION OF NEW ANIMALS INTO HOLDING AREAS

10.3.1 Any new animal admitted into holding areas should be held separately, inspected by a qualified person, and quarantined. Evaluation of their health should be done and treated if required. The animals' suitability for the projects they are intended to be used should be assessed.

10.3.2 Animals should be acclimatised to the holding facility and personnel before their use in scientific activities, and those that do not adapt satisfactorily should not be used.

10.4 CARE OF ANIMALS IN HOLDING FACILITIES

10.4.1 Facilities are defined as where animals are kept, including cages, animal rooms, yards, paddocks, tanks, ponds, and buildings.

10.4.2 Researchers and instructors must ensure that facilities are appropriately staffed, designed, constructed, equipped, and maintained to achieve a high standard of animal care and fulfill scientific requirements.

10.4.3 The design and management of facilities will depend on the type of animals to be kept and the studies that will be commenced. The condition and management of facilities must be compatible with maintaining animal well-being and good health.

10.4.4 Outdoor holding areas must meet the needs of the species, including access to adequate shelter, food, and water, protection from predators, and behavioural and social requirements.

10.4.5 Buildings should be compatible with the needs of the animals to be housed and the projects in which they are used.

10.4.6 Buildings should be designed and operated to control environmental factors appropriately, exclude vermin, and limit contamination associated with keeping animals, delivering food, water, and bedding, and entering people and other animals.

10.4.7 A pest control program must be included to monitor and control vermin infestation.

10.4.8 There must be adequate storage areas for food, bedding, and equipment.

10.4.9 The choice of detergents, disinfectants, deodorants, and pesticides must avoid contaminating the animals' environment and should be made in consultation with investigators.

10.4.10 There should be a fresh water supply and proper facilities for drainage, if appropriate.

10.4.11 Precautions should be taken to prevent the entry of unauthorised people.

10.4.12 Animals must be provided with environmental conditions that suit their behavioural and biological needs unless other conditions are approved by the ACUC-MOH for a particular project.

10.4.13 Air exchange, water circulation, temperature, humidity, light and noise (where applicable/suitable according to design of the facility) should be maintained within limits compatible with animal well-being and good health

10.4.14 Effective ventilation is essential for the comfort of animals and the control of temperature, humidity and odours. Ventilation systems should distribute air uniformly and achieve adequate air exchange.

10.4.15 Noxious odours, particularly ammonia, must be kept to a level compatible with the health and comfort of the animals and personnel. The frequency of bedding changes according to specific animal needs are crucial to maintain cleanliness in the animal holding area.

10.4.16 Environmental factors potentially affect the welfare of animals and may affect the results of scientific and teaching activities. Investigators, instructors and the ACUC-MOH should be informed in advance of planned changes to the environmental conditions under which animals are held.

10.4.17 Pens, cages and containers should ensure animal well-being and comfort. Variations to these requirements as part of a project must receive prior ACUC-MOH approval. The following factors should be taken into account:

a. Species-specific behavioural requirements, including the availability and design of space to enable free movement and activity, sleeping, privacy, contact with others of the same species, and environmental enrichment;
b. Provision of single housing for animals when appropriate for the species and if necessary for the purpose of the project (for example, during recovery from surgery or collection of samples);
c. Species-specific environmental requirements, such as lighting, temperature, air quality, water quality;
d. Appropriate day/night cycles and protection from excessive noise and vibrations;
e. The need to provide ready access to food and water;
f. The need to clean the pen, cage or container;
g. Protection from the spread of pests and disease;
h. Requirements of the project; and
i. The need to observe the animals readily.

10.4.18 Pens, cages and containers must:

a. Be constructed of safe, durable, materials;
b. Be kept clean;
c. Be maintained in good repair;
d. Be secure and escape-proof;
e. Protect animals from climatic extremes;
f. Not cause injury to animals;
g. Be large enough for the species and the number of animals held; and
h. Be compatible with the behavioural needs of the species.

10.4.19 Wire floor cages should not be used for rodents and rabbits unless essential to the project and only for an approved period. Animals should have a solid resting area when housed in wire floor cages.

10.4.20 The number of animals in cages, pens or containers and the placement of these should enable social and environmental conditions for the species to be maintained.

10.4.21 Bedding and litter must be provided if appropriate to the species and should be comfortable, absorbent, safe, non-toxic, able to be sterilised if needed, and suitable for the particular scientific or educational aims. Pregnant animals can be provided with nesting materials, where appropriate.

10.4.22 ACUC-MOH should be consulted in advance of planned changes to these conditions, since these may affect both the welfare of animals and results of the scientific and teaching activities.

Food and water

10.4.23 Animals must receive appropriate, uncontaminated and nutritionally adequate food of a quantity and composition that maintains normal growth of immature animals or normal weight of adult animals as well as meet the requirements of pregnancy, lactation or other conditions.

10.4.24 Where possible, animals should be given variety in the composition and presentation of food that is suitable for the species. Uneaten perishable food should be removed promptly unless contrary to the needs of the species.

10.4.25 Any alteration to dietary regimes should be gradual

10.4.26 Food should be stored such as to minimise deterioration of nutritional value and palatability and to prevent contamination by vermin.

10.4.27 Feed and water equipment should be constructed of materials and be easily and effectively cleaned.

10.4.28 Clean, fresh drinking water should be available at all times as suitable for the species.

10.4.29 Variations to these requirements as part of a project must receive prior ACUC-MOH approval

Enrichment and environmental complexity

10.4.30 Most animals used in projects are housed in environments dissimilar to their natural habitats. Wherever possible, such animals should be provided with stimuli that promote the expression of normal behaviour appropriate to the species.

10.4.31 Almost all species of animals used in projects have well defined social hierarchy and prefer to live in groups, although care must be taken to ensure that animals are socially compatible. Individual housing is stressful for such animals, and social isolation should be avoided whenever possible and limited to meet specific project objectives. The effects of physical isolation should be minimized where possible.

10.5 MANAGEMENT AND PERSONNEL

10.5.1 Animal acquisition, breeding and holding facilities must be supervised by persons with appropriate veterinary or animal care qualifications.

10.5.2 The person-in-charge should be responsible for:

a. Managing the day-to-day care of the animals in holding and breeding facilities;
b. Supervising the work of personnel in the facility;
c. Liaising between investigators and facility personnel; and
d. Communicating with the IACUC on management of the facility and any adverse incidents.

10.5.3 The person-in-charge should be knowledgeable about signs of pain, distress and illness specific to each species kept and ensure that the well-being of all animals is regularly assessed. After animals are allocated to a project, investigators have the primary responsibility for ensuring adequate monitoring of animal well-being.

10.5.4 The person-in-charge must ensure that ill or injured animals that are not assigned to projects are treated promptly and any cause of death investigated if the animals die unexpectedly.

10.5.5 The person-in-charge should contribute to the development and maintenance of the institution's animal care policies and procedures.

10.5.6 The person-in-charge must ensure that personnel receive appropriate protective clothing, maintain high standards of personal hygiene, do not eat, drink or smoke in animal areas, and have all required vaccinations, particularly against tetanus and other zoonoses.

Written procedures must be established for use in the management of holding and breeding facilities. These procedures must be submitted to the IACUC for approval, made known to all personnel involved in the care and use of animals and be reviewed regularly. They should take into account the requirements of the species held, the studies being conducted and the health and safety of personnel and include:

a. Transportation, quarantine and disposal of animals;
b. Routine husbandry;
c. Prevention, diagnosis and treatment of disease;
d. Assessment of health status and genetic constitution of the different species; and
e. Physical environmental factors.

10.5.7 The person-in-charge must maintain adequate records to allow effective management of the breeding stock including the detection of the origin and spread of disease. Records should include:

a. The source, care, allocation, movement between locations, use and fate of all animals;
b. Details of any diseases;
c. The fertility, fecundity, morbidity and mortality in breeding colonies; and
d. The health status, genetic constitution and physical environment of the animals.

10.5.8 Records maintained by the person-in-charge must be made available to investigators and the ACUC-MOH.

10.5.9 The person-in-charge should ensure that investigators are informed of any changes to the conditions under which animals are held and that may affect the results of their studies.

10.5.10 An important factor contributing to high standards of animal care is the number of well-trained, committed personnel. People working with animals in a holding facility should be instructed in the detailed care and maintenance of the animals, and in how their actions may affect animal well-being and the outcomes of scientific and teaching activities.

10.5.11 Institutions should encourage and promote formal training in (laboratory) animal science or animal technology.

10.5.12 Personnel employed in the care of animals should be trained to recognise, at an early stage, changes in animal behaviour, performance and appearance.

10.5.13 New appointees who will care for animals must be appropriately instructed in their duties and in institutional policy.

10.5.14 Personnel should be informed of the potential physical risks, allergies and important zoonotic diseases of animals under their care and of precautions that should be taken. Regular health checks of personnel who handle animals are recommended in the interests of both personnel and animals.

10.6 ROUTINE HUSBANDRY PROCEDURES

10.6.1 All animals should have daily access to adequate clean, contamination free, palatable and nutritious food.

10.6.2 All animals should have ad libitum access to clean water.

10.6.3 The materials used as bedding should be clean, dry, safe and not be the type that is readily eaten by the animals.

10.6.4 Routine husbandry procedures that are not part of a project (for example, clipping coats and nails, and vaccinations) must be performed by competent personnel.

10.6.5 Routine husbandry procedures on livestock must at least comply with the relevant codes of practice and legislation.

10.6.6 When special breeding requirements are integral to scientific activities such as in the creation of a new strain of genetically modified animal, then procedures applicable to breeding must be regarded as part of the project and should be included in the proposal to the ACUC-MOH.

10.7 IDENTIFICATION OF ANIMALS

10.7.1 Animals must be identifiable, whether individually or in groups. Where possible, animals should be identified by the attachment of a label to the cage, container, pen, yard, paddock or cages in which they are kept. Otherwise, identification of individual animals may require a physical mark such as a tattoo, neckband, individual tag, or electronic numbering device such as a microchip. It is essential that the more invasive identification procedures be performed, or closely supervised, by an experienced practitioner. The method chosen should be the most appropriate for the species and the project and result in the least pain and distress to the animal.

10.7.2 The person-in-charge of the facility is responsible for ensuring that animals are identified before allocation to a project, after which time the investigator is responsible.

10.8 DISPOSAL OF CARCASSES AND WASTE MATERIAL

Prompt sanitary disposal of carcasses and waste material must be in accordance with the respective biosafety regulations of the institutions.

Several options are available for disposal of the animals: -

i. Return of the animals to the source
   Animals obtained from farms, hatcheries, homes, etc., may not be returned to the source due to the high risk of introduction of infectious disease to the source.

ii. Release of the animal(s) into the wild
   Animals obtained from nature should be returned there only on the advice of relevant wildlife authorities. Non- native animals, domesticated and cage-reared vertebrates of any kind should not be released into the wild.

iii. Release of the animal(s) to students
   The practice of allowing students to take experimental animals (either alive or dead) home as pets or for any other purpose should be forbidden. It should not be allowed due to the possibility of transmission of zoonotic diseases.

iv. Euthanasia
   If euthanasia has to be carried out, an approved humane method should be used by an adult experienced in the technique chosen.

10.9 NON-HUMAN PRIMATES

10.9.1 Non-human primates can only be used once the relevant permits and approvals are obtained from the regulatory authority.

10.9.2 Non-human primates are recognised as having highly developed mental and emotional capacities, more so than most other animals. In many ways, they are similar to humans and exhibit many similar external manifestations of emotions such as facial expressions, vocalisation, postures, gestures, and reactions. They have been known to react in ways similar to humans under comparable situations. Investigators, attending veterinarians and personnel should familiarise themselves with the references and information.

10.9.3 Most primate species, including the majority of those used in laboratories, are highly social, live in complex social groups and establish long-term bonds, although such bonds may not necessarily be permanent. Because of the bonding, social isolation is likely to adversely affect individual animals. Animals raised in total social isolation could suffer from social deprivation and become withdrawn and develop aberrant social, sexual and exploratory behaviour. It is therefore important to provide the company of compatible conspecifics or other NHP species, and if this is not possible, increased human company.

10.9.4 Most primates show vertical flight reactions. This should be taken into account when arranging their housing. Attempts should be made to cater to their preferred vertical limits in the wild. Because of the importance of vision to the NHP, (particularly *Macaca nemestrina*), cages should be positioned so that the monkeys can see animals of like species. Solid-sided caging prevents visual contact. If physical contact is possible, there must be assurance that the animals are compatible.

10.9.5 Interaction between the NHP and the researcher or technician is encouraged but it should not be forced. The interaction, however, must not involve handling other than what is necessary for the maintenance of the animal or for investigational procedures. Direct physical contact between humans and NHP should be evaluated from facility to facility. In many instances it should be kept to a minimum to avoid problems that may arise, for example from breaking of the human / animal bond when personnel changes occur or when an animal must be euthanised, as well as the hazards posed by zoonotic diseases. Some of the most significant diseases associated with NHP are Cercopithecine herpesvirus I (formerly Herpesvirus simiae) infection and infectious haemorrhagic fever viruses.

10.9.6 Many NHP have extreme physical strength in relationship to body size and can inflict serious injury on personnel. Humans can also transmit infectious diseases to primates, e.g. measles, tuberculosis. It is recommended therefore that personnel exposed to NHP be provided with such protective items as gloves, arm protectors, masks and face shields. They should be routinely screened for tuberculosis and a procedure established for ensuring medical care for bites and scratches.

11.0 VETERINARY CARE

VETERINARY CARE

11.1 ATTENDING VETERINARIAN

11.1.1 Each institution must have an attending veterinarian for its housing and research facility (ies). The attending veterinarian shall advise on the appropriate care and use of animals and provide adequate veterinary care.

11.1.2 The attending veterinarian must be engaged under formal arrangements. The attending veterinarian can however be engaged on a part-time or full-time basis.

11.1.3 The formal arrangements must include a written programme of veterinary care to be provided. In the case of a part-time attending veterinarian, the formal arrangements must also set out regularly scheduled visits to the housing and research facility(ies) of the institution.

11.1.4 If the attending veterinarian is on leave or will be otherwise unavailable to provide any general or emergency veterinary care, interim arrangements must be made to ensure that there is always ready access to veterinary care.

11.1.5 The attending veterinarian or other veterinarians engaged on a full-time, part-time or ad hoc basis must be persons with qualifications in veterinary science who have valid annual practicing certificates issued by, or licensed by the Malaysian Veterinary Council.

11.2 COMPONENTS OF VETERINARY CARE

11.2.1 The personnel-in-charge and his/her personnel managing the animals, as well as the investigators, must have ready access to veterinary care for the animals at all times.

11.2.2 Institutions must establish and maintain adequate veterinary care, overseen by the attending veterinarian that include:

a. The availability of appropriate facilities, personnel, equipment, and services to comply with these guidelines
b. The use of appropriate methods to prevent and control diseases (for example, vaccination and other prophylaxis, disease monitoring and surveillance, quarantine and isolation), diagnose, and treatment of diseases and injuries.
c. The availability of 24-hour emergency, weekend and holiday care.
d. Daily observation of all animals to assess their health and well-being: The daily observation of animals may be accomplished by someone other than the attending veterinarian provided that there is a mechanism of direct and frequent communication between the attending veterinarian and the personnel concerned so that timely and accurate information on problems of animal health, behaviour, and well-being is conveyed to the attending veterinarian.
e. Guidance to investigators and other personnel involved in the care and use of animals regarding handling, immobilisation, anaesthesia, analgesia, tranquillisation, and euthanasia.
f. Adequate pre-procedural, surgical, and post-procedural care in accordance with current established veterinary medical and nursing procedures.

11.2.3 ACUC-MOH may direct that certain procedures or other tasks related to the care and use of animals shall be performed only by the attending veterinarian or a veterinarian, or as prescribed by the relevant acts and regulations.

12.0 REFERENCES

REFERENCES

1. Principle and Guide to Ethical Use of Laboratory Animals (2000) Ministry of Health Malaysia
2. MyCode For the Care and Use of Animals for Scientific Purposes (LKH/GP/01/2019)
3. Institutional Animal Care and Use Committee Guideline, University Putra Malaysia
4. Institutional Animal Care and Use Committee Guideline, University Kebangsaan Malaysia
5. Institutional Animal Care and Use Committee Guideline, University of Malaya

APPENDIX 1

ACUC 4 (M)/2023

ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH FORM)

ANIMAL MONITORING FORM FOR TESTING INVOLVING ANIMALS

PROJECT TITLE :
ACUC NO. :
ANIMAL (SPECIES) :
ANIMAL ID :

CLINICAL EXAMINATION FINDINGS

Clinical Observation	Day Date Time Weight	Day Date Time Weight	Day Date Time Weight	Day Date Time Weight	Day Date Time Weight	Day Date Time Weight
GENERAL APPEARANCE						
Activity/ Alertness (Normal=0; isolated/dull or depressed =1; huddled/ inactive/ little response to handling =2; moribund/ fitting/ unconscious =3)						
Posture (Normal = 0; hunched = 2; trembling=3)						
Movement/Gait (Normal=0; slight incoordination=1; tiptoe walking or reluctance to move=2; staggering/limb dragging/paralysis=3)						
Coat condition (Normal/ groomed=0; rough=1; ruffled/unkempt=2; bleeding or infected wounds or self-mutilation=3)						
Eyes (normal=0; wetness or dull eyes=1; discharge/ squinty eyes=2; matted eyes=3)						

Dehydration (none=0; skin less elastic=1; skin tenting=2; skin tenting & sunken eyes=3)						
RESPIRATORY SYSTEM						
Breathing (normal=0; rapid, shallow=1; rapid, abdominal breathing=2; laboured, irregular, skin blue=3)						
Nose (normal=0; wetness=1; discharge =2; coagulated nasal discharge=3)						
DIGESTIVE SYSTEM						
Eating/drinking (normal=0; decreased intake during the 1st 24 hrs day=1; decreased intake more than 1 day=2; decreased intake over 48hrs=3)						
Faeces (normal=0; moist but formed=1; loose, soiled peri-anal area or mucoid=2; watery or no faeces for 48hrs or blood=3)						
GENITO-URINARY SYSTEM						
Urine (normal = 0; Increased/decreased = 3)						
OTHER FINDINGS						

Note: Please mark the score (0-3) and write any other findings observed. Mark NA if no findings.

MONITORED BY/INITIAL	
DATE	

APPENDIX 2

Office use only *Date of receive:*

ACUC 5 (AFR)/2023

ANIMAL CARE AND USE COMMITTEE MINISTRY OF HEALTH (ACUC-MOH FORM)

Annual/Final Report & Application for Continuation

Please use this form to report on the progress or completion of the animal study
Applications for continuation or extension need to be reviewed and approved by ACUC-MOH

This completed form needs to be submitted to Secretary, Animal Care and Use Committee (ACUC), Ministry of Health Malaysia (MOH) c/o Laboratory Animal Resource Unit, Special Resource Centre, Institute for Medical Research, Jalan Pahang, 50588 Kuala Lumpur. Direct all enquiries to ***acuc-moh@moh.gov.my*** *or* ***03-2616 2751****.*

Principal Investigator		**ACUC No.**	
Department		Phone	
Address		E-mail	
Project Title			

Check One:		Anticipated end date of research project:
____ **A**	Proposal was not funded and/or research will not begin. Please close the project files.	Funding source: Project No:
____ **B**	Funding and/or start of research are pending. Please keep the project active.	Location(s) of animal housing:
____ **C**	Project is completed. Please close the project files.	Location(s) of animal experiments and procedures:
____ **D**	Project is still ongoing and will continue beyond the anniversary date. Please keep the project active.	Disposition of animals:

ANIMAL USAGE			
Species	**Number approved**	**Number used**	**Remarks**

Please list the animal study/experiments during the past year, and a brief summary of findings/outcome.
Please list the animal study/experiments yet to be carried out
Please list problems related to the care and use of animals (if any).

DECLARATION

To the best of our knowledge, we hereby declare that the care and use of animals has been carried out as described in the approved protocol and abide by ACUC-MOH policy and ACUC guidelines involving the care and use of animals.

Signature and stamp of Attending Veterinarian:	Signature and stamp of Principal Investigator:
Date:	Date:

FOR ACUC-MOH USE ONLY (*Application for continuation*)

Any comments/suggestions by IACUC chairman/member:

Recommendation by ACUC-MOH chairman/member:

☐ Approve	☐ Approve with revisions	☐ Full committee review required
☐ Invite researchers to present/discuss		☐ Invite attending veterinarian to discuss

Signature/Name:

Date:

APPENDIX 3

TABLE 1: Recommended Space for Commonly Used Group-Housed Laboratory Rodents

Animals	Weight (g)	Floor Area/ Animal (cm^2)	Height (cm)[a]
Mice	<10	39	12.7
	10 - 15	52	12.7
	15 - 25	78	12.7
	>25[b]	>97	12.7
Rats	<100	110	17.8
	100 - 200	148	17.8
	200 - 300	187	17.8
	300 - 400	258	17.8
	400 - 500	387	17.8
	>500[b]	>452	17.8
Hamsters	<60	65	15.2
	60 - 80	84	15.2
	80 - 100	103	15.2
	>100[b]	>123	15.2
Guinea pigs	<350	387	17.8
	>350[b]	>652	17.8

[a]From cage floor to cage top.

[b]Larger animals might require more space to meet the performance standards.

TABLE 2: Recommended Space for Rabbits, Cats, Dogs, Nonhuman Primates, and Avians

Animals	Weight (kg)	Floor Area/Animal (cm^2)	Height (cm)[a]
Rabbits	<2	0.14	36
	2 - 4	0.28	36
	4 - 5.4	0.37	36
	>5.4[b]	>0.46	36
Cats	<4	0.28	61
	>4[b]	>0.37	61
Dogs	<15	0.74	[f]
	15 - 30	1.11	[f]
	>30[b]	>2.22	[d]
Non-human primate[e]			
Group 1	≤1	0.14	51
Group 2	1 - 3	0.28	76
Group 3	3 - 10	0.40	76
Group 4	10 - 15	0.56	81
Group 5	15 - 25	0.74	91
Group 6	25 - 30	0.93	117
Pigeons[f]	-	0.07	[f]
Quail[f]	-	0.02	[f]
Chickens[f]	<0.25	0.02	[f]
	0.25 - 0.5	0.05	[f]
	0.5 - 1.5	0.09	[f]
	1.5 - 3.0	0.18	[f]
	>3.0[b]	>0.28	[f]

[a] From cage floor to cage top.

[b] Larger animals might require more space to meet the performance standards.

[c] These recommendations might require modification according to body conformation of individual animals and breeds. Some dogs, especially those toward the upper limit of each weight range, might require additional space. Height of each cage be sufficient to allow occupant to stand in "comfortable position" and that the minimal square feet of floor space be equal to "mathematical square of the sum of the length of the dog in inches (measured from the tip of its nose to the base of its tail) plus 6 inches; then divide the product by 144."

[d] For some species (such as Hylobates, Symphalangus, Pongo), cage height should be such that an animal can, when fully extended, swing from the cage ceiling without having its feet touching the floor. Cage-ceiling design should enhance brachiating movement.

[e] Non-human primate

Group 1 – Marmosets, tamarins and infants of various species

Group 2 – Capuchins, squirrel monkeys and similar species

Group 3 – Macaques and African species

Group 4 - Male Macaques and large African species

Group 5 – Baboons and non brachiating species larger than 15kg

Group 6 – Great Apes and brachiating species

Apes weighing over 50 kg are more effectively housed in permanent housing of masonry, concrete, and wire-panel structures than in conventional caging.

[f] Cage height should be sufficient for the animals to stand erect with their feet on the floor.

TABLE 3: Recommended Space for Farm Animals Commonly Used in Laboratory Settings

Animals per enclosure	Weight (kg)	Floor Area/Animal(m)
Sheep and Goats		
1	<25	0.93
	25 - 50	1.40
	>50[a]	1.85
2-5	<25	0.79
	25 - 50	1.16
	>50[a]	1.56
>5	<25	0.70
	25 - 50	1.05
	>50[a]	1.40
Swine		
1	<25	1.12
	25 - 50	1.40
	50 - 100	2.23
	100 - 200	4.46
	>200[a]	>5.57
2-5	<25	0.56
	25 - 50	0.93
	50 - 100	1.85
	100 - 200	3.72
	>200[a]	>4.83
>5	<25	0.56
	25 - 50	0.84
	50 - 100	1.67
	100 - 200	3.34
	>200[a]	>4.46
Cattle		
1	<75	2.23
	75 - 200	4.46
	200 - 350	6.69
	350 - 500	8.92
	500 - 650	11.52
	>650[a]	>13.38

2 - 5	<75	1.85
	75 - 200	3.72
	200 - 350	5.57
	350 - 500	7.43
	500 - 650	9.75
	>650[a]	>11.14
>5	<75	1.67
	75 - 200	3.34
	200 - 350	5.02
	350 – 500	6.67
	500 – 650	8.64
	>650[a]	>10.03
Horses	-	13.38
Ponies		
1 - 4		6.69
Over 4/pen	<200	5.57
	>200	>6.69

TABLE 4: The Recommended Temperature, Humidity, Ventilation and Lighting

The recommended temperature ranges for the different animals are provided in the table below.

Animal	Dry Bulb Temperature °C
Mouse, rat, hamster, gerbil, guinea pig	18 – 23
Rabbit	16 – 22
Cat, dog, non-human primate	18 – 29
Farm animals & poultry	16 – 27

The relative humidity should be 30 - 90%.

The ventilation should be 10 - 15 fresh air changes per hour.

APPRECIATION

The Animal Care and Use Committee Ministry of Health (ACUC-MOH) would like to acknowledge and thank ACUC-MOH Committee Members and everyone who has been involved and contributed directly and indirectly in the preparation of this Guidelines to Ethical Conduct in the Care and Use of Animals for Scientific Purposes in Ministry of Health (MOH), Institutions and Facilities (MOH-AG).

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NOTE

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