Endorsed by: Dean/Director/ Deputy Dean/ Deputy Director	
Date:	

IACUC / 101

IACUC office use only
Date of receive:
Date of review:
Date of meet:

INSTITUTIONAL ANIMAL CARE & USE COMMITTEE
UNIVERSITI PUTRA MALAYSIA

Animal Utilisation Protocol (AUP) - Research

This completed Animal Utilisation Protocol (AUP) needs to be submitted to The Secretariat, Institutional Animal Care and Use Committee, c/o Unit of Ethics Research, Level 4, Office of the Deputy Vice Chancellor (Research & Innovation), Universiti Putra Malaysia, and approved by UPM IACUC prior to commencement of the animal study. Direct all enquiries to iacuc@upm.edu.my or 03-9769 1244/1605).

PROJECT TITLE:

(Related to the animal work only and must include the animal model to be used in the study)

Effects of XXXXXXXXX in BALB/C Mice

Please insert species/breed/strain/stock of animal in project title

	dd/mm/yr		dd/mm/yr
Starting Date:	**XX/06/19**	**Completion Date:**	**XX/06/20**

Application form should be submitted at least 2 months prior to commencement of animal study

1. PERSONNEL

Name	Institution/Department	Phone Number/e-mail	Signature
Principal Investigator: Dr. XXX	Department of XX Faculty of XX University Putra Malaysia, 43400 UPM Serdang, Selangor	03-XX 01X-XX xx@upm.edu.my	
ALL other personnel involved in the project: *Please indicate role (co-researcher, technical staff, RA, GRA, student)*			
Mohd. XX MSc student	Department of XX Faculty of XX University Putra Malaysia	+60 17-xx xx@gmail.com	
En. XX Assistant Veterinary Officer	Animal XX, Department XX Faculty of XX University Putra Malaysia	01X-XX xx@upm.edu.my	
En. XX Technical staff	"	01X-XX xx@upm.edu.my	
En. XX XX staff	"	+60 1x-xx xx@upm.edu.my	
If you need more space for animals involved, please insert new rows			
Attending veterinarian: *(Please also read and sign on Appendix 1)* Dr. XXX	Department of XX Faculty of XX University Putra Malaysia	+60 1x-xx xx@upm.edu.my	

2. RESEARCH PROJECT INFORMATION:

For RESEARCH, is this a pilot / preliminary study? **[ ] YES** **[/] NO**

Has funding been approved for this study?

[ ] No, applying for funds

[/] Yes – Provide Grant No: XXXXXXXX

*Please attach a copy of approval letter(s).

Peer Review for Scientific Merit of Research Studies has been performed by:

[ ] Granting Agency:

[/] Other (*Specify*): PTJ XX

*Please provide a copy of scientific reviewer's comments.

Purpose of Animal Use (check one):

[ ] Studies of a fundamental nature in sciences relating to essential structure or function (i.e. biology, psychology, biochemistry, pharmacology, physiology, behaviour, etc.)

[/] Studies for scientific purposes that relate to human or animal disease or disorders.

[ ] Studies for regulatory testing of products for the protection of humans, animals, or the environment.

[ ] Studies for the development of products or appliances for human or veterinary medicine

[ ] Education and training of individuals in institutions or facilities

[ ] General operating protocols (for routine management of herds/colonies)

[ ] Diagnostic testing

Classification (check one):

[ ] ***Acute*** - utilising an animal for a brief period (less than 24 hrs.), followed by euthanasia or return of the animal to source, **or** humanely killing an animal upon receipt or after a brief housing period during which time no manipulations other than standard management procedures are performed, i.e. anaesthetized without recovery, euthanised for tissue collection, etc.

[/] ***Chronic*** - maintaining the animal and performing experimental procedures during this time, i.e. feeding trials, antibody production, breeding colony, recovery surgery.

Category of Invasiveness (check one):

A	Involve either no living materials or use of no living materials, or use of plants, bacteria, protozoa, - studies on tissues obtained from autopsy or slaughterhouse. **THIS CATEGORY DOES NOT NEED AN AUP**
[/] B	Experiments on vertebrates species, expected to produce little or no discomfort - mere restraint for blood sampling, injection of harmless substance, physical examination, - experiment on completely anaesthetised animals which do not regain consciousness, food/water deprivation for few hours, standard methods of euthanasia (anaesthetic overdose or sedation/light anaesthesia follow by decapitation)
[ ] C	Experiments that involve some minor pain/discomfort for short duration to vertebrate species -exposure of blood vessels, implant chronic catheters, behavioural study involving short-term stressful restraint, immunization employing Freund's adjuvant, surgery under anaesthesia resulting in minor post-surgical discomfort
[ ] D	Experiments that involve significant but unavoidable stress or pain to vertebrate species -deliberate induction of behavioural stress, major surgical procedure resulting in significant post-operative discomfort, induction of anatomical/physiological deficit resulting in pain/distress, application of noxious stimuli from which escape is impossible, prolonged (> several hours) physical restraint, procedures that produce pain in which anaesthetics are not used (toxicity testing with death as end-point, production of radiation sickness, certain injections, stress and shock research resulting in pain approaching pain tolerance threshold/point of intense reaction)
[ ] E	Procedures that involve inflicting severe pain near, at, or above the pain tolerance threshold of unanaesthetised, conscious animals -use of paralytic agent alone for surgical restraint without use of anaesthetics, severe burn or trauma infliction on unanaesthetised animals, inescapable severe stress or terminal stress

Please refer Appendix on Categories of Invasiveness in Animal Experiments. ***-in UPM IACUC website***

3. LAY SUMMARY (250 words maximum)

In LAY TERMINOLOGY, please provide concise summaries of the proposed animal study. Avoid use of technical jargon.

a) Brief research background and objectives for the proposed animal study.

Background:

The laboratory mice (*Mus musculus*) are used widely in research due to economical choice for the studies and are well known identical characteristics to those of human biological functions (Melina, 2010). Few endoparasites and ectoparasites have been known to be presented in laboratory rodents. Conventional laboratory rodents may harbour low amount of some parasite species in the skin and intestinal tract but does not compromise the health status of animals overtly. The parasites may be detected in animals through various diagnostic techniques, including samples taken from live or dead animals (Parkinson et al., 2011). Furthermore, knowledge on the epidemiology of the disease and early diagnosis of parasitic infestation would be of great importance in the process of preventing transmission of diseases especially zoonotic problem as a main public concern. The previous study had revealed that the prevalence of endoparasites infestation; *Syphacia obvelata* in laboratory animals were various based on host's age, strain and health status (Taffs, 1976) with higher prevalence in certain in-bred strains of rats. Conventional laboratory rodents may harbour parasites that influence certain experimental results if worm burden is high which can cause consequent loss of time, money and research effort (Medeiros, 2010). Heavy infestation affects general thriftiness and cause growth variation (Eaton, 1972). Study shows infected animals are not suitable for critical work as factors such as nutritional and blood values (Griffiths, 1971).

Objectives:
1. To determine the intensity of parasitic infection of different stocking densities, various frequency of bedding change and open and closed air environment in BALB/C mice.
2. To perform molecular characterisation of endoparasites obtained from fecal and gastrointestinal content at different environmental settings.

References:
1.Melina, R. (2010). Why Do Medical Researchers Use Mice? Retrieved from: https://www.livescience.com/32860-why-do-medical-researchers-use-mice.html.
2. Parkinson, C.M., O'Brien, A., Albers, T.M., Simon, M.A., Clifford, C.B., & Pritchett-Corning, K.R. (2011). Diagnosis of Ecto- and Endoparasites in Laboratory Rats and Mice. J. Vis. Exp. (55), e2767.
3. Medeiros, V.B. (2012). Endo and ectoparasites in conventionally-maintained rodents laboratory animals. Journal of Surgical and Clinical Research. 3. 27. 10.20398/jscr.v3i1.3144.
4. Taffs, L.F. (1976). Pinworms infections in laboratory rodents: A review. Laboratory Animals, 10, 1–13.
5. Eaton, G.J. (1972). Intestinal helminths in inbred strains of mice. Laboratory Animal Science, 22, 850-853.
6. Griffiths H.J. (1971). Some common parasites of small laboratory animals. Lab Anim., 5, 123–135.

b) Anticipated impact and potential benefits to human and/or animal welfare.

There is lack of study on the health status and parasitic levels of the laboratory mice used in research study in Malaysia. This particular studies allow identification of common endoparasites and ectoparasites through various diagnostic methods and comparison of parasitic infestation between laboratory mice. It enables an accurate diagnosis for particular parasitic infestation. An unhealthy or heavily infested animal may alter the results of the research study. Hence, the most appropriate control and preventive measures shall be made based on early diagnosis. This study also allows assessment of parasite infection level of animals based on different environmental factors that can serve as guideline for the proper management to be implemented. In addition, basic knowledge of the life cycle of the endoparasites and ectoparasites and how it affects the mice are crucial in understanding the epidemiology of diseases transmission. Both veterinary and human medicine will gain benefits from the studies in terms of detection and prevention of the transmission of diseases.

4. ANIMAL MODEL

Justify the species and/or strain used for this research purpose. Please provide references for the proposed animal model or disease/condition *(e.g. diabetes mellitus, osteoarthritis)*.

Laboratory mice (*Mus musculus*) are widely used by researchers because they are small, easily housed and maintained, adapt well to new surroundings, inexpensive and easy to handle as they are generally mild-tempered and docile (Melina R., 2010). They are specifically used in this research to identify the parasitic infections this particular species may harbour in different environmental factors. The strain BALB/C will be used as they are inbred and almost identical genetically. As stated by the National Human Genome Research Institute, this helps make the results of medical trials more uniform.

References:

1.Melina, R. (2010). Why Do Medical Researchers Use Mice? Retrieved from: https://www.livescience.com/32860-why-do-medical-researchers-use-mice.html.

2. National Research Council. Infectious diseases of mice and rats: a report of the Institute of Laboratory Animal Resources Committee on Infectious Diseases of Mice and Rats. Washington, D.C: National Academy Press; 1991.

5. ALTERNATIVES

a) Explain the necessity of using animals in this project, and why alternatives (*in-vitro and ex-vivo* systems) to replace the use of animals would be inappropriate to meet your project or teaching objectives. Please provide references.

The laboratory mice are used in this project because they are recognized as the preeminent model for modern genetic research and are widely used for various types of research such as cancer, immunology and cardiovascular research (Suckow et. al., 2001). Conventional laboratory rodents may harbour parasites that influence certain experimental results if worm burden is high which can cause consequent loss of time, money and research effort (Medeiros, 2010). Heavy infestation affects general thriftiness and cause growth variation. (Eaton, 1972). Study shows infected animals are not suitable for critical work as factors such as nutritional and blood values (Griffiths, 1971). Thus, it is imperative to build a data on the parasitic levels of the laboratory mice used in research, especially since there is lack of study on the health status and parasitic levels of laboratory mice used in research in Malaysia.

Alternatives would not be appropriate as it defeats the purpose of observing the parasitic levels in the species itself in various environmental factors. Comparison between the factors can only be made by placing the laboratory mice in the environmental settings. From this, we would be able to observe whether these environmental factors which may reflect different management practiced affect the parasitic levels of these animals.

References:

1. XX
2. XX
3. XX

b) Indicate any alternatives to animal use that are already incorporated into the project design *(in-vitro & ex-vivo* systems).

Please provide any in vitro data/study done in order to support in vivo study of the proposed project.

6. ANIMAL USE

a) List ALL ANIMALS involved in the study.

Quantity	Species/Strain	Weight/ Age	Gender	Accommodation Building	Experimental Room* [Eg: procedure room/area, or hatchery/pond/tank (for aquatic animals)]
162	BALB/C mice	4-5w	M	Animal XX, UPM	Mouse room, Animal XX
					If you need more space for animals involved, please insert new rows

*Please specify if experiments on infectious diseases can be carried out in the proposed area/room. Please note that experiments involving infectious diseases that can be a threat to healthy animals cannot be permitted in the same facility.

b) Explain how the total number of animals to be used was determined.

e.g. 6 animals x 3 treatments = 18 animals. Include a flow chart or table if necessary.

Group 1 : XX. Total = 18 x 3 replicate = 54

Group	A	B	C
No of animals per cage	X	X	X

Group 2 : XX. Total = 18 x 3 replicate = 54

Group	A (n=6)	B (n=6)	C (n=6)
Freq. of X	XX/w	XX/w	XX/1.5w

Group 3 : XX. Total = 18 x 3 replicate = 54

Group	A (n=6)	B (n=6)	C (n=6)
Cage X	X	X	X

Total animals = 54x3= 162 mice

c) Indicate consideration given to reduce the use of animals in the project design.

The consideration given to reduce the use of animals is by considering the smallest number of animals for the environmental factors but high enough to get a relevant results when comparing between the animal groups. Only 6 mice per group will be euthanized with a total of 54 mice to be euthanized. Only a small number of animal are to be euthanized to minimalize unnecessary killing of animals.

7. SOURCE

Indicate the source or supplier:

[x] UPM Animal Resource Unit [ ] Client Owned [ ] Client Donated [ ] Resident Animal
[ ] Wildlife [ ] Field studies [ ] UPM Herd / Flock [ ] Local suppliers/farms
[ ] Other institution(s) [ ] Import (attach health certificate & import permit)
[ ] Transfer from other researcher/ research (AUP No:_____)

For the above, please provide details:

SPECIES	SOURCE/SUPPLIER	ADDRESS/ LOCATION	PHONE NUMBER	MODE AND CONDITION OF TRANSPORTATION
BALB/C mice	Animal Resource Unit (En XX)	Faculty of XX, UPM	+603 - 8696 XXX	Aircond-car
	If you need more space for animals involved, please insert new rows			

Please provide consent letter/form for client-owned or farm-owned animals; consent letter from PBT (pihak berkuasa tempatan) for stray animals; or letter/permit from Perhilitan for wildlife animals.

8. ANIMAL CARE & HUSBANDRY

a) Specify provisions of basic requirements for each species/strain of animals used

(For guide on species care and husbandry requirements, please refer to the UPM Code of Practice for the Care and Use of Animals for Scientific Purposes at http://www.rmc.upm.edu.my/dokumen/PTPPY1_92272_upm_code_of_practice.pdf).

Species/strain 1:_BALB/C mice_____

i. Caging: [x] Plastic [ ] Metal [ ] Aquarium [ ] Tank [ ] Others-specify____-_____

For aquaculture research, please specify size & volume of space : _____-_____

ii. Stocking density: _XXX___animal per ___cage__(cage/~~pen/paddock/tank dimension or floor space~~)

iii. Flooring/Bedding:[ ] Wood slatted [ ] Wire mesh [x] Wood shaving [ ] Newspaper

[ ] Others_____-_____

iv. Temperature of room: [ ] Not regulated [x] Regulated at _ 21-23^{0}C _____

v. Ventilation: [ ] Not regulated [ ] Regulated

vi. Feed: [ ] Custom-formulated [x] Commercial – name of manufacturer _Gold Coin (M)_

vii. Water: Source_Filtered water_____ Delivery: [x] Bottle [ ] Water bowl

[ ] Others_____-_____

Species/strain 2:____-_____

(please copy items above)

b) Specify the frequency of the following activities (if applicable) and who will be performing

Activity	Frequency	Performed by (name)
Feeding	Ad libitum	Encik xx & Encik xx
Changing water bottle/bowl/tank	2x/w	Encik xx / Encik xx
Changing bedding/litter tray/filter	2x/w except group 2	Mohd XX
Changing/cleaning cage/pen/tank/filter	2x/w	Encik xx / Encik xx

c) Specify any enrichment provisions, i.e. space, specific materials or objects provide, if any.
(e.g. tissue paper, cardboard shelter, cardboard tube etc.)

Cardboard tube for enrichment. **Please put N/A if not relevant/ not applicable.**

9. PROCEDURES

a) Using a FLOW DIAGRAM WITH TIMELINE, describe sequence of research procedures that involve animals in this project. THE COMPLETE FLOW DIAGRAM WITH TIMELINE SHOULD ONLY DESCRIBE THE PROCEDURES FROM THE POINT OF PURCHASE OR PROCUREMENT TO WHEN AND HOW THE ANIMALS ARE EUTHANISED. Please provide reference(s) where appropriate.
In cases of surgical procedures, description of the following should be included; patient preparation before surgery, pain and distress management, frequency of monitoring during and post-surgery as well as technical description of surgical procedures and post-operative care.

FLOW DIAGRAM MUST BE CONCISE

IACUC application and approval

↓

Transportation of laboratory mice from XXXX to XXX

Acclimatisation period for 1 week **Please include acclimatisation period**

↓

Group 1 : Stocking density. Total = 18 x 3 replicate = 54

Group	A	B	C
No of animals per cage	XX	XX	XX

Group 2 : Frequency of bedding change. Total = 18 x 3 replicate = 54

Group	A (n=6)	B (n=6)	C (n=6)
Freq. of bedding change	2x/w	1x/w	1x/1.5w

Group 3 : Housing condition. Total = 18 x 3 replicate = 54

Group	A (n=6)	B (n=6)	C (n=6)
Cage type & condition	XX	XX	XX

↓

Measure animal's body weight

↓

Placing animals in 3 different environmental factors:
i) X
ii) X
iii) X

↓

(On Day 0, Day 7, Day 14, Day 21 and Day 28)
Measure body weight and take samples from live animals :
i) Fecal collection by XXX to perform direct fecal XX, fecal centrifugation
ii) Perianal tape test will be conducted by XXX
iii) Fur collection by different techniques include fur pluck on XXX, tape impression test by applying tape on XXX, skin scraping on base of the tail & temporal head using XXX
(Parkinson et. al., 2011)

↓

On day 28, X animals per each groups (?x?x? groups=54) under general anaesthesia by using ketamine (100 mg/kg) – xylazine (10 mg/kg) cocktail via intraperitoneal injection with 0.1ml for 10g.
The rest of the mice (108) will be retained for teaching purposes for Laboratory animal XX VPKXX for sem II 2018/2019

↓

Blood collection with max volume of 1ml in 54 animals via intracardiac puncture to perform XXXXXX

↓

Euthanize animals by anaesthetic overdose or cervical dislocation

Please end the flowchart until euthanasia.
Please do not include the description of lab procedures after animal death. Eg: Histology, PCR etc.

References:

1. Parkinson et al., (2011). Diagnosis of Ecto- and Endoparasites in XXX.

b) List ALL procedures, manipulations, and/or measurements that will be performed on the animals.

	PROCEDURE(S) E.g. transportation, physical restraint, blood sampling, administration of compounds or chemicals, injection of anaesthetics, analgesics, antibiotics, behavioural test, euthanasia etc. (Please list procedures in sequence)	**Compound name, dosage, route & volume** (if applicable)	**No. of animals involved**	**Frequency and duration**	**State category of invasiveness** *B-E *(Please refer to page 2)*
1	Transportation at Xam in XX cage with regulated temp	N/A	162	1	B
2	Measure bodyweight	N/A	162	5	B
3	Fur pluck on XXX	N/A	162	5	B
4	Tape impression test on XXX	N/A	162	5	B
5	Skin scraping at areas of XXX	N/A	162	5	B
6	Perianal tape test	N/A	162	5	B
7	Feces collection	N/A	162	5	B
8	General anaesthesia for intracardiac puncture	Ketamine 100mg/kg Xylazine 10mg//kg, IP	54	1	B
9	Euthanasia	Exsanguination followed by cervical dislocation	54	1	B
	If you need more space for animals involved, please insert new rows				

*Indicate the Category of Invasiveness as stated in page 2 for each procedure listed.
Please consult your AV for procedures involved the usage of drug (dosage, route, volume etc.).

c) List ALL individuals who will carry out the procedures listed in 9 b).
Provide their technical qualifications and relevant experience in performing these procedures.

Name*	**Procedure(s) to be performed** (list the corresponding procedure number as listed in table 9b above e.g. 1, 2, 3)	**Qualifications/experience with these procedures**
Dr. X **AV should be included for any procedure involves control drugs**	2-9 **Please insert number only.**	DVM, PhD
Mohd XXX Student's name	1-9	Attended workshop ….. on….
En. XX	XXX	Experienced in xxx for …years
		If you need more space, please insert new rows

*All individual names should also be listed in page 1. Procedure involved the usage of controlled drug should be done by AV.

d) Specify the criteria used to assess the level of anaesthesia required for invasive procedures (if relevant)
[ ] Not applicable [ ] Respiratory rate [ ] Heart rate [ ] Corneal reflex [x] Toe pinch [x] Tail pinch [x] Response to procedures [ ] Others – specify:
e) Specify the methods/criteria for monitoring the condition/level of pain and distress of the animals following the above listed procedures. **(Please attach Template of Animal Assessment/Monitoring Sheet)**
[ ] Not applicable [x] Loss of appetite [x] Loss of weight [x] Restlessness [ ] Laboured breathing [x] Loss/reduce mobility [ ] Abnormal resting posture [x] Unresponsiveness [ ] Failure to show natural inquisitiveness [ ] Failure to groom/unkempt appearance [ ] Red stains around eyes of rats [ ] Guarding/protecting painful area [ ] Licking, biting, scratching, shaking of affected area [x] Others – specify: self-inflicting trauma
f) Specify frequency of animal observations: 1. Daily husbandry routine: __XX___times per hour / day / week *(delete where not relevant) 2. Following experimental procedures: __XX___times per hour / day / week *(deletel where not relevant)

10. EXPERIMENTAL AND/OR ANIMAL USE ENDPOINT

When experimental procedures produce animals that may become ill, it is necessary to define an endpoint to ensure that an experimental animal's discomfort, pain and/or distress is terminated, minimised or reduced.

a) List any clinical conditions or abnormalities ***expected* as a result of the proposed study** *(e.g. behavioural changes such as increased grooming, vocalization or postural changes, or physical abnormalities such as anorexia, dehydration, diarrhoea, etc.).* ***All expected clinical abnormalities that could arise need to be included in Animal Assessment/Monitoring sheet as stated in 9e).***
Any abnormalities that could arise include behavioural changes such as restlessness, poor appetite, less responsive, less mobility, self-inflicting trauma due to stress from physical restraint. **All of the clinical conditions stated in 10a) and 9e) should be included in Template of Animal Monitoring sheet for assessment of these conditions.**
b) List the criteria to trigger the decision to remove an animal from the experiment, or to terminate the experiment *(e.g. moribound, 20% body weight loss for a week, etc.)*. **If death is required as the endpoint, please justify.**
Extensive bodyweight loss for >20% in a week, moribound.

11. DISPOSAL OF ANIMALS

SPECIES, quantity	**TO BE RETAINED/ SOLD TO/ DONATED TO/ TRANSFERRED TO/ ADOPTED BY** *(specify location or to/by whom and purpose if animals are retained)*	**TO BE EUTHANISED** *(specify method/drug/dose. If a physical method of euthanasia is to be used i.e. cervical dislocation, justify its use)* **CARCASS DISPOSAL** (*specify method)*
***Mus musculus*, BALB/C mice 54**	**-**	**To be euthanised by KTX overdose or cervical dislocation** **Carcass disposal to Post-mortem XX at XXX UPM**
***Mus musculus*, BALB/C mice 108**	**To be retained for teaching purpose (for undergraduate students: VPXXX Laboratory Animal XX for Sem II 2018/2019)**	**-**

12. EMERGENCY VETERINARY CARE

Is routine veterinary care appropriate for animals in this project? **[/] YES [ ] NO**

If NO, attach specific instructions in case an emergency should arise.

IN THE EVENT OF AN ANIMAL HEALTH EMERGENCY, IF THE PERSONNEL LISTED IN SECTION 1 COULD NOT BE CONTACTED, THE DECISION OF A CLINICAL VETERINARIAN APPOINTED BY THE IACUC WILL BE FINAL.

13. HAZARDS: Please write N/A if not applicable/relevant and do not leave it blank.

Does this project involve hazardous agent or animal? [ ] YES [/] NO
If YES, please complete the details as below.

TYPE	SPECIFY AGENT, DOSAGE, ROUTE, FREQUENCY
Radio-Isotope	N/A
Carcinogen	N/A
Dangerous chemical	N/A
Contagious pathogen to humans [ ] animals [ ]	N/A
*Recombinant DNA/RNA	N/A
Other (e.g. *GMO, electroshock)	N/A

Precaution step(s) and/or special animal care or containment procedure required for the hazard(s):
N/A

If any hazard involves in the proposed project, please specify the precaution steps and special containment procedures in details here.

***Project involving Recombinant DNA/RNA/GMO needs to apply for acknowledgement (contain used) or approval (field trial) from National Biosafety Board or UPM Institutional Biosafety Committee (IBC).**

14. INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE APPROVAL

Upon approval, a protocol number will be assigned. This number must be used when ordering animals. This Animal Utilisation Protocol is valid for the duration of the project pending on submission of annual progress report by the investigator and recommendation by the animal facility manager.

PRINCIPAL INVESTIGATOR'S DECLARATION	TICK
By signing this form, I certify that:	
1. this project will be conducted in accordance with the Animal Welfare Act 2015 (https://www.aaalac.org/resources/Malaysia.pdf), UPM policy and Code of Practice for the Care and Use of Animals for Scientific Purposes (http://www.tncpi.upm.edu.my/upload/dokumen/20180522091735PTPPY1_92272_ethicspolicy.pdf) and Institutional Care and Use Committee (IACUC) guidelines, and any other applicable federal/state laws and regulations.	☑
2. the information provided in this AUP is complete and accurate.	☑
3. the proposed experimental activities described above have not been carried out by myself or other researchers in this institution or elsewhere.	☑
4. all activities are designed to assure that pain/distress/discomfort of animals is minimized.	☑
5. all personnel listed in section 9c are aware of, and will follow the approved procedures outlined in this form. They will be appropriately trained and qualified, and that I am responsible for the supervision, training, and work of said personnel.	☑
6. I will maintain appropriate animal records (e.g. animal monitoring sheet, veterinary care, euthanasia, surgery, anesthesia etc.).	☑
7. veterinary care will be available when necessary, and provided by the qualified attending veterinarian (AV). I will immediately notify his/her regarding any unexpected study results that negatively impact the animals, and any unanticipated pain or distress, morbidity or mortality will be documented and reported to the IACUC.	☑
8. the information provided in this AUP will be kept current and any changes must be notified by submitting Form IACUC/105. I aware that IACUC approval must be obtained prior to performing the revised animal procedures described therein.	☑
9. I understand that approval of proposed project is valid for a maximum of one (1) year from the date of approval. I aware that extension of the approval need to be requested at least one (1) month prior to project completion by submitting Form IACUC/106.	☑
10. I will notify and submit Form IACUC/106 following the completion of project. I understand that my new AUP application will not be processed before report submission.	☑
11. I understand that the IACUC may approve the application as submitted, required modifications in order to receive approval, or rejected, and the approval may be subject to further review.	☑
By submitting this form, I have read and understood the above declaration.	**Please read and tick the above declaration**

Project Title: Effects of XXXXXXXXX in BALB/C Mice	
Signature and stamp of Principal Investigator: Dr. XX	Date: XX

Appendix 1

ATTENDING VETERINARIAN'S DECLARATION	TICK
By signing this form, I certify that:	
1. I should provide input in protocol review, the development of study removal criteria, and responsible conduct of research activities and can be invited to attend the IACUC meeting together with the research team if required.	☑
2. I oversee the well-being and clinical care of animals used in research, testing and teaching. The responsibility extends to monitoring and promoting animal well-being at all times during animal use and during all phases of the animal's life. Well-being is determined by considering physical, physiological and behavioural indicators.	☑
3. I shall provide guidance to investigators and all personnel involved in the care and use of animals to ensure appropriate husbandry, handling, medical treatment, immobilization, sedation, analgesia, anaesthesia and euthanasia.	☑
4. I shall provide guidance and oversight to surgery and perioperative care involving animals in accordance with current established veterinary medical and nursing procedures, if applicable.	☑
5. I am expected to carry out daily observation of all animals in the study project to assess their health and well-being. However, the daily observation of animals may be accomplished by someone else other than myself provided that there is a mechanism of direct and frequent communication between the researchers and I so that timely and accurate information on problems of animal health, behaviour, and well-being is conveyed to me.	☑
6. if I am on leave or will be otherwise unavailable to provide any general or emergency veterinary care, interim arrangements are made to ensure that there is always ready access to veterinary care. Timely provision of veterinary medical care and emergency veterinary care is always available after working hours, on weekends, and on holidays.	☑
7. any unethical events or animals are not kept to optimum welfare care or found during an audit will be reported to the IACUC. I aware that the IACUC will initiate investigations where the researchers and I can be summoned for explanation and deliberation on the matter.	☑
8. following the completion of project, I will notify the PI to submit a final report to the IACUC on the care and ethical use of animals in the project, including animal monitoring log if necessary.	☑
By submitting this form, I have read and understood the above declaration.	**Please read and tick the above declaration**
Project Title: Effects of XXXXXXXXX in BALB/C Mice Name of Principal Investigator: Dr. XX	
Signature and stamp of Attending Veterinarian: Dr. XX	Annual Practicing Certificate number: 2019- XX Date:XX