國立成功大學

實驗動物照護與使用委員會審查同意書

Affidavit of Approval of Animal Use Protocol

National Cheng Kung University

 　 同意書編號(IACUC Approval No.)：\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 計畫主持人(Principal Investigator): |   | 職稱(Position/Title): |   | 單位(Institute): |   |
| 共同主持人(Associate investigator): |   | 職稱(Position/Title): |   | 單位(Institute): |   |
| 飼養地點(HousingLocation): | 選擇一個項目。 |
| 實驗地點(Experimental Location): | 選擇一個項目。 |
| 計 畫 名 稱(Project Title): |   |

本「動物實驗計畫書」業經實驗動物照護與使用委員會[ ] 實質 [ ] 形式審查通過。本計畫預定飼養應用之動物如下：

|  |  |  |
| --- | --- | --- |
| 動物種類(品系)Species(strain) | 動物總數/計畫年數Number/Year | 飼養及應用期間(西元)Valid Period(yyyy/mm/dd) |
| 選擇一個項目。 |  | 按一下這裡以輸入日期。~按一下這裡以輸入日期。 |
| 選擇一個項目。 |  | 按一下這裡以輸入日期。~按一下這裡以輸入日期。 |
| 選擇一個項目。 |  | 按一下這裡以輸入日期。~按一下這裡以輸入日期。 |

The animal use protocol listed below has been reviewed and approved by the Institutional Animal Care and Use Committee (IACUC).

Protocol Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IACUC Approval No.：

Period of Protocol: To be valid from: 按一下這裡以輸入日期。 to: 按一下這裡以輸入日期。

Principle Investigator (PI): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

實驗動物照護與使用委員會召集人：\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 日期：\_\_\_\_\_\_\_\_\_\_\_

IACUC Chairman: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

 **(重要文件，請勿遺失)**

|  |
| --- |
| 核准編號 |
|  |

 **動物實驗計畫書**

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| --- |
| **一、Project Information** |
| Principal Investigator |  | Position/Title | 選擇一個項目。 | Department |  |
| Associate investigator |  | Position/Title |  | Department |  |
| Experimental Place | 選擇一個項目。 | Contact Person |  | Contact No. |  |
| Project Title |  |
| Project Category | Primary Category | [ ] 1. Basic Research [ ] 2. Applied Research [ ] 3. Pre-market Testing [ ] 4. Teaching [ ] 5.Biological agent |
| Secondary Category | [ ] 1. Medical Research [ ] 2.Agricultural Project) [ ] 3. Medicine, Chinese Herbal Medicine [ ] 4. Health Food [ ] 5. Food [ ] 6. Drug, Chemicals [ ] 7. Medical Device [ ] 8. Agricultural chemicals [ ] 9. Animal Drug & Vaccine [ ] 10. Animal Health Food, Feed Additive [ ] 11. Cosmeceutical [ ] 12. Other :  |
| Funding Source | [ ] 1.農業委員會(COA) [ ] 2.衛生福利部(MOHW) [ ] 3.科技部(MOST) [ ] 4.教育部(MOE) [ ] 5.環保署(EPA) [ ] 6. (Other : ) |
| Valid Period |  按一下這裡以輸入日期。 至 按一下這裡以輸入日期。 |
| Special Experiment | 以下就本實驗內容進行勾選，可複選:[ ] 無(No)[ ] 存活手術(Survival Surgery, SS )[ ] 多重存活手術(Multiple Survival Surgery, MSS)[ ] 限食限水(Food or Fluid Regulation, FFR)[ ] 長時間保定(Prolonged Restraint, PR)[ ] 危害性物質(Hazardous Agent Use, HAU)[ ] 非集中式設施進行實驗(Non-Centralized Housing and/or Procedural Areas,  NCA)(實驗及手術地點會離開動物中心、B1代養區、BOCM等，請勾選此項) |

|  |
| --- |
| **二、Information of Attending Personnel** |
|  | Name | Position/Title | Participating Period | Trainings Records/Certifications |
| 1 |  | 選擇一個項目。 | 按一下這裡以輸入日期。 ~ 按一下這裡以輸入日期。 |  |

|  |
| --- |
| **三、Animal Information Summary** |
|  | Animal Type | Number/Year | ***c***Animal Source | Housing Location | Animal Breeding |
| Species | ***a***Strain | *d*Type | *e*Description |
| 1 | 選擇一個項目。 | 選擇一個項目。 | / | 選擇一個項目。 | 選擇一個項目。 | 選擇一個項目。 |  |
| 註*a*：保育類野生動物請加註，並另依野生動物保育法相關規定辦理。註b：動物總數=實驗使用數量+未使用數量。註*c*：自野外捕捉之動物請加註，並另說明來源地區、隔離檢疫方式及隔離期間；取自民間市場者，必要時須比照辦理。註d：請依"來源種類"填寫：1.自行繁殖。2.國內繁殖場。3.國外進口。4.市面購買(市場或寵物店等少量購買者)。5.學術交流。6.再應用。7.野外捕捉(須說明)。8.其他(須說明)。註e**：**除自行繁殖外，選填2-6項請說明動物來源單位之名稱，7-8項請簡要說明。 |

1. **If you need animal breeding, please complete the appendix 1.**
2. **Will any animals be housed in facilities other than NCKU LAC ? If yes, please provide the following information of the facility.**(擇一勾選)

|  |
| --- |
| [ ] No[ ] Yes, please provide the following information |
| Unit |  | Tel / E-mail |  |
| Contact Person |  | Address |  |

|  |
| --- |
| 1. **Animal Care Personnel**(擇一勾選)
 |
| [ ] The NCKU LAC staff [ ] The lab staff [ ] Other facilities |
|  If the animals are cared by the lab staff, please briefly describe below the name of the animal care personnel and related background and training records. |

1. **Purpose and Significance of the Project**:

|  |
| --- |
| 1. **Please follow the 3Rs sprit to complete the following table.)**

**Replacement – Explain your rationale for animal use.****Reduction – Justify the number of animals to be used. The number of animals should be the minimum number required to obtain statistically valid results. The guideline or reference associating with animal numbers should be provided.****Refinement – Detailed description of experimental design and animal procedures. Use additional sheets if necessary. This description should allow the IACUC to understand the experimental course of an animal from its entry into the experiment to the endpoint of the study.** |
| 1. | Describe the rationale for using animals, including the reasons why non-animal models cannot be used and the appropriateness of the species selected (e.g., anatomic, physiologic, genetic, etc.) that make it reasonable for this model. The selected species should be the lowest possible on the phylogenetic scale.： |
| 2. | Describe the guideline and references of this research. If no guideline is available, references must be provided.): 選擇一個項目。 |
| 3. | Provide the references of this research.: |
| 4. | **Animal experimental design**: |
| 1. Single housing needed (one animal per cage)):

 [ ] No。 [ ] Yes。[ ] Postoperative care prevent disturbance of healing caused by other animals)。[ ] Severe social incompatibility)。[ ] Metabolic cage)。([ ]  Mice [ ] Rat) [ ] Other。Please provide scientific justification:  |
| 1. Food or water restriction needed:

 [ ] No。 [ ] Yes。Please provide scientific justification:  |
| 1. Special food or water needed:

[ ] No。[ ] Yes([ ] Food)、[ ] Water。Please provide the following information:

|  |
| --- |
| 1. Component

[ ] Non-hazardous agents: [ ] Hazardous agents: 1. SDS Please provide the safety data sheet (SDS))
2. Waste disposal method:
3. Personnel protection equipment are used by laboratory personnel and individuals performing animal husbandry):
 |
| 1. Source or method of the materials: (Choose one)

[ ] The name of vendor: [ ] The method of preparing:  |
| 1. Methods of sterilization:

[ ] γ-ray Irradiation[ ] Autoclave[ ] Filtration[ ] Other:  |
| 1. Instruction of special water: (特殊飲水才需要填寫)
	1. Keep off light: [ ] Yes [ ] No
	2. Special water bottle: [ ] Yes [ ] No
 |

 |
| 1. Will the conscious animals be restrained for more than 30 minutes?:

[ ] No。[ ] Yes。Please provide scientific justification:  |
| 1. Will surgery be conducted on animals?:

[ ] No。[ ] Yes。Choose and describe: [ ] Non-survival Surgery:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_。 [ ] Survival Surgery, SS:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_。 [ ] Multiple Survival Surgery, MSS:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_。 |
| 1. Describe the methodology involving in the design of animal experiments:

(請詳述實驗動物性別、年齡、動物分組組數、每組動物隻數、備用動物隻數、實驗重複次數等，據以估計欲使用動物數量，必要時可以計算式或表格輔助說明。若實驗進行動物繁殖，應註明獲得所需特定基因型動物之繁殖率。) |
| 1. Check if instruments will be used? (If the live animals are used, please describe in 9-2) (If the anesthetics are used, please describe in 9-3):

[ ] 1. Ultrasound Vevo770 [ ] 2.Micro CT [ ] 3. Thermo tracer H2640/FSV-GX7700[ ] 4. IVIS [ ] 5. X-ray irradiator RS2000[ ] 6.Blood Chemistry Assay machine 4000i [ ] 7. Hematology-analyzer [ ] 8. Hard tissue cryosection CM3050S [ ] 9. 8 Channel Physiological Signal Monitor [ ] 10. Urine analyzer RT-4010 [ ] 11. Electrolyte analyzer SE-1520 [ ] 12. Blood analysis system epoc® [ ] 13. Micro-Digital i-Osmometer Type 7iM [ ] 14. Metabolic cage※Use X-ray irradiator RS2000, please provide the operator’s name:  Radiation Safety Certificate or relevant licenses no.:  The dose and frequency of administration:  |
| 5. | The annual animal number in need：(According to the COA regulations, please complete the following table.):**說明:**1. **If animal breeding is needed, then (A)=(B)+(C).**
2. **If animals breeding is not needed, then (A)=(B), just complete (A).**
3. **You can add/delete the form by yourself.**
 |
| Strain | Species | Valid period(yyyy/mm/dd) |  **(A)****Total animal number** |  (B)Number of animals for experiment |  (C)Number of unused animals | Remark |
| 選擇一個項目。 | 選擇一個項目。 | 按一下這裡以輸入日期。~按一下這裡以輸入日期。 |  |  |  |  |

|  |
| --- |
| 1. **請以執行動物實驗應秉持之替代(replace)、減量(reduce)、精緻化(refine)3R精神中之精緻化原則，說明進行之動物實驗內容。**
 |
| 1. | Experimental injections or samplings (substance, e.g., infections agents, adjuvant, etc.; dose, sites, volume, route, and schedules): |
| 2. | Method and period of restraint, dietary restriction, water restriction, movement restriction (such as metabolic cage, treadmill, and behavior experiment): |
| 3. | Please describe the anesthesia(tranquilizers) method, the surgical approach, post anesthetic (or surgery) care, and daily routine care for wound or affected region. :

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Agent  | Route of Administration | Sites of Administration | Dosage of Administration |
|  |  |  |  |

 |
| 4. | Do you agree that the enrichment items are used according to the *Laboratory Animal Environmental Enrichment Program*?)[ ] Yes。[ ] No。Please provide scientific justification:  |
| **實驗動物環境豐富化計畫****Laboratory Animal Environmental Enrichment Program** |
| * 前言:
	1. 環境豐富化的主要目的是強化動物福祉，這個目標可以藉助運用可促進動物特有行為表現的設施結構及資源，來提升動物感官知覺和運動的刺激; 或者是藉由物種特異之肢體運動、操作活動、及認知活動，以提升身心的福祉。
	2. 單獨飼養之實驗動物，應提供至少>=2項環境豐富化物品或措施; 且群區飼養之實驗動物，建議應提供至少一項環境豐富化物品或措施。如實驗為特殊實驗設計，不適合提供環境豐富化物件，則需提出科學資料或理由，並經IACUC審查核可後，使得之進行。
* 施行對象:
1. 大鼠、小鼠:
2. 給予築巢物質、遮蔽物質、紙捲、木條或木塊。
3. 每個飼養籠都會放置築巢物質。
4. 實驗兔:

a. 獨飼的兔子要有能看到、聽到及嗅到同伴的機會。b. 給予木條或木塊、棲息板、玩具等。c. 新進動物給予乾牧草幫助適應新環境。1. 實驗豬

a. 每個飼養籠地面有防滑混凝土板供磨蹄。b. 塑膠球、玩具等滿足拱地探索。c. 懸吊棉繩、懸吊鐵鍊提供遊戲。d. 每日播放古典輕音樂。1. 斑馬魚:
	* + 1. 10公升大缸可給予小屋玩具帳篷玩具
			2. 3公升小缸可給予拱門玩具
 |
| 5. | Will any non-pharmaceutical-grade compound be used? If yes, please provide scientific justification.[ ] No。[ ] Yes。Please explain:

|  |  |  |  |
| --- | --- | --- | --- |
| Name of Compound  | Route of Administration | Sites of Administration | Dosage of Administration |
|  |  |  |  |

Illustrate the method of preparing/making the compound): Illustrate toxicity of compound for the animal):  |
| **非藥品等級化合物使用時機及準則****Criteria for Non-Pharmaceutical-Grade Compounds** |
| * **背景**

　　According to the 8th edition of the GUIDE, the use of non-pharmaceutical-grade drugs is asked for animal related procedure and it should be illustrated in Animal Use Protocol. Comparing to pharmaceutical-grade drugs, these non-pharmaceutical-grade compounds not only are lack references but also is difficult to ensure their manufacturing quality. However, non-pharmaceutical-grade compounds are often necessary for scientific research. Since the goal of IACUC is to consider the animal health and well-being and guide the researchers to minimize potentially confounding experimental factors and maximize reproducibility of the research, we must assess and review the use of these non-pharmaceutical-grade compounds.* **定義**

 A pharmaceutical-grade compound is defined as “any active or inactive drug, biologic or reactant, for which a chemical purity standard has been established by a national or regional recognized pharmacopeia (e.g., the Chinese Pharmacopeia (CH.P.), U.S. Pharmacopeia (USP), British Pharmacopeia (BP), National Formulary (NF), European Pharmacopoeia (EP), Japanese Pharmacopeia (JP), etc.).” The pharmaceutical factory can produce the drug with appropriate chemical purity, quality, and dosage form and ensure the stability, safety, and efficacy under these standards.* **使用準則Use criteria:**
1. Clinical Use - compound is used for the clinical treatment of animals and to reduce/eliminate animal pain or distress. Whenever possible, pharmaceutical-grade compounds must be used.
2. Research Use – compound is used to accomplish the scientific aims of the study. If available and suitable, pharmaceutical-grade compounds are preferred. If non-pharmaceutical-grade preparations are used, the following factor need to be considered:
3. The use of the compound must be compliant with national regulations and the requirements of relevant funding agencies.
4. A scientific justification is provided.
5. The pharmaceutical-grade compound with appropriate concentration and formulation or the dissolving drug vehicle control is unavailable.
6. The compound is required to generate data that are part of an ongoing study or that are comparable to previous work.
7. The chemical properties of the compound are appropriate for the study and the route of administration (e.g., the purity, grade, stability in and out of solution, carrier dissolution properties, pH, osmolality, and compatibility with other components in final preparation). In some cases, the reagent-grade of the compound may be as or purer than the pharmaceutical-grade.
8. The method, labeling (i.e., preparation and use-by dates), administration and storage of preparation should be appropriately considered with the aim of maintaining their stability and quality (i.e., to prevent inadvertent co-administration of infectious agents or contaminants).

(參考資料: AAALAC-FAQ網頁) |
| 6. | Please describe the harmful impacts or side effects, classify the level of pain, distress, and clinical symptoms that the experiment may cause on animals, and what measure will be taken to reduce the pain and distress.1. The harmful impacts or side effects:
2. To assess the level of pain, distress, and clinical symptoms classification:
 |
| The level of pain, distress, and clinical symptoms classification | What measures will be taken to reduce the pain and distress. |
| 選擇一個項目。  Please follow the Pain and Distress Classifications on NCKU LAC website -> IACUC -> Related Forms |  Using sedative or analgesic (you can follow the Anesthesia and Analgesics Reference Table on NCKU LAC website -> IACUC -> Related Forms), adding environmental enrichment items, etc., please describe the measure according to the pain/distress level and your experimental purpose. |
| 7. | The monitoring for the frequency and method of unusual and painful symptoms should be described. (e.g. Weigh once every two days after surgery and measure body temperature twice every day.)(a) Experimental endpoint: (b) Humane endpoint:  |
| **★The following is the time point of Euthanasia and the criteria of humane endpoint, please read carefully and check below.** |
| **實驗中動物安樂死時機及準則** **Criteria for Euthanasia of Animals Used in Research & Teaching** |
| 1 | 體重減輕 Weight loss | 體重減輕，或是動物出現惡病質或消耗性症候時。體重減輕達15-20％。\*非生長期動物體重減輕可依據動物剛進動物房之體重或平均年齡體重為依據。 生長期之動物體重或許不會下降，但若無法正常增重，仍應判為體重減輕。Weight loss of 15-20% (non-growing period animals depend on weight and age recorded at arrival time; growing period animals may not lose weight, but if couldn’t gain normally, it still be judged as weigh loss.) or if not measured, characterized by cachexia and wasting syndrome. |
| 2 | 喪失食慾 Inappetence | 小型囓齒類動物完全喪失食慾達24小時或食慾不佳（低於正常量之50％）達3天時。大動物完全喪失食慾達5天或食慾不佳（低於正常量之50％）達7天時。Complete anorexia for 24 hours in small rodents, up to 5 days in large animals; partial anorexia (less than 50% of normal standard) for 3 days in small rodents, 7 days in large animals. |
| 3 | 虛弱（無法進食或飲水）Weakness/inability to obtain feed or water | 動物在沒有麻醉或鎮靜的狀態下，長達24小時無法站立或極度勉強才可站立時。In the state of no anesthesia and sedative, inability or extreme reluctance to stand up to 24 hours. |
| 4 | 垂死/瀕死Moribund state | 動物在沒有麻醉或鎮靜的狀態下，表現精神抑鬱伴隨體溫過低（低於37℃）時。In the state of no anesthesia and sedative, depression coupled with body temperature below 37°C. |
| 5 | 感染Infection | 無論是明顯可知或因體溫升高白血球數目增加而判斷為感染所致，且在抗生素治療無效並伴隨動物全身性不適症狀出現時。Infection involving any organ system (either overt or indicated by increased body temperature or WBC parameters), which fails to respond to antibiotic therapy within an appropriate period of time and is accompanied by systemic signs of illness.出現器官嚴重喪失功能的臨床症狀且治療無效，或經動物中心獸醫師判斷預後不佳 時。如： Signs of severe organ system dysfunction and non-responsive to treatment, or with a poor prognosis as determined by a veterinarian:1)Respiratory system: dyspnea, cyanosis.2)Cardiovascular system: Large blood loss, anemia after having once fluid therapy (less than 20%).3)Gastrointestinal system: severe vomiting or diarrhea, obstruction, intussusception, peritonitis, visceral removal surgery.4)Urogenital system: renal failure characterized by elevated BUN, creatinine or uroperitoneum.5)Nervous system: CNS depression, seizures, paralysis of one or more extremities; pain unresponsive to analgesic therapy.6)Musculoskeletal system: muscle damage or fracture resulting in the inability to use the limb, unless anticipated as part of the study.7)Integumentary system: Non-healing wounds, repeated self-trauma or above two-level degree heating pad burns. |
| **腫瘤研究之人道終點****Humane Endpoint in Cancer Research** |
| 腫瘤生成終點評估 Tumorigenesis Endpoint Assessment無論自發性或是實驗接種的腫瘤，均應進行實驗終點評估。當動物身上發現腫瘤，每週應至少檢查兩次腫瘤生長情形，兩次檢查的間隔不可超過四天。只要符合下列任一項情況即需將動物安樂死。Cancer research using animals must include cautiously established humane endpoints to reduce the pain and distress that animals may suffer.Tumor-inoculated rodents must be observed at least twice a week and the interval between the two checks should not exceed four days.Animal inoculated with tumor cells should be euthanized if any of the following conditions are observed. |
| 1 | 單一腫瘤的重量超過動物體重的10％，或是成年小鼠腫瘤平均直徑超過20mm，或是成年大鼠腫瘤平均直徑超過40mm。或腫瘤重量過重 (小鼠腫瘤最大重量為4000 毫克為，大鼠腫瘤最大重量為8000 毫克)。Tumor weight exceed 10% of the animal weightMouse:Tumor average diameter exceed 20 mmTumor weight exceed 4000 mgRat:Tumor average diameter exceed 40 mmTumor weight exceed 8000 mg |
| 2 | 體表腫瘤：腫瘤表面出現潰瘍、壞死或是感染。 觸診腫瘤誘導的疼痛反應 (動物發聲，退縮不動，或縮回等反應)。Body surface tumor: ulceration/necrosis/infection occurs on animalPain response that induced by palpating the tumor |
| 3 | 腹腔腫瘤：腹腔異常擴張、呼吸困難。Abdominal tumor: abnormal expansion of the abdominal cavity and difficulty breathing |
| 4 | 顱內腫瘤：神經症狀。Intracranial tumors: neurological symptoms |
| 5 | 因腫瘤影響吃，喝，或走動的能力。Animal loss the ability to feed/drink/move |
| **★以下二選一，務必擇一勾選。** |
| **★**[ ] **I have read the 「Humane endpoint」and I agree with the above guidelines and will comply with them.** |
| **★**[ ] **I agree with the above guidelines but unable to comply with them for research needs.)**Please provide scientific justification: |
| 8. | Disposition of animals at the end of study: |
| [ ] 復原處置(整個實驗結束後，動物復原處置安養方式說明):(說明): [ ] Transferred to another IACUC approved protocol: (轉讓他人或接受他人轉讓，經本會審核通過後，始得執行) [ ] Recipient signature: (接受人簽章) Department:  Contact no.: IACUC No.: (接受人IACUC No.)Transferred strain:  |
| [ ] \*\*Euthanasia:* Euthanized site:
* 選擇一個項目。 (點選左方擇一，並於以下說明)

Please describe the euthanized methods:(如選擇麻醉劑安樂死方式，請以下說明麻醉劑種類、劑量、投與方式) |
| Animal Species | Anesthetics Type | Dose of Administration  | Route of Administration(iv, ip, im...) |
|  |  |  |  |
|  |  |  |  |
| \*\*動物安樂死建議參考表 |
| Euthanasia Methods | 齧齒動物(<200g) | 齧齒動物、兔(200g~1kg) | 兔(1kg-5kg) | 豬 |
| CO2 | O | O | X | X |
| Barbiturate IV(100mg/kg) | O | O | O | O |
| Barbiturate IP(150mg/kg) | O | O | O | O |
| Exsanguination under deep anesthesia | O | O | O | O |
| KCL injected by IV under deep anesthesia(1-2meq/kg) | O | O | O | O |
| Decapitation under anesthesia | O | O | **△** | X |
| Cervical dislocation under anesthesia | O | O | X | X |
| Cervical dislocation without anesthesia | **△** | X | X | X |
| O : (Recommended methods) X: (Not Recommended methods) **△:** (Must provide scientific justification and be approved by IACUC) |
| [ ] Corpse treatment: [ ]  After euthanasia, wrap the corpse with paper and write the user’s name/department/date on it, and then freeze in Animal Carcass Freezer, and be burned by NCKU LAC staff. [ ]  Other:  |

|  |
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| 1. **Will any infectious/radio-isotope/chemical agent(toxicant/chemotherapy drug/carcinogen)be used in the experiment?**

[ ]  No, skip the table [ ] Yes |
| 1. | [ ] **Infectious biological materials (Please provide the review consent of the NCKU ESH)**1. **Will any infectious biological material be used in the experiment?**

[ ] **Yes** [ ] **No** (If you use RG2 or above level infectious biological materials, please provide the consent.)* [ ] **Pathogenic microorganism (bacteria/virus/fungus/parasite, etc.) and its broth.**
* [ ] **Purified or isolated pathogen components (nucleic acids/Plasmid/protein, etc.) and its secretion (biotoxin).**

**(Name of the infectious biological material: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Risk group: \_\_\_\_\_\_\_\_\_\_\_\_\_.)*** [ ] **Patient’s specimen: \_\_\_\_\_\_\_\_\_\_\_\_** (If you use patient specimen, please provide the consent.)

B. **Will any microbiological plasmid be used to change gene expression in the experiment?**[ ] **Yes** [ ] **No** (If yes, please provide the gene recombinant experiment consent.)C. **Will any microbiological material be generated in the experiment?**[ ] **Yes** [ ] **No** **(Name of the microbiological material: \_\_\_\_\_\_\_\_\_\_\_, Risk group: \_\_\_\_\_\_\_\_\_\_\_\_\_.)** (Please print and upload this page after finishing)* The address no. of the lab that calculates microorganism: 。
* The lab’s BSL level (which be recognized by the NCKU ESH): \_\_\_\_\_\_\_\_\_\_\_
1. The name of the drugs that can alleviate the infection when user be infected by the microorganism: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

★If you use RG2 and above infectious biological materials, please conduct the experiment in BSC, and the infected animals must be housed in ABSL-2 Area. |
| 2. | [ ] **Unsealed radioactive material** Nuclear species/radionuclide activity: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_User’s name/radiation safety certificate no.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_1. After euthanizing, wrap the corpse in paper, write user’s name/department/date, froze in fridge, and be burned by NCKU LAC staff.

Will you agree that after the animals been euthanized, the corpse will be frozen in fridge for more than six half-life, and be collected and burned according to NCKU LAC?[ ] **Yes** [ ] **No**  |
| 3. | [ ] **Hazardous Chemicals**[ ]  The name of the hazardous chemicals: ，please provide its SDS。The type of the hazardous chemicals: [ ] Toxicant, [ ] Chemotherapy, [ ] Carcinogen, [ ] Other: \_\_\_\_\_ (can choose more than one) The dose and frequency of administration: 。The special self-protection method and precautions : 。The half-life of the chemicals in organism: [ ] within 3 days, [ ] within 1 week, [ ] Other:  |
| 4. | [ ] **Toxic chemical substances that are regulated by the TCSB) (Please submit to the NCKU ESH for review)****(名稱為 、列管編號 )。**(填寫完成本項內容後列印並上傳本頁)**(Name 、Listed No. )。**(Please print and upload this page after finishing)1. Toxicity:[ ] Hypertoxicity（LD50 <100 ng/kg to vertebrates）; [ ] Medium toxicity（LD50：100-1000 ng/kg to vertebrates）; [ ] Low toxicity（LD50 >100 g/kg to vertebrates）；[ ] Unknown LD50 to vertebrates。
2. Will you treat the animal corpse according to the LAC instructions? [ ] Yes；[ ] No
 |
|  | **環境保護組**(NCKU ESH) | (簽章)(Signature) |

I certify that the information provided within this application is accurate to the best of my knowledge. I understand that should I use the project described in this application as a basis for a proposal for funding (either intramural or extramural). It is my responsibility to ensure that the description of animal use in the funding proposal be identical in principle to that contained in this application.

When an animal is sick or abnormal, the researcher will be notified and must treat it in 24 hours. Based on the welfare of the animal, if users don’t treat it in 24 hours, it is agreed that the veterinarian can conduct clinical observation and treatment. If an animal needs emergency treatment or emergency treatment, it is agreed that the veterinarian can perform first aid or emergency treatment.

Principal Investigator Signature Date year month day

Division Chair Signature Date year month day

Director of LAC Signature Date year month day

**Appendix 1 (If you need to breed animals, please complete the table.)**

|  |
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|  **Animal Breeding Table** |

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| **一、Please provide a justification for the need for breeding：** |
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| **二、List the species, strains and total number of animals to reproduced in this breeding program.：**1. Total animal number = the number of all parents and offspring of the strain/species.
2. Total offspring number = the offspring number of all genotypes.
3. The offspring number for experiment = the offspring number that will actually be used for experiment.
 |
| **Total animal number:**  (繁殖動物數量加總；品系/品種繁殖動物數量 = 種原數量+預估出生子代數量)(例:基因轉殖鼠”**預估出生**”800隻仔數，種原公/母共40隻，總數為800+40=840隻) |
| **Parents** | **Number** |
| Strain/species/genotype (male)：選擇一個項目。 / 選擇一個項目。 |  |
| Strain/species/genotype (female)：選擇一個項目。 / 選擇一個項目。 |  |
| **Offspring** |
| Expected genotypes: (List genotypes and the birth rate in order) |
| Expected birth rate(%): |
| The gender of offspring will be used in the experiment) (male/female/both: |
| Total offspring number: |
| The offspring number for experiment:  |

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| **三、Animal Breeding Personnel：** |
| 1. [ ]  The NCKU LAC staff。2. [ ]  The lab staff |
| If choose the lab staff, please briefly describe below the name of the animal care personnel and related background and training. |

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| **四、Please describe the criteria of euthanasia for the parents and offspring.：** |
|  |

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| **五、What will be done with the surplus animals?：** |
| [ ] Parents: [ ] Euthanasia [ ] Transfer to other project (same PI) [ ] Transfer to other PI [ ]  Other: [ ] Offspring: [ ] Euthanasia [ ] Transfer to other project (same PI) [ ] Transfer to other PI [ ]  Other:  |

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| **六、Genetic manipulation of animals?** |
| [ ]  No |
| [ ]  Yes： Please finish the following questions：(一)請說明動物是否有任何特殊表現型或先天性異常?[ ]  否No[ ]  是Yes：Please describe： (二)Do the animals need special care?[ ]  No[ ]  Yes：Please describe： (三) Please describe the method and time of sampling for genotyping：The method of sampling and recommended age：[ ]  Ear clipping > 2 weeks old、[ ] Tail clipping between 2~3 weeks old、[ ] Toe clipping < 7 days old (Only if ear clipping and tail clipping can’t be conducted, you can conduct toe clipping. Please describe below.)[ ]  Other\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**附錄二(凡申請動物實驗計畫書，皆須填寫本說明。”科技部計畫”請加填寫附錄三)**

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| **動物實驗人道管理替代、減量及精緻化(3R)說明** |

本研究計畫涉及動物實驗，已考量「替代（Replace）」、「減量（Reduce）」及「精緻化（Refine）」之3R精神，將實驗設計最佳化，並說明如下：

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| **一、3R原則:** |
| [ ]  本實驗計畫已經本人及機構內「實驗動物照護及使用委員會（或小組）」詳 實審查，無其他替代方案。 [ ]  本實驗計畫已經本人及機構內「實驗動物照護及使用委員會（或小組）」詳 實審查，已使用最少數量動物。[ ]  本實驗計畫已經本人及機構內「實驗動物照護及使用委員會（或小組）」詳 實審查，已做到精緻化，或動物福利最佳化。包含：[ ]  已考慮並要求執行動物疼痛評估[ ]  已考慮並要求執行適當減輕動物痛苦方式（如：[ ] 麻醉劑、[ ] 止痛劑、[ ]  設定人道安樂死時機）　[ ]  其他(請說明)：＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿ |

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| **二、教育訓練:** |
| 為促進3R精神之落實，本研究實際負責進行動物實驗之相關人員之教育與訓練經歷：[ ]  實驗動物人道管理 (如有勾選本項，需提出證明文件)[ ]  實驗專業技術訓練 (如有勾選本項，需提出證明文件)[ ]  其他(請說明) ：＿＿＿ (簡述參與過哪些實驗動物課程，如動物中心說明會。) |

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| **三、使用動物來源:** |
| 為確保本研究計畫實驗品質與效益，本實驗之動物來源為：[ ]  AAALAC認證繁殖機構＿＿＿＿＿＿＿＿[ ]  其他繁殖機構＿ ＿(請註明名稱及地址等)[ ]  其他（請說明）\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **四、監督機制:** |
| 為確保實驗品質與效益，本研究計畫相關動物實驗之監督機制為：[x] 「實驗動物照護及使用委員會(或小組)」，隸屬機構層級\_\_校級 \_[x]  召集人職稱\_\_醫學院院長\_\_[x]  已設置專責專職獸醫師，並參與計畫審查及動物照護與管理[x]  計畫審查已包括外部委員 |

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| **五、行政院農業委員會最近一次實地查核本機構「動物科學應用」之評比紀錄：** |
| [ ] 優、[x] 良、[ ] 尚可、[ ] 較差，查核年度： 109 年（請附相關公文書） |

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| --- |
| **六、若行政院農業委員會最近一次實地查核本機構「動物科學應用」之評比為「較差」，建議改善事項之改善情形說明如下**： |
| （請附佐證資料） |

**Appendix 3 (If you apply for MOST project, please fill in the form)**

|  |
| --- |
|  **3Rs Manual** |
| 說明:1. 如申請”**科技部計畫**”，3R說明書請上傳此頁。(**If you apply for MOST project, please upload this page**)
2. 如非科技部計畫，可以不用填寫此頁。(**No need to fill in the form if you won’t apply for MOST project)**
 |

1. Describe your experimental design under the 3Rs spirits and animal welfare/ethics)
2. The main considerations:
	1. Are there any alternatives to animal experiments?: Take other alternatives into consideration, e.g. reduction of animal number, skill practicing, improving experimental environment and procedure, to implement animal welfare.
	2. Had the genetically modified animals been developed before? If the genetically modified animals had been developed, please acquire them from current species stock/gene pool. If it already exists but needs to be re-developed because it is not easy to obtain, you must describe the planning of subsequent maintenance, preservation or sharing to other researches)
	3. The possibility of the research result to become a new alternative for animal experiments

【動物實驗計畫書】

|  |
| --- |
| 申請人自我檢查表 |
| 申請人自我檢查 | 審查項目 | 備註 |
| 選擇一個項目。 | 1. 計畫基本資料
 |  |
| 選擇一個項目。 | 1. 負責進行動物實驗之相關人員資料
 |  |
| 選擇一個項目。 | 1. 實驗動物需求
 |  |
| 選擇一個項目。 | 1. 動物繁殖表(如實驗需求)
 |  |
| 選擇一個項目。 | 1. 動物飼養方式
 |  |
| 選擇一個項目。 | 1. 簡述本研究之目的
 |  |
| 選擇一個項目。 | 1. 說明動物實驗試驗設計、實驗動物需求、動物種別及數量之必要性
 |  |
| 選擇一個項目。 | 1. 填寫每一年度動物需求數量
 |  |
| 選擇一個項目。 | 1. (3R原則)說明實驗物質之投予、採樣方法及其劑量、頻率
 |  |
| 選擇一個項目。 | 1. (3R原則)說明動物之保定、禁食、禁水、限制行動的方法及時間
 |  |
| 選擇一個項目。 | 1. (3R原則)說明麻醉（鎮靜）方法、劑量、投藥、手術方式與麻醉（手術）後的照護
 |  |
| 選擇一個項目。 | 1. (3R原則)說明如何降低動物精神緊迫疼痛之方式
 |  |
| 選擇一個項目。 | 1. (3R原則)說明預期結束實驗之時機與提前結束實驗之時機
 |  |
| 選擇一個項目。 | 1. (3R原則)說明人道安樂死方式
 |  |
| 選擇一個項目。 | 1. 如實驗涉及微生物或放射性實驗需先送本校環安衛核章
 |  |
| 選擇一個項目。 | 1. 如實驗在本校以外房舍地點進行，需填寫相關資訊
 |  |
| 選擇一個項目。 | 1. 不論計畫來源為何，皆需填寫3R說明書(附錄二)
 |  |
| 選擇一個項目。 | 1. 計畫主持人、單位主管與房舍負責人已簽章
 |  |

* 完成上述表單確認後，請將檔案轉成PDF檔寄至ac5662@email.ncku.edu.tw申請。