

## 出國報告審核表

|                                    |  |                       |
|------------------------------------|--|-----------------------|
| 出國報告名稱：參與第 60 屆美國實驗動物協會國際研討會       |  |                       |
| 出國人姓名 (2 人以上，以 1 人為代表)             | 職稱   | 服務單位                  |
| 方美佐                                | 聘五主任   | 國防醫學院動物中心             |
| 出國期間：98 年 11 月 7 日至 98 年 11 月 15 日 |  | 報告繳交日期：98 年 11 月 20 日 |
| 計畫主辦機關審核意見                         | <input type="checkbox"/> 1. 依限繳交出國報告<br><input type="checkbox"/> 2. 格式完整 (本文必須具備「目的」、「過程」、「心得及建議事項」)<br><input type="checkbox"/> 3. <u>無抄襲相關出國報告</u><br><input type="checkbox"/> 4. 內容充實完備<br><input type="checkbox"/> 5. 建議具參考價值<br><input type="checkbox"/> 6. 送本機關參考或研辦<br><input type="checkbox"/> 7. 送上級機關參考<br><input type="checkbox"/> 8. 退回補正，原因： <input type="checkbox"/> 不符原核定出國計畫 <input type="checkbox"/> 以外文撰寫或僅以所蒐集外文資料為內容 <input type="checkbox"/> 內容空洞簡略或未涵蓋規定要項 <input type="checkbox"/> <u>抄襲相關出國報告之全部或部分內容</u> <input type="checkbox"/> 電子檔案未依格式辦理 <input type="checkbox"/> 未於資訊網登錄提要資料及傳送出國報告電子檔<br><input type="checkbox"/> 9. 本報告除上傳至出國報告資訊網外，將採行之公開發表：<br><input type="checkbox"/> 辦理本機關出國報告座談會 (說明會)，與同仁進行知識分享。<br><input type="checkbox"/> 於本機關業務會報提出報告<br><input type="checkbox"/> 其他 _____<br><input type="checkbox"/> 10. 其他處理意見及方式： |                       |
| 審核人                                | <u>一級單位主管</u>  | <u>機關首長或其授權人員</u>     |

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出國報告（出國類別：參加學術會議）

參與

第 60 屆美國實驗動物協會國際研討會

服務機關：國防醫學院動物中心

姓名職稱：聘五主任方美佐

派赴國家：美國

出國期間：自98年11月7日至98年11月15日

報告日期：98年11月20日

# 摘 要

美國實驗動物協會為全世界規模最大的實驗動物協會，在美國本土共分 8 大區域，現在已有 30 個分會，自 1950 年起均於每年秋天舉辦國際會議，今年為第 60 屆，年會之教育課程內容主要可分為四大主題，分別為：(1) Animal Welfare, Regulatory Compliance, and Public Education. (2) Biomedical Research, Medicine, and Methodology. (3) Facility Design, Management, and Operation. (4) 每年均選定一個特別的主題，今年為 Diabetes Forum。

今年共約有 4700 人參與國際會議之研討，參加者包括學術研究人員、動物設施管理者、獸醫師、實驗動物技術人員、實驗動物照護人員、動物保護人士…等，同時全世界包括歐、美、亞洲重要的實驗動物相關廠商及組織約有 300 家參與此次盛會，藉此呈現當前最現代化的產品及設計概念。透過短短幾天的會議期間，就可以密集的瞭解當前世界上實驗動物飼養管理及動物實驗設備最新的發展趨勢，更可藉此拓展國內動物中心未來發展與努力的方向。

# 目 次

|                              | 頁 碼 |
|------------------------------|-----|
| 摘要.....                      | 1   |
| 目次.....                      | 2   |
| 壹、參加目的.....                  | 3   |
| 貳、會議過程.....                  | 3   |
| 參、心得與建議.....                 | 5   |
| 肆、附件資料                       |     |
| 一、Charles River免疫缺陷動物模式..... | 7   |
| 二、AALAS技術人員分級考試簡章.....       | 11  |
| 三、會議日程表.....                 | 17  |

## 壹、參加目的

美國實驗動物協會（American Association for Laboratory Animal Science，簡稱 AALAS）在美國本土共分 8 大區域，現在已有 30 個分會，約有 5000 位會員，為全世界規模最大的實驗動物協會，每年的國際會議內容非常豐富，幾乎包括整個實驗動物發展趨勢，主要有動物福祉、動物設施經營管理、新興疾病診斷、病理學、轉譯醫學、動物行為學、動物照養、實驗及管理器材改良…等諸多議題，今年更規劃了一系列與糖尿病研究議題相關的動物模式、飼養管理、臨床照顧及人道議題的探討。

除了專業的探討外，在此會議中亦可接觸全世界實驗動物界的菁英，增加學術交流的機會，同時歐、美、亞洲重要的實驗動物相關廠商皆會參與此次盛會，藉此呈現當前最現代化的產品及設計概念，在短短幾天的時間就可以瞭解實驗動物飼養管理及動物實驗設備的趨勢；因此，參加每年的 AALAS 國際會議已成為全世界實驗動物界的大事。

自從本學院於 2007 年獲得「AAALAC 國際認證」殊榮之後，成為國內各界參訪及取經的重點單位，然有感於現今實驗動物領域浩瀚，國際發展趨勢日新月異，為維持及更精進現有獲得「國際認證」之成果，也為『我國生物資源建置計畫』順利執行，故申請參加此一會議，以拓展對國內實驗動物領域更廣闊的視野及規劃方向。

## 貳、會議過程

一、本次年會之教育課程內容主要可分為四大主題，分別為：

1. Animal Welfare, Regulatory Compliance, and Public Education .
2. Biomedical Research, Medicine, and Methodology .
3. Facility Design, Management, and Operation.
4. Diabetes Forum.

二、教育課程分別以七種不同型態呈現，同時在丹佛會議中心內 10 多個不同場地進行：

1. 技術呈現 (Technical Trade Presentations): 每場 15 分鐘, 由廠商贊助, 邀請知名研究人員分享最新技術及產品資訊, 通常在報到當天下午就開始, 今年共有 9 個主題, 主要與動物設施之設計有關。
2. 研討會 (Seminar): 共 30 場, 每場約 3 小時, 由一人主持, 針對一個主題, 由 4-5 位講員從不同角度來演講, 每位講員約 30-50 分鐘。比如第二天(11/9) 上午第二場的主題為 **Dietary Manipulation in Nonhuman Primates: Modeling the Intersection of Diet and Disease**, 由 **New England Primate Research Center** 提供部分贊助, 邀請 4 位講員分別講 *Contribution of an Atherogenic Diet to Infectious Disease Morbidity in a Rhesus Macaque Model*, *The Role of Dietary Isoflavones on Body Weight and Insulin Metabolism in Cynomolgus Monkeys: Implications Regarding Standard Use of Monkey Chow*, *Manipulating Nutrition to Model Vulnerability to Human Disease in the Vervet Monkey*, *Dietary Restriction in Rhesus Macaques and Prevention of Disease* 等四個子題。
3. 專題演講 (Special Topic Lectures): 通常為一小時, 針對一個主題, 由一人演講, 本次年會共有 17 場 Special Topic Lectures。比如 11/9 專題演講之一即為由丹佛動物園資深獸醫師講述 *Operant Conditioning of Exotic Animals for Veterinary Procedures*, 內容非常生動精彩。
4. 工作坊 (Workshops): 主要針對某實用議題或技術做深入的探討。有的為討論性質, 有的則為可動手的實習課程。本年會共有 29 個 Workshops 主題, 分為 37 場次進行。每場時間為 4 小時, 有時上午 7 點就開始, 不過要另外報名計費, 每場加收 130 美元, 算是昂貴的研習課程。
5. 論壇 (Platform Sessions): 時間約 3 小時, 針對一個主題, 有一位 moderator, 但演講者較多, 通常有 10 位演講者, 故每人只有 15 分鐘。本次年會有 10 場 Platform Sessions, 共發表了 99 個科學議題 (Scientific Presentation)。
6. 討論會 (Discussions): 在中午 13:30~2:00 舉行, 約一個半小時, 主要為雙向的討論性質, 有一位主持人及多位受邀專業人員, 針對一主題進行討論, 比如 *Post Approval Monitoring: Different Methods of Achieving the*

7. 海報展示 (Poster Sessions): 全由文字及圖案來表達，在特定時段會有作者或代表出現在現場講解。本次共有 251 篇 posters 展示，包括臨床 56 篇、糖尿病研究 11 篇、動物飼養管理主題 98 篇及基礎研究 86 篇。

## 參、心得與建議

本次會議主題是糖尿病動物模式之探討，不止探討研究方面的議題與技術層面，模式動物種類更由國內常用的 NOD、NOD-SCID、DB、OB 小鼠延伸至非人靈長類動物，更發展出自發性糖尿病的實驗猴繁殖族群，也因此引發了飲食管理、動物福祉及人道觀點的探討，與要求獸醫醫療及日常照顧方面的精進，更可做為我們在照顧各種疾病動物模式時的借鏡。

另一方面，更因電腦科技的進步，今年會議也安排了人機工程學方面的應用介紹，包括自動化倒除飼育盒內廢棄物、上機清洗及收取飼育盒、裝填墊料等一連串自動化的設計及應用，還有 RFIP 晶片標示結合電腦管理系統，雖然費用高昂，但可節省人力、減少職業傷害與有效管理動物族群，可作為未來國內新建立大規模動物設施時的參考。

另外，國際知名嚙齒類動物繁殖單位 Charles River，也發表了新培育的嚴重免疫缺陷無毛小鼠模式 (Novel SCID Hairless Outbred (SHO) Xenograft Model)，資料如附件一，我們也將把相關資料放在國防醫學院動物中心網頁上，供國內研究人員參考。

今年是 AALAS 舉辦的 60 週年大會，也是英國學者 Russel 及 Burch 自 1959 年提出 3R (Replacement、Reduction、Refinement) 概念後 50 週年，由於 Replacement 與 Reduction 已被大家討論多年，很多科學性的資訊也較充足成熟，而 Refinement 則著重在精進動物實驗操作技術、減少動物緊迫、飼養環境豐富化及增加人與動物之間的互動，是今年大會的主題之一；有一場由丹佛動物園資深獸醫師演講的操作適應 (Operant conditioning)，在臺灣多稱做醫療訓練，更令人大開眼界，這一場也是今年最受歡迎的一場內容，約有 900 人聆聽，不止可應用在較馴化的動物，甚至連獅子、老虎、獵豹...等兇猛動物，經過適當的訓練後也可藉由動物照

顧人員在旁邊對動物發出的指令與安撫，使獸醫不需麻醉動物即可進行抽血、檢查口腔、牙齒、腹部觸診、超音波，甚至消毒傷口、換藥等程序，大大減少動物的緊迫，進而提升動物福祉；令我感到欣慰的是，在國防醫學院動物中心，也早已注意到對狗、豬、猴等動物的照顧與環境豐富化措施，近年也極力推廣醫療訓練概念，更於今年國科會補助的『我國生物資源建置計畫-中大型動物技術服務平台』所舉辦的研討會中，已將此一概念與實做技巧傳達給參與學員，希望藉此提昇國內研究人員對 **Refinement** 的實踐力；只可惜我們常常因為缺乏研究人力，而沒有進一步探討比較動物經過我們的 **enrichment** 之後，一些生理上的科學數據改變，而沒有進一步的文章發表。

於參加會議期間，發覺美國實驗動物領域中，各階層之人才眾多，彼此合作密切並互有專精，各階層人員證照制度亦已建立完備，分為ALAT(Assistant Laboratory Animal Technician)、LAT(Laboratory Animal Technician)、LATG(Laboratory Animal Technologist)，AALAS也出版一系列參考書籍及資料供應試者參考準備，各階層考試均以英文進行，所有應試者需先通過電腦初試合格後，才可參加筆試；全國共有250個電腦中心可提供初試機會，但一年只有一次筆試，且均安排在AALAS年會之前舉行。美國較具規模的動物設施均會要求從業人員具備相關證照，而每年也有不少非美國人申請參加考試，以證明自己所具備的資格。而國內因法規並沒有強制規定實驗動物從業人員所需具備的資歷，故現今還未有相關證照制度，今年中華實驗動物學會已規劃於未來幾年推動國內實驗動物人才分級與證照制度，希望可以藉此強化我國實驗動物設施之營運管理水準。AALAS技術人員分級考試簡章如附件二，可供我國規劃相關證照制度時參考。

## 肆、附件資料

- 一、Charles River免疫缺陷動物模式 (Nude and SCID)
- 二、AALAS技術人員分級考試簡章
- 三、會議日程表



## 附件一、Charles River免疫缺陷動物模式 (Nude and SCID)



# Immunodeficient Animal Models

## Nude and SCID

The breeding and maintenance of immunodeficient models in isolator colonies is a highly specialized and extremely important task. Health monitoring needs to be stringent, consistent and thorough because of the high susceptibility to infection that these models possess. Health monitoring test results are available on our website and are included with the delivered crates.

When working with immunodeficient models from Charles River, you can be assured that:

- Animals are produced in semi-rigid and flexible film isolators of varying sizes; currently, more than 1,000 isolators are maintained throughout North America.
- Temperature and humidity are tightly controlled with 24-hour monitoring and backup.
- Feed and bedding are received in vacuum-packed, gamma-irradiated packages.
- Sterilized water is supplied in special one-gallon bags.
- Packages/items are sterilized with CLIDOX® prior to introduction into the isolators.

Our customers can rest assured that Charles River immunodeficient research models are produced under the highest quality production processes possible, from conception to delivery. Animals are packed prior to shipping in custom-designed, biosecure crates (Gnoto-safe™).

In addition to offering these high-quality immunodeficient models, Charles River can also help you effectively utilize them. Our Discovery and Imaging Services and Preclinical Services groups have extensive experience employing these models in support of our clients' research and drug development programs and can custom-tailor their services to meet your needs. For more information, please contact our Technical Services department at 1-800-338-9680.

### Overview

Immunodeficient research models are extremely useful in a wide range of biomedical research, including infectious disease, immunology and oncology studies. Due to the unique vulnerability that makes these models vital to research, their care and maintenance demands a high level of expertise and technological resources.

At Charles River, we utilize our decades of research model experience, our high level of scientific and technological expertise and our state-of-the-art facilities to ensure that only the highest quality immunodeficient research models are produced for our clients.



## Nude Models

### CD-1® Nude Mouse

**Strain Code:** 086 (homozygous), 087 (heterozygous) **Nomenclature:** Crl:CD-1-Foxn1<sup>nu</sup>  
**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Developed from the transfer of the nude gene to a CD-1® mouse through a series of crosses and backcrosses, beginning in 1979 at Charles River. **Characteristics:** Outbred; albino background; hairless; lacks a thymus; unable to produce T-cells, therefore immunodeficient. Heterozygotes are immune-competent and have hair. There is variation in the amount of hair found on the homozygous nude.

### NU/NU Mouse

**Strain Code:** 088 (homozygous), 089 (heterozygous) **Nomenclature:** Crl:NU-Foxn1<sup>nu</sup>  
**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Originated from NIH and was initially thought to be a BALB/c congenic. Later determined that it was not inbred. Maintained as an outbred and not associated with any stock or strain. **Characteristics:** Outbred; albino background; hairless; lacks a thymus; unable to produce T-cells, therefore immunodeficient. Heterozygotes are immune-competent and have hair. There is variation in the amount of hair found on the homozygous nude.

### BALB/c Nude Mouse

**Strain Code:** 194 (homozygous), 195 (heterozygous) **Nomenclature:** CAnN.Cg-Foxn1<sup>nu</sup>/Crl  
**Therapeutic Area:** Immunology, Oncology Transplantation **Origin:** Developed through crosses and backcrosses between BALB/cABom-nu and BALB/cAnNCrj-nu at Charles River Japan. Pedigreed pregnant females of CAnN.Cg-Foxn1<sup>nu</sup>/Crl were received from Charles River Japan in 1985 and rederived. **Characteristics:** Congenic/inbred; albino background; hairless; lacks a thymus; unable to produce T-cells, therefore immunodeficient. Heterozygotes are immune-competent and have hair. There is variation in the amount of hair found on the homozygous nude.

### NIH-III Mouse

**Strain Code:** 201 (homozygous), 202 (heterozygous) **Nomenclature:** Crl:NIH-Lyst<sup>bg</sup> Foxn1<sup>nu</sup> Btk<sup>xid</sup>  
**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Most commonly called the NIH-III, model was developed at NIH. In addition to the T-cell deficiency, this model has two other mutations important in regulating the function of the immune system. A natural killer cell mutation, referred to as beige (bg), renders NK cells impaired in the model. The x-linked immune defect (xid) affects the maturation of T-independent B lymphocytes. However, the extent of the T-independent B lymphocyte and NK cell deficiencies in the NIH-III has not been fully established. **Characteristics:** Outbred; light to dark gray pigmented skin; lacks a thymus; triple deficient (T-cell deficient, NK and B-cell impairment). Heterozygotes are immune-competent and have hair. There is variation in the amount of hair found on the homozygous nude.

### RNU Nude Rat

**Strain Code:** 316 (homozygous), 118 (heterozygous) **Nomenclature:** Crl:NIH-Foxn1<sup>nu</sup>  
**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Developed beginning in 1979 through a series of matings in which the Rowett nude gene was added and backcrossed into eight inbred rat strains. To Charles River from the NIH Animal Genetic Resources and caesarean rederived in 2001. **Characteristics:** Outbred; coat color - white, black, black & white. This athymic, which is T-cell deficient, model shows depleted cell populations in thymus-dependent areas of peripheral lymphoid organs. Heterozygotes are immune-competent and have hair. There is variation in the amount of hair found on the homozygous nude.





## SCID (Severe Combined Immunodeficiency) Models

### SCID Hairless Outbred (SHO™) Mouse

Strain Code: 474 Nomenclature: Crl:SHO-Prkdc<sup>scid</sup> Hr<sup>hr</sup>

**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Produced by Charles River Research Models in 2007 by inter-crossing the Crl:HA-Prkdc<sup>scid</sup> and Crl:SKH1-Hr<sup>hr</sup> stocks, resulting in a double-homozygous model exhibiting the SCID and hairless phenotype.

**Characteristics:** Outbred; albino background; hairless. Severe combined immunodeficiency (autosomal recessive mutation) affects both B and T lymphocytes. Normal natural killer (NK) cells, macrophages and granulocytes.



### SCID Hairless Congenic (SHC™) Mouse

Strain Code: 488 Nomenclature: CB17.SKH-Prkdc<sup>scid</sup> Hr<sup>hr</sup>/Crl

**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Produced by Charles River Research Models in 2008-2009 by intercrossing the two mutations and applying marker-assisted accelerated backcrossing (MAX-BAX®) for five generations to ensure that the background is fully defined. **Characteristics:** Congenic/inbred; albino background; hairless; double homozygote. The SCID mutation (Prkdc<sup>scid</sup>) affects both B and T lymphocyte development. Normal natural killer (NK) cells, macrophages and granulocytes.

### Fox Chase SCID® Congenic Mouse

Strain Code: 236 Nomenclature: CB17/lcr-Prkdc<sup>scid</sup>/lcrIcoCrl

**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Developed in 1980 by Bosma and associates in BALB/c-Igh<sup>b</sup> (C.B-17/lcr) mice at Fox Chase Cancer Center in Philadelphia, PA. To Charles River in 1991 from an Iffa Credo foundation colony. SCID mice possess a genetic autosomal recessive mutation (scid) that has been mapped to the centromeric end of chromosome 16. **Characteristics:** Congenic/inbred; albino background. The SCID mutation (Prkdc<sup>scid</sup>) affects both B and T lymphocyte development. Normal natural killer (NK) cells, macrophages and granulocytes.

### Fox Chase SCID® Beige Mouse

Strain Code: 250 Nomenclature: CB17.Cg-Prkdc<sup>scid</sup> Lys<sup>tg</sup>/Crl

**Therapeutic Area:** Immunology, Oncology, Transplantation **Origin:** Developed by Croy, *et al.*, at the University of Guelph by an intercross of C.B-17 SCID/SCID to C57BL/6 bg/bg mice. To Charles River in 1993. **Characteristics:** Congenic/inbred; albino background. A congenic mouse that possesses both of the genetic autosomal recessive mutations: SCID (Prkdc<sup>scid</sup>) and beige (Lys<sup>tg</sup>). The SCID mutation affects both B and T lymphocyte development. The beige mutation results in impaired natural killer (NK) cells.

### NOD SCID Mouse

Strain Code: 394 Nomenclature: NOD.CB17-Prkdc<sup>scid</sup>/NcrCrl

**Therapeutic Areas:** Immunology, Oncology, Transplantation **Origin:** SCID mutation (Prkdc<sup>scid</sup>) was transferred onto a non-obese diabetic (NOD) background. To Charles River in 2005 from the Frederick Cancer Research and Development Center. **Characteristics:** Inbred; albino background. Animals homozygous for the SCID mutation on the NOD background have impaired T- and B-cell lymphocyte function and lack NK function and the ability to stimulate complement activity. This model does not develop Type 1 diabetes.



## Charles River Immunodeficient Models

| Strain       | Hair | T-Cells | B-Cells | NK Cells | Complement |
|--------------|------|---------|---------|----------|------------|
| CD-1® Nude   | No   | No      | Yes     | Yes      | Yes        |
| NU/NU        | No   | No      | Yes     | Yes      | Yes        |
| BALB/c Nude  | No   | No      | Yes     | Yes      | Yes        |
| NIH III Nude | No   | No      | No      | Impaired | Yes        |
| RNU Nude Rat | No   | No      | Yes     | Yes      | Yes        |
| SHO™         | No   | No      | No      | Yes      | Yes        |
| SHC™         | No   | No      | No      | Yes      | Yes        |
| CB17 SCID®   | Yes  | No      | No      | Yes      | Yes        |
| SCID® Beige  | Yes  | No      | No      | Impaired | Yes        |
| NOD SCID     | Yes  | No      | No      | Impaired | No         |



**For more information, please contact our  
Technical Services department at 1-800-338-9680.**

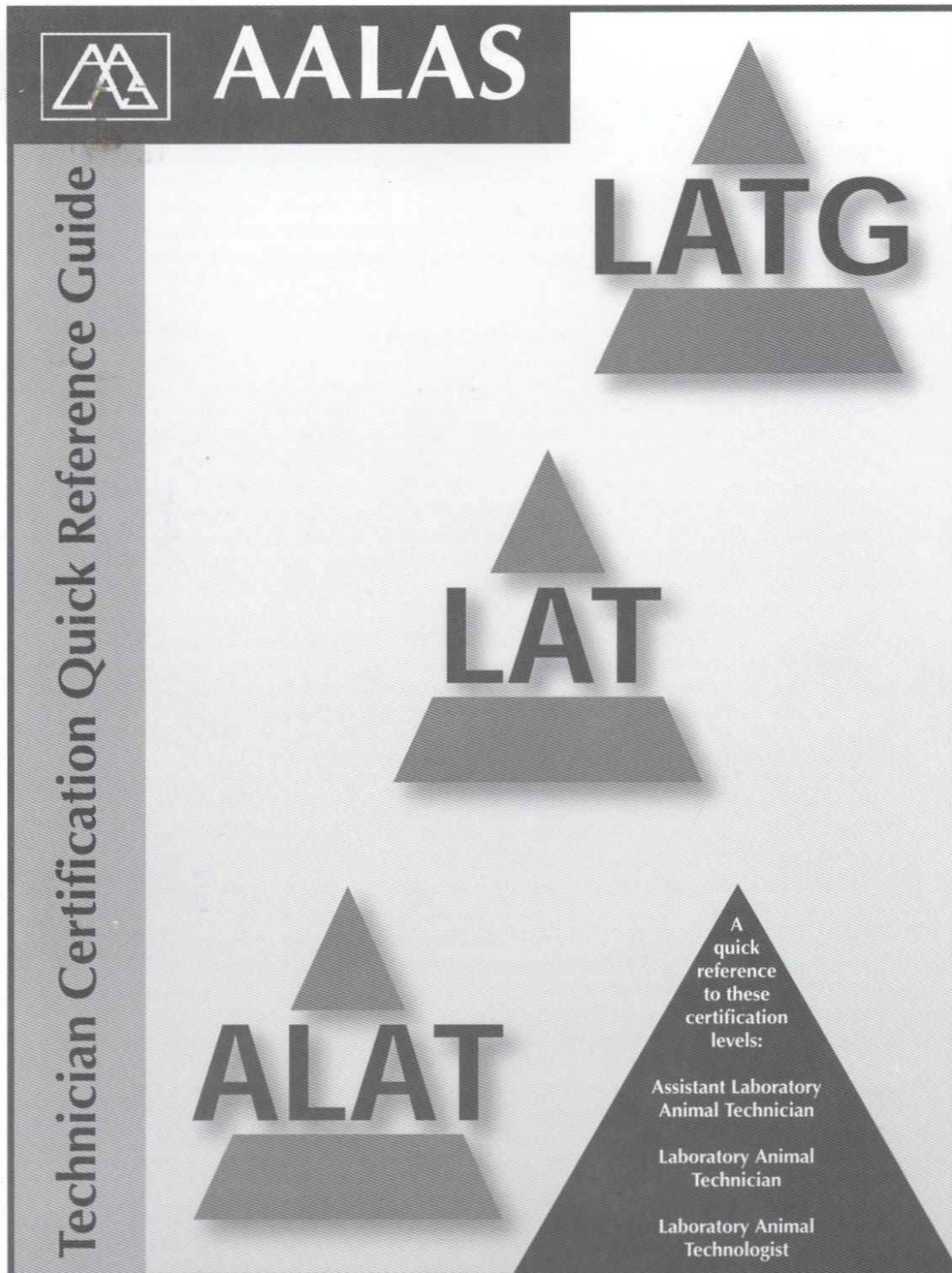
 **charles river** | research models  
and services

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### Contact Us

Tel: +1 (877) CRIVER-1 • +1-877-274-8371  
International: +800-3195-3430 • +1-781-222-7100  
Email: askcharlesriver@crl.com

[www.criver.com](http://www.criver.com)





## AALAS Technician Certification Reference Lists

### ALAT Resource Materials

- \*AALAS ALAT Manual, 98-1. American Association for Laboratory Animal Science, Cordova, TN. 1998
- Animal Welfare Regulations. Code of Federal Regulations, Title 9, Subchapter A, Parts 1-3 (9CFR 1-3): Part 1 | Part 2 | Part 3
- Guide for the Care and Use of Laboratory Animals. National Research Council. Institute for Laboratory Animal Resources. National Academy Press, Washington, D.C. 1996. ISBN 0-3090-5377-3.

*\*New version of the ALAT Manual will be available by Spring 2009.*

### LAT Resource Materials

- AALAS LAT Manual, 00-2. American Association for Laboratory Animal Science. 2000
- Public Health Service Policy on Humane Care and Use of Laboratory Animals. Public Health Service, U.S. Department of Health and Human Services. Bethesda, MD. 2002. (NIH/html)
- Good Laboratory Practices for Nonclinical Laboratory Studies, 21 CFR, Food and Drugs, Chapter I, Food and Drug Administration, Department of Health and Human Services, Subchapter A – General, Part 58; Code of Federal Regulations EPA 40 CFR, Protection of Environment, Chapter I, Environmental Protection Agency Subchapter R – Toxic Substances Control Act, Part 792 and 40 CFR, Protection of Environment, Chapter I, Environmental Protection Agency – Subchapter E – Pesticide Programs, Part 160
- AVMA Guidelines on Euthanasia. Journal of the American Veterinary Medical Association. 202:229-249,2007. (AVMA/html)
- Clinical Laboratory Animal Medicine: An Introduction. Hrapkiewicz, K, Medina, L, Holmes, DD. Iowa State University Press, Ames, IA. 3rd ed. 2007. ISBN 0-8138-2966-6

*Note: The LAT level list includes materials found on both the ALAT and LAT reference lists.*

### LATG Resource Materials

- AALAS LATG Manual, 07-3. American Association for Laboratory Animal Science. 2007
- Biosafety in Microbiological and Biomedical Laboratories. DHHS Publication No. (CDC) 93-8395. U.S. Dept. of Health and Human Services, Washington, DC. 5th ed. 2007.
- Occupational Health and Safety in the Care and Use of Research Animals. National Research Council, Institute for Laboratory Animal Resources. National Academy Press, Washington, DC, 1997. ISBN 0-3090-5299-8. (NAP/image)
- Cost Analysis and Rate Setting Manual for Animal Research Facilities. National Center for Research Resources, National Institutes of Health. NIH Publication No. 00-2006. 2000. (NIH/PDF)

*Note: The LATG level list includes materials found on the ALAT, LAT and LATG lists.*

**NOTE**

This booklet is intended as a reference guide only. Please refer to the *Technician Certification Handbook*, available from [www.aalas.org](http://www.aalas.org), for complete information on the Technician Certification program.

**About the Examination****Exam Format**

All three examination levels consist of multiple-choice questions with a single correct answer and three incorrect answers (distracters). The number of questions and time limit of each exam depends on the exam level. Prior to each computer-based exam, you will have the opportunity to complete a computer tutorial. Upon completing the exam, you will be asked to complete a brief exit evaluation.

AALAS certification examinations are available *in English only* through computer-based testing at more than 250 Prometric Testing Centers nationwide. A pencil-and-paper exam is offered at the AALAS National Meeting and at other venues by special arrangement for groups of candidates.

|      | Number of Questions | Time Limit |
|------|---------------------|------------|
| ALAT | 120                 | 2 hrs.     |
| LAT  | 155                 | 2.5 hrs.   |
| LATG | 180                 | 3 hrs.     |

**Exam Content**

The blueprint for the examinations is based on the results of a job analysis study conducted on behalf of the CRB. This study is used to develop the Exam Content Outlines (ECOs). The ECOs list the knowledge, skills, and abilities an AALAS-certified technician is expected to have at each level of certification. The ECOs are divided into two performance domains, or principal areas, of work related responsibility: (1) Animal Husbandry, Health, and Welfare and (2) Facility Management. The percentages from each domain that will appear on the examination are:

| Exam Level                            | ALAT     | LAT      | LATG  |
|---------------------------------------|----------|----------|-------|
| Animal Husbandry, Health, and Welfare | (62–98%) | (65–91%) | (50%) |
| Facility Management                   | (8–34%)  | (9–35%)  | (50%) |

*A detailed content outline is available in the certification section of the AALAS website.*

Stats for 2007 showed that 82% of candidates taking the ALAT exam passed the first time, while 79% of LAT and 76% of LATG candidates passed the exams on the first try.

**Qualifications for Technician Certification Examinations**

You may take any one of the exams when you are eligible. You must include with your application all the necessary documentation that proves your eligibility for the exam you want.

**Eligibility Requirements**

The table on the next page specifies the combinations of minimum education and work experience requirements for each certification exam.

**NOTE:** Be sure you are prepared to take your exam before beginning the application process. The 90 days for exam authorization is not long enough to prepare for an exam at any level.

For complete information on the Technician Certification program see the *Technician Certification Handbook*, available from [www.aalas.org](http://www.aalas.org). Processing time for applications is approximately 4 to 6 weeks.

|           |   |
|-----------|---|
| ALAT Exam | <input type="checkbox"/> No high school diploma or GED plus 2 years of work experience  |
|           | <input type="checkbox"/> HS diploma or GED plus 1 year of work experience   |
|           | <input type="checkbox"/> Any college degree of 2 or more years duration plus 0.5 years of work experience   |
| LAT Exam  | <input type="checkbox"/> HS diploma or GED plus 3 years of work experience  |
|           | <input type="checkbox"/> Any AA/AS degree plus 2 years of work experience   |
|           | <input type="checkbox"/> Any BA/BS or higher degree plus 1 year of work experience  |
|           | <input type="checkbox"/> ALAT certification plus HS diploma, GED, or college degree plus 0.5 year of work experience <i>after receiving ALAT certification</i>  |
| LATG Exam | <input type="checkbox"/> ALAT certification without HS diploma/GED or any college degree plus 2 years work experience <i>after receiving ALAT certification</i> |
|           | <input type="checkbox"/> HS diploma or GED plus 5 years of work experience  |
|           | <input type="checkbox"/> Any AA/AS degree plus 4 years of work experience   |
|           | <input type="checkbox"/> Any BA/BS or higher degree plus 3 years of work experience   |
|           | <input type="checkbox"/> LAT certification plus HS diploma/GED or college degree plus 0.5 year of work experience <i>after receiving LAT certification</i>      |

### Documentation

1. Documentation must be provided for all diplomas/degrees.
2. Acceptable documentation includes a photocopy/fax of diploma, a copy of school transcripts or an official letter from the educational institution that states a graduation date and level of degree. *Until the proper documentation and fees are received, your application will not be processed.*
3. All diplomas/degrees not in English must be translated into English and notarized.
4. Non-U.S. diplomas/degrees will be evaluated for equivalency and may be referred to the CRB.

### Work Experience Criteria

Work experience must be directly related to the maintenance of the health and well-being of laboratory animals and must also be gained in a "laboratory animal facility" as defined by the AALAS Board of Trustees and the CRB. Examples of acceptable work experience include the procurement, care, use, handling, and/or treatment of laboratory animals, surgical or necropsy activities, cage wash operations, clinical pathology laboratory duties, quality assurance and IACUC functions that relate to laboratory animal science, or the direct supervision or training of personnel engaged in these same activities. Experience gained as part of an externship, internship, preceptorship, and fellowship in a "laboratory animal facility" will be counted hour for hour against experience requirements. However, experience gained as a volunteer or as a student in a classroom or laboratory course setting does not count as work experience.

Work experience in a "laboratory animal facility" that does not directly affect the health and well-being of laboratory animals will not be counted. Examples include (but are not limited to) accounting functions, driving delivery vehicles, selling equipment, performing maintenance, and fabricating cages. Veterinary clinics, zoos, pet stores, or other similar businesses or organizations do not meet the definition of a "laboratory animal facility." However, the CRB recognizes that experience gained with animals outside a laboratory setting has value. The CRB allows for experience in non-laboratory animal environment (up to 3 years) to be applied to the required work experience using the following equation: **0.5 years in a non-lab animal environment = 1 month of lab animal experience**

A work year is 1,950 hours regardless of how many facilities a person has worked in. You may combine work experience from more than one facility to meet the experience requirements for your desired level of certification. Verifiable overtime or work weeks in excess of 40 hours per week may allow you to complete a work year in less than 12 months.

For complete information on the Technician Certification program see the *Technician Certification Handbook*, available from [www.aalas.org](http://www.aalas.org). Processing time for applications is approximately 4 to 6 weeks.



Sick leave and vacation times are earned hours and, as such, may be counted. Extended leave of greater than one month should be deducted when calculating hours worked.

Work experience must be verified on your AALAS Technician Certification Application Form by the supervisor(s) in charge where the work was performed.

### Definition of a "Laboratory Animal Facility"

All work experience must be gained in a "laboratory animal facility." The CRB defines a laboratory animal facility as any institution or organization that:

- Uses or supplies live animals for research, testing or for educational purposes; or
- Produces, purchases, or transports live laboratory animals in commerce; or
- Receives funds under a grant, award, loan, or contract from private industry, benevolent organizations, or from a department, agency or instrumentality of the United States for the purpose of carrying out research, tests, or education.

Status as a "laboratory animal facility" will be determined by the CRB in accordance with this definition. Verification of any of the following will automatically be considered as proof of meeting this definition:

- Registration as a "Research Facility" or license as a dealer by the USDA; or
- Standing as a State or Federal Agency that files annual reports for the use of laboratory animals with the USDA; or
- Accreditation with the Association for Assessment and Accreditation of Laboratory Animal Care, International (AAALAC); or
- Assurance number on file with the National Institutes of Health (NIH), Office of Laboratory Animal Welfare (OLAW).

### Preparing for Your Examination

To prepare for your exam, you should have the following resources:

1. AALAS Technician Certification Handbook
2. AALAS Technician Training Manuals (printed or online on the AALAS Learning Library).
3. AALAS Certification Resource Kits.
4. AALAS Exam Content Outlines (ECOs).
5. AALAS Training Manual Workbooks or online courses/exams on the AALAS Learning Library.

In addition, AALAS offers many resources that may aid you in your exam preparations: training manuals, workbooks, interactive software, and web-based courses. The exam questions are derived directly from the training manuals and Resource Kits. You will need to choose a study method that best suits your work, your family schedule, and your preferred learning style. You may prefer to study with a group of co-workers, by yourself, or a combination of the two. A brief description and ordering instructions on all study aids provided by AALAS are in the AALAS Bookstore Catalog, which can be accessed by clicking the Bookstore link on the AALAS web site (<http://www.aalas.org>) or by contacting the AALAS office (901-754-8620). For more details on the Exam Content Outline and the Certification Reference List please see the *Technician Certification Handbook*, which is available to download on the AALAS web site (<http://www.aalas.org>).

### Requests for Exceptions and the Appeals Process

1. Requests for exceptions to any of the policies stated in the Technician Certification Handbook or any other certification-related appeals should be made in writing and addressed to the Chair of the Certification and Registry Board (CRB) in care of the AALAS national office.
2. No one other than the candidate may make such requests.
3. The CRB Chair will respond in writing within 60 days of the AALAS office receiving the appeal.
4. If not satisfied with the decision of the CRB Chair, the candidate may request further review by the full CRB committee.
5. The CRB's decisions may be appealed to the AALAS President and Board of Trustees.

For complete information on the Technician Certification program see the *Technician Certification Handbook*, available from [www.aalas.org](http://www.aalas.org). Processing time for applications is approximately 4 to 6 weeks.

## Fees

### Exam Fees:

Assistant Laboratory Animal Technician \$155  
Laboratory Animal Technician \$205  
Laboratory Animal Technologist \$255

### Additional fees:

Processing fee (nonmembers only) \$75  
Extension fee \$75  
Change of Exam Format fee \$75

## Refund Policy

AALAS will retain a processing fee (\$25 for AALAS members and \$75 for nonmembers) on all refunds issued for certification applications and refund the balance. No exceptions will be made.

### Exam Fee Reimbursement for Veterans

Under the GI Bill, veterans are entitled to reimbursement for licensing and certification tests. AALAS' Technician Certification Program is an approved program by the Veteran's Administration. For more information, download the brochure at [http://www.gibill.va.gov/pamphlets/LC\\_brochure.pdf](http://www.gibill.va.gov/pamphlets/LC_brochure.pdf) or call (888) 442-4551.

### Candidates with Disabilities

A candidate who has a documented visual, physical, hearing, or learning disability that would prevent him or her from taking an examination under standard conditions may request special testing accommodations and arrangements.

There is a section on the AALAS Technician Certification Application Form to indicate a request for special accommodations. AALAS requires written documentation of the candidate's disability from a qualified medical professional or certified counselor. This written documentation must accompany the application form when submitted to AALAS. There is no extra charge for making these arrangements.

In considering a request from an applicant for special accommodations, AALAS is guided by the Americans with Disabilities Act (ADA). Special accommodations are granted to give an approved candidate the opportunity to be examined in an equivalent manner with other candidates, but not to provide an advantage over other candidates.

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For complete information on the Technician Certification program see the *Technician Certification Handbook*, available from [www.aalas.org](http://www.aalas.org). Processing time for applications is approximately 4 to 6 weeks.



**Top Level – Sunday Nov 08, 2009**

1:00 PM-1:20 PM  
109 **A Review of Enrichment Strategies When Considering Primate Behavior**  
Sponsored by: Bio-Serv.

1:20 PM-1:40 PM  
109 **Prevention of Anesthesia-Induced Hypothermia in Laboratory Animals**  
Sponsored by: Locus Technology Inc.

1:40 PM-2:00 PM  
109 **Mouse Phlebotomy: A Comparison of Facial Vein and Retro-Orbital Sinus Collection Methods**  
Sponsored by: The Jackson Laboratory.

2:00 PM-2:20 PM  
109 **Non-invasive Assessment of Cardiovascular Health in Diabetic Rodents**  
Sponsored by: Mouse Specifics.

2:20 PM-2:40 PM  
109 **Review of a Novel SCID Hairless Outbred (SHO) Xenograft Model**  
Sponsored by: Charles River.

2:40 PM-3:00 PM  
109 **Census Taking: How New Technology Offers Increased Revenue Capture, Increased Accuracy, Increased Ergonomics, and**

**Decreased Labor**  
**Sponsored by:** Allentown Inc.

3:00 PM-3:20 PM  
109

**Developing a Sixth Sense for Your Vivarium**  
**Sponsored by:** Edstrom Industries Inc.

3:20 PM-3:40 PM  
109

**Disinfectant Technologies Used to Address Viral Outbreaks**  
**Sponsored by:** STERIS Corp.

3:40 PM-4:00 PM  
109

**Successful Decontamination of an HVAC System's Ductwork Using Chlorine Dioxide Gas**  
**Sponsored by:** ClorDiSys Solutions Inc.

**Top Level – Monday      Nov 09, 2009**

7:15 AM-12:30 PM  
*Offsite 1*

**Jugular Vein Catheterization in the Rat**

8:00 AM-10:45 AM  
*Four Seasons  
B-Room 1*

**Dietary Manipulation in Nonhuman Primates: Modeling the Intersection of Diet and Disease**  
**Sponsored by:** New England Primate Research Center.

8:00 AM-10:30 AM  
109

**Husbandry/Management 1**

8:00 AM-10:45 AM  
207

**Laboratory Investigations 1**

8:00 AM-12:00 PM  
108

**Principles of Laboratory Biosecurity**

8:00 AM-10:45 AM  
*Four Seasons  
B-Room 3*

**Selection and Use of Biological Safety Cabinets**

8:00 AM-12:00 PM

**Tactics to Reduce Animal Extremist Threats, Infiltration, and**

110

**Develop a More Security-Aware Culture**

**Sponsored by:** Agenda Resource Management.

8:00 AM-10:45 AM

*Four Seasons  
B-Room 4*

**The Changing Face of Infectious Disease in Modern Mouse Facilities**

8:00 AM-10:45 AM

203

**Update on Laboratory Animal Allergies**

**Sponsored by:** Tecniplast.

8:00 AM-12:00 PM

106

**Your Personality Type and Your Functioning as a Manager - A**

8:30 AM-5:00 PM

*Exhibit Hall*

**Monday Poster Session**

11:00 AM-12:00 PM

*Four Seasons  
B-Room 1*

**Animal Technician Training: The Australian Way**

11:00 AM-12:00 PM

*Four Seasons  
B-Room 3*

**Charles C Hunter Lecture Operant Conditioning of Exotic Animals for Veterinary Procedures**

**Sponsored by:** AALAS Committee on Technician Awareness & Development (CTAD) and the Charles C Hunter Fund.

11:00 AM-12:00 PM

*Four Seasons  
B-Room 4*

**They Said She Was Allergic to Childhood: A History of Diabetes Mellitus**

12:15 PM-5:30 PM

*Offsite 1*

**Hands-on Implantable ECG and BP Telemetry Surgical Techniques for Mice**

**Sponsored by:** Data Sciences International, WPI and Charles River.

12:30 PM-2:00 PM

601

**Pathology Quiz Bowl**

**Sponsored by:** Research Animal Diagnostic Investigative Laboratory (RADIL) and American Committee on Laboratory Animal Disease (ACLAD).

12:30 PM-2:00 PM

605

**The Application of Ergonomics to Animal Facility Operations**

12:30 PM-2:00 PM  
607

**Unique Challenges and Opportunities: Administration of Land Grant Animal Care and Use Programs**

12:30 PM-2:00 PM  
603

**Veterinary Technician Internship Program and the Research Facility**

1:00 PM-5:00 PM  
106

**How to Never - No, Never! - Become Upset - A**

1:00 PM-5:00 PM  
110

**Maximizing Your Investment in Microisolator Caging**  
**Sponsored by:** Massachusetts General Hospital Center for Comparative Medicine.

1:00 PM-5:00 PM  
108

**Principles of Laboratory Biosecurity "cont"**

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 1*

**Best Practice through the Interpretation and Implementation of the Canadian Council on Animal Care Guidelines on the Care and Use of Wildlife**  
**Sponsored by:** Canadian Association for Laboratory Science (CALAS/ACSAL), Canadian Council on Animal Care (CCAC/CCPA), and Canadian Association of Laboratory Animal Medicine (CALAM/ACMAL).

2:15 PM-5:00 PM  
203

**Biology and Management of Nonhuman Primates: A Primer for Technicians**  
**Sponsored by:** Biologic Resource Laboratory of the University of Illinois at Chicago.

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 4*

**Development, Use, and Management of Animal Models of Diabetes**  
**Sponsored by:** American Committee on Laboratory Animal Diseases (ACLAM) and American Society of Laboratory Animal Practitioners (ASLAP).

2:15 PM-5:00 PM  
109

**What's Your Diagnosis?**

**Top Level – Tuesday** Nov 10, 2009

7:15 AM-12:30 PM  
Offsite 1

**Introduction to Microsurgery - A**  
**Sponsored by:** OR Specialties and Instech Solomon.

8:00 AM-10:45 AM  
207

**Clinical 1**

8:00 AM-12:00 PM  
103

**Daily Operations of an Animal Biosafety Level-3 (ABSL3) Containment Facility**

8:00 AM-10:30 AM  
109

**Husbandry/Management 2**

8:00 AM-12:00 PM  
110

**IACUC Protocol Review Challenges**

8:00 AM-10:45 AM  
Four Seasons  
B-Room 3

**Integrated Biocontainment and High Stakes Communication Programs for Animal Workers**

8:00 AM-12:00 PM  
104

**Scientific Editing Workshop**

8:00 AM-10:45 AM  
Four Seasons  
B-Room 4

**Social Housing and Environmental Enrichment in Preclinical Toxicology Studies: What Can You Do within the GLPs, and What Really Works?**

8:00 AM-10:45 AM  
203

**Spontaneous and Induced Rodent Models of Impaired Glucose Metabolism: Diabetes, Pre-Diabetes, Metabolic Syndrome, and More**  
**Sponsored by:** Charles River, Research Diets, and The Jackson Laboratory.

8:00 AM-10:45 AM  
Four Seasons

**Surgical Methods, Concerns, and Monitoring Techniques for**



*B-Room 1*

**Animals with Chronic Implants**

**Sponsored by:** Data Sciences International, Harlan Laboratories and Wake Forest University Preclinical Surgical Services.

8:00 AM-12:00 PM  
*108*

**Training and Development: Designing a Training Program That Meets Organizational Needs**

8:00 AM-12:00 PM  
*106*

**Your Personality Type and Your Functioning as a Manager - B**

9:00 AM-5:00 PM  
*Exhibit Hall*

**Tuesday Poster Session**

11:00 AM-12:00 PM  
*Four Seasons  
B-Room 3*

**Charles River Ethics and Animal Welfare Lecture Beyond the Final Frontier: Space and Its Use by Animals in Research**

**Sponsored by:** Charles River Commitment to Humane Animal Research Through Excellence and Responsibility Program.

11:00 AM-12:00 PM  
*203*

**Cognition and Working Canines: How Human/Canine Interactions Are Affected by Cognitive Factors**

11:00 AM-12:00 PM  
*Four Seasons  
B-Room 4*

**Overcoming Drug Dependency: Moving Researchers Away from Obtaining DEA Controlled Substances Dispensed by Laboratory Animal Medicine Practitioners**

11:00 AM-12:00 PM  
*Four Seasons  
B-Room 1*

**Wallace P Rowe Lecture Things We Don't Know About Vaccines: Perhaps Ignorance Is Bliss**

**Sponsored by:** American Committee on Laboratory Animal Diseases (ACLAD).

12:15 PM-5:30 PM  
*Offsite 1*

**Introduction to Microsurgery - B**

**Sponsored by:** OR Specialties and Instech Solomon.

12:15 PM-5:30 PM  
*Offsite 2*

**Research Awareness Workshop**

**Sponsored by:** AALAS Foundation.



12:30 PM-2:00 PM  
601

**Chronic Implants for Neuroscience Research in Nonhuman Primates: Science, Medicine, and Ethics**

12:30 PM-2:00 PM  
605

**Got Certification? Advancement Through Certification for Animal Care Takers to IACUC Administrators**

12:30 PM-2:00 PM  
603

**Grants for Laboratory Animal Science: Tips for Successful Applications**

**Sponsored by:** AALAS Scientific Advisory Committee (SAC).

12:30 PM-2:00 PM  
607

**Public Perceptions of Infectious Disease Research: Counteracting Fear with Fact and Communication**

**Sponsored by:** AALAS Professional Development Coordinating Committee (PDCC).

1:00 PM-5:00 PM  
110

**Animal Facility and Design**

1:00 PM-5:00 PM  
106

**How to Never - No, Never! - Become Upset - B**

1:00 PM-4:00 PM  
108

**Introduction to Basic Principles of Large Animal and Rodent Laparoscopy through Inanimate Object Training**

**Sponsored by:** Biovision Technologies, LLC.

1:00 PM-5:00 PM  
102

**Preparing for an AAALAC International Site Visit**

**Sponsored by:** AAALAC International.

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 3*

**Barrier Practices: The Good, the Bad, and the Unnecessary**

**Sponsored by:** American College of Laboratory Animal Medicine (ACLAM) and American Society of Laboratory Animal Practitioners (ASLAP).

2:15 PM-5:00 PM  
*Four Seasons*

**Constructing a 12,000-Cage SPF Vivarium in Eight Months**

*B-Room 4*

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 1*

**Critical and Intensive Care Medicine for Laboratory Animal Professionals**

2:15 PM-5:00 PM  
203

**Nonhuman Primate Models of Diabetes: Progression and Treatment**

**Top Level – Wednesday Nov 11, 2009**

7:15 AM-12:30 PM  
*Offsite 1*

**Implantable Telemetry Surgery Workshop: ECG and Blood Pressure Telemetry Implantation with the Laboratory Rat**  
**Sponsored by:** Data Sciences International, WPI and Charles River.

8:00 AM-12:00 PM  
108

**Anesthesia Monitoring: What Is All That Beeping About?**  
**Sponsored by:** SurgiVet.

8:00 AM-10:45 AM  
*Four Seasons*  
*B-Room 4*

**Clean, Green, and Lean: Innovative Approaches to Rodent Barrier Management**  
**Sponsored by:** Center for Comparative Medicine-Massachusetts General Hospital.

8:00 AM-10:45 AM  
207

**Diabetes**

8:00 AM-10:45 AM  
109

**Husbandry/Management 3**

8:00 AM-10:45 AM  
*Four Seasons*  
*B-Room 1*

**Keeping Current with the Regulations and Requirements**  
**Sponsored by:** National Association for Biomedical Research (NABR).

8:00 AM-12:00 PM  
110

**Management Coaching in Laboratory Animal Science: The Why, the When, and the How**

8:00 AM-10:45 AM  
203

**One Medicine: Translational Medicine in Cancer Research**

**Sponsored by:** American College of Laboratory Animal Medicine (ACLAD) and American Society of Laboratory Animal Practitioners (ASLAP).

8:00 AM-12:00 PM  
106

**Preparatory Session for the AR Portion of the CMAR Exams**

**Sponsored by:** Baylor College of Medicine, Bristol Myers Squibb, and AALAS Certified Manager Animal Resources Committee (CMAR).

8:00 AM-10:45 AM  
607

**Rodent Genetic and Health Monitoring Programs in Latin America**

**Sponsored by:** International Council for Laboratory Animal Science (ICLAS).

8:00 AM-12:00 PM  
104

**Tech Talk Writing and Editing Workshop**

8:00 AM-10:45 AM  
*Four Seasons*  
*B-Room 3*

**Welfare Considerations in Animal Models of Diabetes**

9:00 AM-1:00 PM  
*Exhibit Hall*

**Wednesday Poster Session**

11:00 AM-12:00 PM  
607

**Biosafety in Laboratory Animal Science in Latin America**

**Sponsored by:** International Council for Laboratory Animal Science (ICLAS).

11:00 AM-12:00 PM  
*Four Seasons*  
*B-Room 4*

**Detection, Surveillance and Control Programs of PRRS and Ebola Reston Virus Co-Infection in Philippine Pigs**

11:00 AM-12:00 PM  
203

**Leading the Laboratory Animal Welfare Agenda: What's at Risk if You Don't?**

11:00 AM-12:00 PM  
*Four Seasons*

**Nathan R Brewer Lecture: Light-at-Night Induces Circadian**

B-Room 3

**Rhythm Disruptions in Mammalian Metabolism and Physiology**

**Sponsored by:** AALAS Awards Selection Committee (ASC).

11:00 AM-12:00 PM

*Four Seasons*

*B-Room 1*

**Not All Rs Are Created Equal: What Russell and Burch Can Teach AALAS Members 50 Years Later**

12:15 PM-5:30 PM

*Offsite 1*

**Advanced Surgical Techniques in the Mouse: Jugular Vein and Carotid Artery Catheterization**

**Sponsored by:** The Jackson Laboratory.

12:15 PM-5:30 PM

*Offsite 2*

**Jugular Blood Collection from the Unanesthetized Rat**

**Sponsored by:** Harlan Laboratories.

12:30 PM-2:00 PM

*601*

**A Review of the 2009 NRC Report 'Recognition and Alleviation of Pain in Laboratory Animals'**

12:30 PM-2:00 PM

*607*

**Post Approval Monitoring: Different Methods of Achieving the Same Goal**

12:30 PM-2:00 PM

*605*

**Public Outreach 2.0: Using Technology to Advance Biomedical Research**

**Sponsored by:** AALAS Foundation.

12:30 PM-2:00 PM

*603*

**Rodent Microbial Surveillance: Recommendations, Practices, Rationales, and Perspectives from Different Programs and Parts of the World**

1:00 PM-5:00 PM

*102*

**Item Writing for the Technician Certification Examination**

**Sponsored by:** AALAS Certification and Registry Board (CRB).

1:00 PM-5:00 PM

*106*

**Preparatory Session for the AR Portion of the CMAR Exams "cont"**

**Sponsored by:** Baylor College of Medicine, Bristol Myers Squibb, and AALAS Certified Manager Animal Resources Committee

(CMAR).

1:00 PM-5:00 PM  
104

**Preparing for Your First Management Position**

1:00 PM-5:00 PM  
108

**Primate Enrichment and Training**

**Sponsored by:** Priority One Services, Bio-Serv, LabDiet, A.P.E.S., Primate Products and Lomir Biomedical, Inc.

2:15 PM-5:00 PM  
207

**Clinical 2**

2:15 PM-5:00 PM  
607

**Collaborative Efforts in the Successful Management of a Vivarium in Latin America**

**Sponsored by:** International Council for Laboratory Animal Science (ICLAS).

2:15 PM-5:00 PM  
203

**Controversial Biomethods in Rodent Research: Why, How, and Should We at All?**

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 1*

**Improving Your Return on Investment by Reducing Your Carbon Footprint in an Educated and Socially Responsible Way**

2:15 PM-5:00 PM  
109

**Laboratory Investigations 2**

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 4*

**Meeting the Information Requirements of the Animal Welfare Act**

2:15 PM-5:00 PM  
*Four Seasons*  
*B-Room 3*

**Transportation, Receipt, and Acclimatization/Stabilization of Non-Rodent Species Providing for Animal Health and Well-Being**  
**Sponsored by:** Laboratory Animal Breeders Association (LABA).

**Top Level – Thursday** Nov 12, 2009

7:15 AM-12:30 PM

Offsite 1

**Implantation Techniques for Osmotic Pumps**  
**Sponsored by:** DURECT Corporation.

7:15 AM-12:30 PM  
Offsite 2

**Introduction to Inhalation Anesthesia Equipment**  
**Sponsored by:** Molecular Imaging Products.

8:00 AM-10:45 AM  
Four Seasons  
B-Room 3

**Animal Models of Tuberculosis**

8:00 AM-10:45 AM  
Four Seasons  
B-Room 4

**Current Research on Immune-Mediated and Infectious Causes of Diabetes**  
**Sponsored by:** American Committee on Laboratory Animal Diseases (ACLAD) and Research Animal Diagnostic Laboratory (RADIL).

8:00 AM-10:30 AM  
109

**Husbandry/Management 4**

8:00 AM-12:00 PM  
108

**Primate Enrichment and Training "cont'd"**  
**Sponsored by:** Priority One Services, Bio-Serv, LabDiet, A.P.E.S., Primate Products and Lomir Biomedical, Inc.

8:00 AM-10:45 AM  
607

**Recent Advancements in Biomedical Research through the Use of Animal Models**  
**Sponsored by:** International Council for Laboratory Animal Science (ICLAS).

8:00 AM-10:45 AM  
203

**The Importance of Risk Assessment in Selecting Primary and Secondary Containment Systems**

8:00 AM-12:00 PM  
104

**Writing Standard Operating Procedures That Work**

8:00 AM-10:45 AM  
Four Seasons  
B-Room 1

**Zebrafish Veterinary Care and Use**

11:00 AM-12:00 PM  
203

**Good Laboratory Practice (GLP) Regulations**

11:00 AM-12:00 PM  
*Four Seasons*  
B-Room 4

**Increasing IACUC Efficiency in Times of Diminishing Resources**  
Sponsored by: Theseus Professional Services.

11:00 AM-12:00 PM  
*Four Seasons*  
B-Room 3

**Pancreatic Islet Xenotransplantation: Fishing for a Cure for Diabetes**

11:00 AM-12:00 PM  
*Four Seasons*  
B-Room 1

**Understanding and Controlling the Effects of Noise and Vibration during Construction**

12:30 PM-2:00 PM  
607

**Encountering English as a Second Language in the Workplace: Training All Your Employees to Succeed**

12:30 PM-2:00 PM  
603

**Institutional Approaches to the Control and Eradication of MPV**

12:30 PM-2:00 PM  
601

**Nonhuman Primate Enrichment: An American and European Perspective**

12:30 PM-2:00 PM  
605

**Promoting Animal Welfare: Innovative Ways to Enhance Your Program**

## 出國報告審核表

|                                    |  |                       |
|------------------------------------|--|-----------------------|
| 出國報告名稱：參與第 60 屆美國實驗動物協會國際研討會       |  |                       |
| 出國人姓名（2 人以上，以 1 人為代表）              | 職稱   | 服務單位                  |
| 方美佐                                | 聘五主任   | 國防醫學院動物中心             |
| 出國期間：98 年 11 月 7 日至 98 年 11 月 15 日 |  | 報告繳交日期：98 年 11 月 20 日 |
| 計畫主辦機關審核意見                         | <input type="checkbox"/> 1. 依限繳交出國報告<br><input type="checkbox"/> 2. 格式完整（本文必須具備「目的」、「過程」、「心得及建議事項」）<br><input type="checkbox"/> 3. <u>無抄襲相關出國報告</u><br><input type="checkbox"/> 4. 內容充實完備<br><input type="checkbox"/> 5. 建議具參考價值<br><input type="checkbox"/> 6. 送本機關參考或研辦<br><input type="checkbox"/> 7. 送上級機關參考<br><input type="checkbox"/> 8. 退回補正，原因： <input type="checkbox"/> 不符原核定出國計畫 <input type="checkbox"/> 以外文撰寫或僅以所蒐集外文資料為內容 <input type="checkbox"/> 內容空洞簡略或未涵蓋規定要項 <input type="checkbox"/> <u>抄襲相關出國報告之全部或部分內容</u> <input type="checkbox"/> 電子檔案未依格式辦理 <input type="checkbox"/> 未於資訊網登錄提要資料及傳送出國報告電子檔<br><input type="checkbox"/> 9. 本報告除上傳至出國報告資訊網外，將採行之公開發表：<br><input type="checkbox"/> 辦理本機關出國報告座談會（說明會），與同仁進行知識分享。<br><input type="checkbox"/> 於本機關業務會報提出報告<br><input type="checkbox"/> 其他_____ |                       |
| 審核人                                | <u>一級單位主管</u>  | <u>機關首長或其授權人員</u>     |

說明：

三、各機關可依需要自行增列審核項目內容，出國報告審核完畢本表請自行保存。

四、審核作業應儘速完成，以不影響出國人員上傳出國報告至「政府出版資料回應網公務出國報告專區」為原則。