

30TH A N N U A L

Charles River **SHORTCOURSE** ON ANIMAL CARE & USE JUNE 27-30, 2016 | OMNI PROVIDENCE HOTEL PROVIDENCE, RI

EMPOWER YOUR PROFESSIONAL SELF

Part of achieving professional growth comes from continual goal setting, nurturing of networks and expanding one's base of knowledge to remain ahead of an ever-shifting industry. Nowhere else will you find a forum to accomplish this than the Annual Charles River Short Course. From in-depth and thought provoking lectures presented by industry experts to structured peer networking opportunities, the Short Course is the ideal setting for laboratory animal science professionals looking to invest in their careers.

SPEAKERS

SPECIALTY BLOCKS AND LECTURE ROOM SCHEDULE

MONDAY

JUNE 27TH

MORNING AFTERNOON

RM. I 

1

Welfare

2

Aquatics

RM. II 

3

Basic Biology
and Care –
Rodent

4

Basic Biology
and Care –
Large Animals

RM. III 

5

Common
Diseases –
Rodent

6

Infectious
Disease
Management

TUESDAY

JUNE 28TH

MORNING AFTERNOON

RM. I 

7

Genetically
Modified
Animal Models

8

Common
Diseases –
Nonrodent
Species

RM. II 

9-10

Diagnostics
Technique and
Methodology –
Part I and II

RM. III 

11-12

Behavior and
Enrichment
Part I and II

WEDNESDAY

JUNE 29TH

MORNING AFTERNOON

RM. I 

13

Employee
Training: A
Tactical Approach
to Achieving
Certification

14

LAMA
Management
Triathlon

RM. II 

15

Animal
Facility
Management

16

Animal Model
Potpourri

RM. III 

17

Public Outreach:
What Can
We Do?

18

Discovery

THURSDAY

JUNE 30TH

MORNING AFTERNOON

RM. I 

19-20

Camp
ACLAM;
Part I and II

RM. II 

21

Microbiome
Research

22

Biosecurity

RM. III 

23

Emerging
Infectious
Diseases

24

Managing
Surgically
Altered Animal

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |



CDC Atlanta

Dr. Carroll is currently the Director of the Environmental Safety and Health Compliance Office within the Office of Safety Security and Asset Management at the CDC. He is also the Chair of the CDC Atlanta Institutional Animal Care and Use Committee and has 14 years of experience in organizing (scientific oversight, planning and logistics) and participating in domestic and international expedition (outbreak) field and laboratory operations involving investigations of emerging viral zoonotic diseases including: Ebola virus, Machupo virus (arenavirus, Bolivian hemorrhagic fever), Nipah virus, Whitewater Arroyo virus (arenavirus), Sin Nombre Hantavirus, Monongahela hantavirus, Rio Mamore hantavirus, Laguna Negra hantavirus, Lyssaviruses, Monkeypox, Tanapox, and SARS associated Coronavirus. His extensive experience has enabled him to work on and coordinate both domestic and international outbreaks of emerging diseases in several countries including Bangladesh, Gabon, Ghana, Republic of Congo, Democratic Republic of Congo, Kenya, Bolivia, Peru, Honduras, Mexico, and the Republic of Georgia. He has experience working on both *in vitro* and *in vivo* studies in Biological Safety Levels 1-4 including the planning, oversight, and participation in lab animal studies and drug and vaccine trials for novel prophylaxis and treatment development and has overseen the

training of staff in biosafety procedures relevant to high containment work. He has authored and co-authored more than 70 publications in scientific journals and texts dealing with topics ranging from ecology and evolutionary biology of vertebrates, to the virulence, emergence, and transmission of viral zoonotic diseases, and the development of safety protocols.

My presentation will focus on the challenges of research, preparedness, and response strategies regarding emerging and re-emerging pathogens. I will specifically discuss outbreak investigations including work in the field as well as the preparation and protocols for deployment to work in resource limited situations.

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| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
| SPEAKERS | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II | 11-12 Behavior and Enrichment Part I and II | |
| < | 13 Employee Training: A Tactical Approach to Achieving Certification | 14 LAMA Management Triathlon | 15 Animal Facility Management | 16 Animal Model Potpourri | 17 Public Outreach: What Can We Do? | 18 Discovery | 19-20 Camp ACLAM; Part I and II | 21 Microbiome Research | 22 Biosecurity | 23 Emerging Infectious Diseases | 24 Managing Surgically Altered Animal Colonies |
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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |



Fellow of the American Academy of Allergy,
Asthma and Immunology
Senior Scientist
Charles River

Director, Comparative Pathology
Ohio State University

Deputy Chief, Animal Resources Branch
NIH/OID/NCZID (for Charles River)

Group Leader, Janelia Research Campus
Howard Hughes Medical Center

Senior Scientist
Charles River

Assistant Professor, Section Chief ad interim
MD Anderson Cancer Center

Manager, Learning and Development
Charles River

Imaging Scientist
Charles River

Aquatic Veterinarian
Fish Vet Group, Portland ME

Canada Research Chair and Professor
University of Guelph

Veterinary Medical Officer, Ralph H. Johnson
VAMC Research Service
Medical University of South Carolina

Behavior Management Specialist
Charles River

Consulting Laboratory Animal Veterinarian
Laboratory Animal Resource Consulting, PLLC

Clinical Veterinarian
University of Houston

Corporate Vice President of Global Security
Charles River

Executive Director, Veterinary
and Professional Services
Charles River

Manager, Health Monitoring / Bacteriology
Charles River

Chief, Veterinary Medical Unit
Seattle V.A. Medical Center

Senior Clinical Veterinarian,
Faculty of Arts and Sciences
Harvard University

President and CEO
Mirimus

Scientist III
University of Kentucky, Lexington

Associate Professor and Executive Director,
Center for Lab Animal Medicine and Care
University of Texas Health Science Center

Chief Executive Officer
NC3Rs

Operational Area Manager, *In Vitro* Sciences
Charles River

Fish Pathologist, Lecturer and Aquatic
Animal Program Director
University of Washington

Vice President and Chief Scientific Officer
Data Sciences International (DSI)

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |



Feeding Behavior Scientist
Nestle-Purina PTC

DLAR Clinical Veterinarian
Medical University of South Carolina

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |

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|----------------------------|--|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK ONE: WELFARE | |
| 8:00am - 8:10am | Introduction/Announcements: <i>Marilyn Brown</i> |
| 8:10am - 9:00am | The 3Rs: Current and Developing Trends in the US: <i>Donna Clemons</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Enhancing Scientific Leadership in the 3Rs in the UK: <i>Vicky Robinson</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | How Do <i>In Vitro</i> and <i>In Vivo</i> Toxicology Integrate More Effectively?: <i>Clive Roper</i> |
| 11:15am - 11:30am | Panel Discussion: Welfare |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm - 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK TWO: AQUATICS | |
| 1:30pm - 1:40pm | Introduction/Announcements: <i>Ann Murray</i> |
| 1:40pm - 2:30pm | Zebrafish Nutrition: What We Know and Don't Know: <i>Marc Tye</i> |
| 2:30pm - 2:45pm | Break |
| 2:45pm - 3:35pm | Balancing Environmental Factors: <i>George Sanders</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm - 4:45pm | Breeding and Larviculture: Crucial for Colony Production and Management: <i>Susan Farmer</i> |
| 4:45pm - 5:00pm | Panel Discussion: Aquatics |
| EVENING SCHEDULE | |
| 6:00pm - 9:00pm | Keynote Welcome Reception and Awards Lecture: <i>Darin Carroll</i> ; Awards: <i>Marilyn Brown</i> |

1 WELFARE OVERVIEW:

Incorporating the 3Rs in our work with animals is important from an animal welfare, scientific, regulatory and public relations standpoint. This specialty block will discuss how the 3Rs are being implemented in the US and Europe, giving the participants concrete ideas for how they can better implement the 3Rs in their own work. This block will also help clarify the current 'state-of-the-art' alternatives that replace animals, discussing what is available and in what types of work the replacement alternatives are best suited, as well as what replacement alternatives are accepted by regulatory agencies and the OECD.

2 AQUATICS OVERVIEW:

Over the past few years, the use of zebrafish in research as an alternative to mammalian models has increased. However, the challenges associated with the care and management of an aquatic model is quite different from rodent or other terrestrial research animals. This block will provide an overview of this relatively new research model, as well as address the various components needed for the proper care of this model.

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1

Specialty Blocks

WELFARE

OVERVIEW:

Incorporating the 3Rs in our work with animals is important from an animal welfare, scientific, regulatory and public relations standpoint. This specialty block will discuss how the 3Rs are being implemented in the US and Europe, giving the participants concrete ideas for how they can better implement the 3Rs in their own work. This block will also help clarify the current 'state-of-the-art' alternatives that replace animals, discussing what is available and in what types of work the replacement alternatives are best suited, as well as what replacement alternatives are accepted by regulatory agencies and the OECD.

WELFARE PRESENTATIONS:

- The 3Rs: Current and Developing Trends in the U.S.
Donna Clemons
- Enhancing Scientific Leadership in the 3Rs in the UK
Vicky Robinson
- How do *In Vitro* and *In Vivo* Toxicology Integrate More Effectively?
Clive Roper

ABSTRACTS:

The 3Rs: Current and Developing Trends in the US

Following their introduction in 1959, the concept of 3Rs (Replacement, Reduction, Refinement) languished in relative obscurity for decades before emerging as a guiding philosophy for animal research. These concepts have since been restated into various guidance and regulatory documents in multiple regions of the world. Researchers and research advocates continue to redefine and build on these simple concepts through updated study planning, enhanced animal care, new scientific methodology, and a fresh cultural perspective on research animal contributions to science. This talk will review some of the current trends in interpreting and applying the 3Rs and examine some examples of innovative developments impacting animal research.

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ABSTRACTS:

The use of zebrafish as a model organism has increased dramatically in the past 20 years. Optimal culture conditions such as water temperature and water chemistry values have been established for zebrafish, while the development of a standardized dietary protocol has lagged behind. Failure to control for dietary variables has led to variability in experimental outcomes. Zebrafish health is also of concern, as some of these dietary protocols may not be meeting their nutrient requirements. Many studies comparing various zebrafish diets have been conducted; however, basic information regarding essential nutrient requirements and digestibility of feedstuffs is still unknown. This important information must be ascertained in order to formulate a standardized diet that meets the needs of zebrafish. To date, there has been no published data on the digestibility of feedstuffs or the quantitative nutrient requirements of zebrafish. Recently, research on the quantitative amino acid requirements of zebrafish has been conducted at the University of Minnesota. This data is the first in a long line of basic nutritional information that is needed to formulate a suitable standardized diet for zebrafish.

Balancing Environmental Factors

The objective of this presentation is to provide program participants critical information about the provision, monitoring, and modifications of required environmental factors associated with the proper husbandry and care of aquatic animals housed for research endeavors. Upon completion of this lecture the attendees will be able to understand environmental factors, how they are evaluated, measured, and modified to provide appropriate husbandry for aquatic animals. The effect of perturbations of environmental factors on aquatic animals will also be discussed.

The objective of this presentation is to review basic procedures for optimal zebrafish breeding and larviculture in the research setting. These two processes are crucial for maintenance of research colonies supporting biomedical research. Several methods for breeding and how each method impacts breeding efficiency will be described. Best methods for collection and culture of fertilized eggs and culture of larvae will be detailed. Finally, methods to assess breeding and larviculture efficiency will be described. At the conclusion of this seminar, attendees will have the knowledge to apply these techniques to their own colonies at their respective institutions.

AQUATIC PRESENTATIONS:

- Zebrafish Nutrition: What we know and don't know
Marc Tye
- Balancing Environmental Factors
George Sanders
- Breeding and Larviculture: Crucial for Colony Production and Management
Susan Farmer

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Monday June 27th

LECTURE ROOM TWO

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |

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|---|--|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK THREE: BASIC BIOLOGY AND CARE - RODENT | |
| 8:00am - 8:10am | Introduction/Announcements: <i>Kate Pritchett-Corning</i> |
| 8:10am - 9:00am | History of the Mouse: <i>Kate Pritchett-Corning</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Biology and Care of Laboratory Mice: <i>Jennifer C. Smith</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Biology and Care of Laboratory Rats: <i>Jennifer C. Smith</i> |
| 11:15am - 11:30am | Panel Discussion: Basic Biology and Care: Rodent |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm - 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK FOUR: BASIC BIOLOGY AND CARE - LARGE ANIMALS | |
| 1:30pm- 1:40pm | Introduction/Announcements: <i>TBD</i> |
| 1:40pm- 2:30pm | Ruminants in Research Settings: <i>Susan Vogel</i> |
| 2:30pm- 2:45pm | Break |
| 2:45pm - 3:35pm | Rabbits: Biology, Handling and Selected Diseases: <i>Cynthia Pekow</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm- 4:45pm | Basic Biology of Commonly Used Nonhuman Primate Models: <i>Joe Simmons</i> |
| 4:45pm - 5:00pm | Panel Discussion: Basic Biology and Care - Large Animals |
| EVENING SCHEDULE | |
| 6:00pm -9:00pm | Keynote Welcome Reception and Awards Lecture: <i>Darin Carroll</i> ; Awards: <i>Marilyn Brown</i> |

3 BASIC BIOLOGY AND CARE - RODENT OVERVIEW:

It is estimated that mice and rats comprise more than 80% of the animals used in research in the United States, with mice far outnumbering rats. This block begins with a detailed history of the common mouse, from earliest records to its place as the dominant species used in research today. Additional presentations will focus on mice and rats, reviewing each species' unique biology, general behavior and husbandry, and care requirements. This block is intended for new entrants to the field as well as individuals who desire a refresher on the biology and care of the most common rodent species utilized in research.

4 BASIC BIOLOGY AND CARE - LARGE ANIMALS OVERVIEW:

This block will provide an introduction to the basic biology and care requirements for common large animal species used in biomedical research. Presentations cover a breadth of species, including ruminants (sheep, goats and cattle), as well as rabbits and nonhuman primates. Presentations will review unique aspects of the biology of each species, general behavior, husbandry and care requirements. This block is intended for new entrants to the field, as well as individuals who desire a refresher on the biology and care of these important nonrodent models.

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |



Specialty Blocks

BASIC BIOLOGY AND CARE – RODENT

OVERVIEW:

It is estimated that mice and rats comprise more than 80% of the animals used in research in the United States, with mice far outnumbering rats. This block begins with a detailed history of the common mouse, from earliest records to its place as the dominant species used in research today. Additional presentations will focus on mice and rats, reviewing each species' unique biology, general behavior and husbandry, and care requirements. This block is intended for new entrants to the field as well as individuals who desire a refresher on the biology and care of the most common rodent species utilized in research.

ABSTRACTS:

History of the Mouse

Mice have lived in close proximity to humans since before the dawn of agriculture and our relationship with them reflects the messy complexities of commensalism. Humans have exterminated, venerated, domesticated, and experimented on mice while also managing to introduce them to new habitats around the world. Similarly, mice occupy a complicated niche in our relationship with animals since they may be vermin, competing with humans for food; valued pets, living in captive luxury; research subjects, advancing knowledge to contribute to human health; or (rarely) appreciated linchpins of ecosystems. From where did the mouse come and where is it headed? This talk will cover the origin of mice, their role in society, their contributions to medicine, science, and art, and their future in research.

RODENT BASIC BIOLOGY AND CARE PRESENTATIONS:

- History of the Mouse
Kate Pritchett-Corning
- Biology and Care of Laboratory Mice
Jennifer C. Smith
- Biology and Care of Laboratory Rats
Jennifer C. Smith

| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
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| > | | | | | | | | | | 24 Managing Surgically Altered Animal Colonies | |

4

Specialty Blocks

BASIC BIOLOGY AND CARE – LARGE ANIMALS

OVERVIEW:

This block will provide an introduction to the basic biology and care requirements for common large animal species used in biomedical research. Presentations cover a breadth of species, including ruminants (sheep, goats and cattle), as well as rabbits and nonhuman primates. Presentations will review unique aspects of the biology of each species, general behavior, husbandry and care requirements. This block is intended for new entrants to the field, as well as individuals who desire a refresher on the biology and care of these important nonrodent models.

LARGE ANIMAL BASIC BIOLOGY AND CARE :

- **Ruminants in Research Settings**
Susan Vogel
- **Rabbits: Biology, Handling and Selected Diseases**
Cynthia Pekow
- **Basic Biology of Commonly Used Nonhuman Primate Models**
Joe Simmons

ABSTRACTS:

Ruminants in Research Settings

This talk is intended for clinical veterinarians, scientists and technicians who may encounter ruminants in the course of their teaching and research endeavors. Cattle, sheep and goats serve as excellent research models for medicine and surgery, are crucial to the development and testing of new veterinary products, and play an important role in teaching and training. The husbandry and biology of ruminants will be addressed as well as creative methods of environmental enrichment, the importance of analgesia and anesthesia including drug options, and lessons learned in development of surgical models using ruminants.

Rabbits: Biology, Handling, and Selected Diseases

The purpose of this presentation is to provide practical information on rabbits as laboratory animals. Participants will review aspects of anatomy and physiology unique to this species, and learn how those aspects must be considered to achieve humane handling, restraint, and care of rabbits. Because intercurrent disease can affect rabbit well-being as well as their utility as research models, participants will come away with an understanding of the infectious, parasitic, congenital, and husbandry-related diseases found in lagomorphs, and how these conditions are prevented and treated. Attendees will be shown examples of humane methods for common research procedures, including restraint, blood sampling, and substance administration. Common rabbit research models will be highlighted.

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |

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|---|--|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK FIVE: COMMON DISEASES - RODENT | |
| 8:00am - 8:10am | Introduction/Announcements: TBD |
| 8:10am - 9:00am | Common Diseases of Laboratory Mice: <i>Krista La Perle</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Common Diseases of Laboratory Rats: <i>Krista La Perle</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Developing an Exclusion List: What to Test for and Why: <i>Julie Watson</i> |
| 11:15am - 11:30am | Panel Discussion: Common Diseases - Rodent |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm - 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK SIX: INFECTIOUS DISEASE MANAGEMENT | |
| 1:30pm- 1:40pm | Introduction/Announcements: <i>TBD</i> |
| 1:40pm- 2:30pm | Viral/Bacterial Pathogens: Detection and Exclusion: <i>Bill Shek</i> |
| 2:30pm- 2:45pm | Break |
| 2:45pm - 3:35pm | Common Endo- and Ectoparasites: Detection and Exclusion: <i>Philip Gerwin</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm- 4:45pm | Keeping It Under One Roof: Managing Different Health Profiles: <i>Laura Conour</i> |
| 4:45pm - 5:00pm | Panel Discussion: Infectious Disease Management |
| EVENING SCHEDULE | |
| 6:00pm -9:00pm | Keynote Welcome Reception and Awards Lecture: <i>Darin Carroll</i> ; Awards: <i>Marilyn Brown</i> |

5 COMMON DISEASES – RODENT OVERVIEW:

It is a common myth that contaminations do not occur at facilities where a robust biosecurity program is maintained. In fact, no biosecurity program is 100% ironclad, and it is critical that a bio-exclusion list is determined by the impact an agent will have on the research being conducted. This block will review the common diseases found in mice and rat colonies, as well discuss key strategies for developing exclusion lists that factor in budget, feasibility, safety and impact to the facility or its research. This block is intended for those who are responsible for managing an exclusion list and/or maintaining the required health status of an organization's resident rodent colonies.

6 INFECTIOUS DISEASE MANAGEMENT OVERVIEW:

A pathogen is considered common if it is found to infect a high percentage of animals or to frequently cause new colony infections, respectively referred to as a pathogen's prevalence and incidence. Although strict biosecurity measures – notably the advent and extensive adoption of micro-isolation caging systems – have successfully excluded once common pathogens from rodent colonies, new infections with environmentally stable agents (e.g., MPV) continue to occur. This specialty block will concentrate on rodent pathogens (viral, bacterial and parasitic) that are prevalent in research institutions, as well as management strategies for maintaining multiple health profiles under one roof.

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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |

5

Specialty Blocks

COMMON DISEASES – RODENT

OVERVIEW:

It is a common myth that contaminations do not occur at facilities where a robust biosecurity program is maintained. In fact, no biosecurity program is 100% ironclad, and it is critical that a bio-exclusion list is determined by the impact an agent will have on the research being conducted. This block will review the common diseases found in mice and rat colonies, as well discuss key strategies for developing exclusion lists that factor in budget, feasibility, safety and impact to the facility or its research. This block is intended for those who are responsible for managing an exclusion list and/or maintaining the required health status of an organization's resident rodent colonies.

RODENT COMMON DISEASES PRESENTATIONS:

- Common Diseases of Laboratory Mice
Krista La Perle
- Common Diseases of Laboratory Rats
Krista La Perle
- Developing an Exclusion List: What to Test for and Why
Julie Watson

ABSTRACTS:

Common Diseases of Laboratory Mice

Laboratory mice, the most common animal model used for biomedical research, are susceptible to a variety of infectious, neoplastic and miscellaneous diseases according to their background strain and age, as well as the environment and experimental conditions to which they are exposed. While quarantine and sentinel health monitoring programs have dramatically reduced the incidence of infectious diseases within vivaria over the years, clinicians, staff and pathologists must be prepared to work together to identify existing and emerging diseases in their colony. For common diseases of laboratory rodents with an emphasis on mice, the clinical and pathological presentation, diagnosis and confounding effects on biomedical research will be covered.

Common Diseases of Laboratory Rats

Laboratory rats, like mice, are susceptible to a variety of infectious, neoplastic and miscellaneous diseases according to their background strain and age, as well as the environment and experimental conditions to which they are exposed. While quarantine and sentinel health monitoring programs have dramatically reduced the incidence of infectious diseases within vivaria over the years, clinicians, staff and pathologists must be prepared to work together to identify existing and emerging diseases in their colony. For common diseases unique to the rat, the clinical

and pathological presentation, diagnosis and confounding effects on biomedical research will be covered.

Developing an Exclusion List: What to Test for and Why

The purpose of this talk is to provide information to veterinarians to consider when developing or modifying an appropriate organism exclusion list for their research rodent facilities. There is no "one-size fits all" when developing a facility exclusion list. This talk will provide practical advice on implementing an exclusion list, including preventing entry of excluded organisms, monitoring for compliance, and dealing with outbreaks. Some of the pitfalls associated with keeping multiple levels of exclusion within one facility will be discussed. Upon completion, attendees will be able to develop an exclusion list for their facility that meets the research needs of their investigators and that can be implemented and maintained with available resources. They will also be able to implement a plan for monitoring for excluded organisms and removing excluded organisms should they be detected.

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| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
| SPEAKERS • • • • | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II • • | 11-12 Behavior and Enrichment Part I and II • • | |
| | < | 13 Employee Training: A Tactical Approach to Achieving Certification | 14 LAMA Management Triathlon | 15 Animal Facility Management | 16 Animal Model Potpourri | 17 Public Outreach: What Can We Do? | 18 Discovery • • | 19-20 Camp ACLAM; Part I and II | 21 Microbiome Research | 22 Biosecurity | 23 Emerging Infectious Diseases |
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INFECTIOUS DISEASE MANAGEMENT

A pathogen is considered common if it is found to infect a high percentage of animals or to frequently cause new colony infections, respectively referred to as a pathogen's prevalence and incidence. Although strict biosecurity measures – notably the advent and extensive adoption of micro-isolation caging systems – have successfully excluded once common pathogens from rodent colonies, new infections with environmentally stable agents (e.g., MPV) continue to occur. This specialty block will concentrate on rodent pathogens (viral, bacterial and parasitic) that are prevalent in research institutions, as well as management strategies for maintaining multiple health profiles under one roof.

- **Viral/Bacterial Pathogens:
Detection and Exclusion**
Bill Shek
- **Common Endo- and Ectoparasites:
Detection and Exclusion**
Philip Gerwin
- **Keeping It Under One Roof:
Managing Different Health Profiles
in the Same Facility**
Laura Connor

The objective of this presentation is to provide a thorough review of prevalent murine parasitic pathogens for laboratory animal professionals. The lecture will discuss the prevalence, morphology, life cycle, effects on health and research, diagnostic tests, and exclusion strategies for common endoparasites and ectoparasites of laboratory mice and rats. Emphasis will be placed on comparing traditional and contemporary detection methods, with a particular focus on the role of PCR testing in modern vivaria, using data from recent and soon to be published studies. Upon completion of this lecture, attendees will be able to identify the commonly encountered murine parasites, appreciate the advantages and disadvantages of pertinent diagnostic testing modalities, and understand how to employ up-to-date parasite exclusion strategies to optimize their institution's murine biosecurity programs.

| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
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| SPEAKERS | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II | 11-12 Behavior and Enrichment Part I and II | |
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| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK SEVEN: GENETICALLY MODIFIED ANIMAL MODELS | |
| 8:00am - 8:10am | Introduction/Announcements: <i>Iva Morse</i> |
| 8:10am - 9:00am | CRISPR Technology: How It Translates in an <i>In Vitro</i> Perspective: <i>David Fischer</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | CRISPR Technology: <i>In Vivo</i> Perspective: <i>Prem Premsrirut</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | How do <i>In Vitro</i> and <i>In Vivo</i> Toxicology Integrate More Effectively?: <i>Clive Roper</i> |
| 11:15am - 11:30am | Panel Discussion: Genetically Modified Animal Models |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm- 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK EIGHT: COMMON DISEASES - NONRODENT SPECIES | |
| 1:30pm- 1:40pm | Introduction/Announcements: TBD |
| 1:40pm- 2:30pm | Common Infectious Agents and Diagnostic Monitoring of Laboratory Primates: <i>Joe Simmons</i> |
| 2:30pm- 2:45pm | Break |
| 2:45pm - 3:35pm | Common Infectious Agents of Uncommon Animal Models: <i>Brianna Skinner</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm- 4:45pm | Common Infectious Diseases of Zebrafish: <i>David Marancik</i> |
| 4:45pm - 5:00pm | Panel Discussion: Common Diseases-Nonrodent Species |
| EVENING SCHEDULE | |
| Free Evening in the City | |

7 GENETICALLY MODIFIED ANIMAL MODELS OVERVIEW:

Genetically engineered models are constructed to more precisely mimic human phenotypes and pathologies. This innovative approach to disease research provides researchers with a better way to explore mechanisms and greater confidence in the translational potential of their findings. This specialty block will discuss novel and existing technology that is being employed to develop these exquisite models, and provide helpful tools to manage a genetically modified animal colony.

8 COMMON DISEASES – NONRODENT SPECIES OVERVIEW:

With the increasing use of nonrodent animal species for research, it is critical that those who manage their health and welfare have a strong understanding of the diseases that commonly affect them. This specialty block will review common diseases associated with nonrodent species such as zebrafish, nonhuman primates and bats. This block is intended for vivarium personnel who are directly responsible for managing the health and welfare of these animal species.

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GENETICALLY MODIFIED ANIMAL MODELS

The use of animal models in research is vital to the development of new and effective diagnostic and treatment modalities for management of human diseases. The majority of medical breakthroughs in human and animal health in last several decades has been the direct outcome of research using animals as disease models. Due to several compelling reasons, including genomic similarity with humans, a great variety of animal species are being used in biomedical research. Among others, these animal species include rodents, pigs, dogs, and primates. Rodents (mice and rats) are the most widely used species in generating animal models of human diseases as they share a high degree of genomic and physiological similarity and behave in a similar manner as humans under disease conditions. Currently available technologies to create and characterize genetically engineered rodent models of human diseases will be discussed.

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| SPEAKERS | | | | | | | | | | | |
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GENETICALLY MODIFIED ANIMAL MODELS *cont.*

This lecture intends to cover basic and advanced genetics relevant to development of genetically modified animal (GMA) models. Both traditional and current technologies will be introduced in generating various models, as well as genetic testing methods, focusing on allele-specific assays for targeted mutations, and robust qPCR for transgene instability and segregation. By understanding genetics and various technologies used for developing GMA models, and genetic monitoring of various genetically engineered mutations, participants will have a better appreciation of the crucial role of accurate genotyping in guiding genetic quality control, breeding strategy and colony management.



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COMMON DISEASES – NONRODENT SPECIES

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Tuesday June 28th

LECTURE ROOM TWO

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| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK NINE: DIAGNOSTICS TECHNIQUE AND METHODOLOGY PART I | |
| 8:00am - 8:10am | Introduction/Announcements: <i>Ken Henderson</i> |
| 8:10am - 9:00am | Health Surveillance Programs: Past, Present and Future: <i>Ken Henderson</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Testing Methods: What You Are Looking for Determines What You Use.: <i>Bill Shek</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Practical Applications in a Research Facility: <i>Julie Watson</i> |
| 11:15am - 11:30am | Panel Discussion/Diagnostics Technique and Methodology PART I |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm - 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK TEN: DIAGNOSTICS TECHNIQUE AND METHODOLOGY PART II | |
| 1:30pm - 1:40pm | Introduction/Announcements: <i>Teri Albers</i> |
| 1:40pm - 2:30pm | Rodent Necropsy and Tissue Collection Techniques: <i>Christina Parkinson</i> |
| 2:30pm - 2:45pm | Break |
| 2:45pm - 3:35pm | Microbiological Technique: Changing the Culture: <i>Bill Shek</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm - 4:45pm | Diagnostic Pathology: Identifying the Cause When Standard Methods Won't: <i>Teri Albers</i> |
| 4:45pm - 5:00pm | Panel Discussion: Diagnostics Technique and Methodology PART II |
| EVENING SCHEDULE | |
| Free Evening in the City | |

9 DIAGNOSTICS TECHNIQUE AND METHODOLOGY PART I OVERVIEW:

Health surveillance programs should be created to suit institutional or research requirements. Often, a program begins with developing a bio-exclusion list, and continues with maintenance via diagnostic testing. Part one of this two-part block will provide general information on the various diagnostic techniques that are currently available. Together, these two specialty blocks are intended for those who are responsible for the development and maintenance of a health surveillance program for their institution.

10 DIAGNOSTICS TECHNIQUE AND METHODOLOGY PART II OVERVIEW:

Part two of this two-part block will focus on how surveillance programs have changed over time, either through the evolution of diagnostic techniques (e.g., PCR) or an increased understanding of pathogen transmission. This session will present a practical approach to creating a program that best fits an institution's needs. Together, these two specialty blocks are intended for those who are responsible for the development and maintenance of a health surveillance program for their institution.

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9-10

Specialty Blocks

DIAGNOSTICS TECHNIQUE AND METHODOLOGY – PART I

PART I OVERVIEW:

Health surveillance programs should be created to suit institutional or research requirements. Often, a program begins with developing a bio-exclusion list, and continues with maintenance via diagnostic testing. Part one of this two-part block will provide general information on the various diagnostic techniques that are currently available. Together, these two specialty blocks are intended for those who are responsible for the development and maintenance of a health surveillance program for their institution.

DIAGNOSTICS TECHNIQUE AND METHODOLOGY, PART I PRESENTATIONS

- **Health Surveillance Programs: Past, Present and Future**
Ken Henderson
- **Testing Methods: What You Are Looking for Determines What You Use**
Bill Shek
- **Practical Applications in a Research Facility**
Julie Watson

ABSTRACTS:

Health Surveillance Programs: Past, Present and Future

With the intent of excluding, detecting and eradicating rodent infectious agents, a variety of screening methods have been used to qualify the status of specific pathogen-free mice and rats that have been created to mitigate research variables. As the demand for healthier and pathogen-free rodents increased, so did the emphasis on routine screening and monitoring. As a result, many agents that plagued laboratory rodents have slowly disappeared over time, but many more have been discovered as our methods have improved. Furthermore, the strains of rodents we work with have also changed and our concerns with opportunistic pathogens have grown, as demonstrated by the list agents we expect to be absent in our vendor-supplied rodents. In this discussion, we will review the integration of traditional screening and diagnostic methods used to monitor production and research colonies, current changes taking place to improve detection, and what we might expect to develop in the future to improve rodent pathogen detection.

Practical Applications in a Research Facility

Recent advances in diagnostic methods have prompted many institutions, including our own, to consider radically changing the way we conduct health monitoring in our rodent facilities. The advent of exhaust air duct (EAD) testing by PCR has allowed us to identify colony organisms that were poorly detected by sentinels, and offers the enticing possibility that sentinels might be going the way of the dodo (a phrase shamelessly stolen from Ken Henderson). However, the question remains as to whether EAD testing is effective for all commonly excluded organisms or is instead subject to the vagaries of different rack systems, different bedding, and even different diagnostic laboratories. EAD testing also brings its own challenges, in particular an increase in false positives caused by 'legacy' DNA remaining in racks from prior infections. This talk will describe some of the successes and failures encountered in implementing an EAD health surveillance system and methods used to overcome problems. Suggestions will also be made for refinements to other health surveillance systems where EAD testing is not applicable.

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9-10

Specialty Blocks

DIAGNOSTICS TECHNIQUE AND METHODOLOGY – PART II

PART II OVERVIEW:

Part two of this two-part block will focus on how surveillance programs have changed over time, either through the evolution of diagnostic techniques (e.g., PCR) or an increased understanding of pathogen transmission. This session will present a practical approach to creating a program that best fits an institution's needs. Together, these two specialty blocks are intended for those who are responsible for the development and maintenance of a health surveillance program for their institution.

DIAGNOSTICS TECHNIQUE AND METHODOLOGY, PART II PRESENTATIONS

- **Rodent Necropsy and Tissue Collection Techniques**
Christina Parkinson
- **Microbiological Technique: Changing the Culture**
Bill Shek
- **Diagnostic Pathology: Identifying the Cause When Standard Methods Won't**
Teri Albers

ABSTRACTS:

Rodent Necropsy and Tissue Collection Techniques

Postmortem examination, or necropsy, is an important tool in the diagnostic process. This presentation will provide an overview of a diagnostic necropsy and offer the technologist, investigator, or lab animal veterinarian a foundation on which to develop his or her necropsy skills.

The discussion will use a step-by-step format to focus on how to perform a thorough gross examination and collect and fix tissue for histopathology. Additionally other components of the necropsy including the antemortem exam, euthanasia methods, setup and supplies, appropriate PPE, and ancillary testing and collection of testing samples will be addressed.

Students will be given a brief overview of common tissues that should be viewed as part of a gross examination and images detailing normal from abnormal. Tissue collection, storage and submission will briefly be addressed.

Diagnostic Pathology: Identifying the Cause When Standard Methods Won't

The goal of this presentation is to discuss the role that pathology may play when dealing with sick animals or other clinical issues in animal and colony health and guide the participants through process of submitting animals or fixed tissue for microscopic examination. Standard health monitoring testing is important for understanding colony health, but may be less useful for sick animals. Not all problems are necessarily caused by an infectious agents and finding pathogens may be more challenging than one might expect. This presentation will address ways to take the clinical history, communicate to the pathologist, and maximize the usefulness of diagnostic pathology.

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11 BEHAVIOR AND ENRICHMENT

PART I OVERVIEW:

12 BEHAVIOR AND ENRICHMENT

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Specialty Blocks

BEHAVIOR AND ENRICHMENT – PART I

PART I OVERVIEW:

A well-designed behavioral husbandry program should accommodate the innate physiological and behavioral needs of the laboratory animals involved. One critical component of a successful program that may often be misunderstood is environmental enrichment. Part one of this two-part block introduces the importance of enrichment and its impact on research. Presentations will include a review of rabbits and cynomolgus macaques. Taken together, these two specialty blocks are designed to provide the attendee with points to consider when developing or managing the behavior and enrichment of the research animals under their care.

BEHAVIOR AND ENRICHMENT, PART I PRESENTATIONS:

- An Overview of Abnormal Repetitive Behavior
Georgia Mason
- Laboratory Rabbit Behavioral Management and Social Housing
Annie Valuska
- Successful Pair-Housing of Male of Cynomolgus Macaques
Keely McGrew

ABSTRACTS:

Laboratory Rabbit Behavioral Management and Social Housing

Social enrichment has become an increasingly popular strategy for improving the welfare of laboratory animals. It is widely believed that rabbits (*Oryctolagus cuniculus*) would benefit from social housing, but many laboratories in the United States are finding it challenging to implement due to high levels of injurious aggression that occur when adult rabbits are housed together. Given these challenges, there is a pressing need for a better understanding of rabbit social behavior and improved strategies for managing rabbits' social environment. In this presentation, the natural history of the European rabbit, including their social structure and aggressive behavior, will be discussed in order to frame an understanding of laboratory rabbit behavior. The reigning belief that rabbits should be socially housed will be challenged, using findings from studies on wild, laboratory, and farmed rabbits, which will be presented in-depth. Finally, the specific properties of current housing strategies that may lead to aggression will be explored and suggestions for managing aggression - and a novel paradigm for understanding and managing rabbits' social environment and welfare - will be provided.

Successful Pair-Housing Male of Cynomolgus Macaques

The importance of social housing of captive (NHPs) to their psychological well-being has been well established, but even as late as 2007, more than half of indoor housed primates in the US were singly housed (Baker et al. 2007). Our site originally group housed juveniles in indoor gang-style pens. Facility renovation and expansion increased pair and triple housing space, necessitating the development of social housing strategies to fill that space. Our site has pair or triple housed greater than 1000 new sets of animals per year, with many lessons learned. The aim of this presentation is to share pairing strategies learned in the evolution of the social housing program, including methodology and temperament characteristics of successful social housing sets. A difference in success rates in pairing juveniles (100%) vs sub-adults (96-97%) vs adults (100% females, 83% males) drove the development of different processes for pairing depending on age class. The pairing process was streamlined for the first two classes, while a technique of analyzing pre-pairing behavior using a modified version of the human intruder test (PAIR-T), and using the assessment to select particular partners, was developed for the adult males that increased the pairing success by 8%. These modifications resulted in more efficient use of labor resources and increased our level of social housing across the colony.

| HOME | SPECIALTY BLOCKS | | | | | | | | | |
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BEHAVIOR AND ENRICHMENT – PART II

- **Despite All My Rage,
I Am Still Just a Rat in a Cage**
Kate Pritchett-Corning
- **Mice, Mice Baby!**
Brianna Gaskill
- **How can you know it's weird
when it's all you've ever seen?**
Joe Garner

Wild rodent behavior is rich, complex, and fascinating. Yet the casual observer of laboratory rodent behavior will only see a fraction of the breadth and complexity of behavior seen in the wild. This session will introduce the audience to the range and adaptability of normal behavior in wild mice, and the central role of behavior in adapting to harsh environments. We will discuss the impact of modern mouse husbandry on behavior, the limitations this places on mice's ability to cope with the stress of captivity, and enrichment as a means of facilitating coping behaviors. Ultimately we will use this perspective to assess mouse housing and enrichment from the mouse's point of view. Consequences for well-being will be explored, and particular emphasis will be placed on the importance of behavior in properly assessing the effectiveness and impact of enrichments before they are implemented. Further examples of normal and abnormal mouse behavior, including video clips, and observational protocols, can be found at www.mousebehavior.org

| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
|----------|---|---------------------------------|--------------------------------------|---|--|------------------------------------|---|--|---|--|---|
| SPEAKERS | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II | 11-12 Behavior and Enrichment Part I and II | |
| < | 13 Employee Training: A Tactical Approach to Achieving Certification | 14 LAMA Management Triathlon | 15 Animal Facility Management | 16 Animal Model Potpourri | 17 Public Outreach: What Can We Do? | 18 Discovery | 19-20 Camp ACLAM; Part I and II | 21 Microbiome Research | 22 Biosecurity | 23 Emerging Infectious Diseases | 24 Managing Surgically Altered Animal Colonies |
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Wednesday June 29th
LECTURE ROOM ONE

| | |
|--|--|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK THIRTEEN: EMPLOYEE TRAINING: A TACTICAL APPROACH TO ACHIEVING CERTIFICATION | |
| 8:00am - 8:10am | Introduction/Announcements: <i>Elton Machholz</i> |
| 8:10am - 9:00am | Assessment as a Method of Skill Certification: <i>Elton Machholz</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | TASK Approach to Technical Assessment: <i>Cassie Ruiz Verile</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Didactic Session: Group Exercises: <i>Heather Waldis</i> |
| 11:15am - 11:30am | Panel Discussion: Employee Training: A Tactical Approach/Certification |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm- 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK FOURTEEN: LAMA MANAGEMENT TRIATHLON | |
| 1:30pm- 1:40pm | Introduction/Announcements: <i>Steve Baker</i> |
| 1:40pm- 2:30pm | Overcoming the Hurdles of Communication: <i>Steve Baker</i> |
| 2:30pm- 2:45pm | Break |
| 2:45pm - 3:35pm | Hitting the Negotiation Targets: <i>Diana Baumann</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm- 4:45pm | Reaching the Medal Platform with Motivation: <i>Cammie Symonowicz</i> |
| 4:45pm - 5:00pm | Panel Discussion: LAMA Management Triathlon |
| EVENING SCHEDULE | |
| Free Evening in the City | |

13 EMPLOYEE TRAINING: A TACTICAL APPROACH TO ACHIEVING CERTIFICATION OVERVIEW:

The foundation for any successful research institution is the employee. Trainers have the daunting task of ensuring that their trainees reach a level of competence as required by the facility where they work, published standards (like the Guide) and regulatory bodies. However, training programs often overlook guidelines for establishing standardization and metrics for measuring employee proficiency. This block is divided into three sections to address considerations in developing a training program: 1) the importance of certification in laboratory animal medicine training and management; 2) a framework from which to adapt an existing training program using the TASK (Technical Assessment for Skills and Knowledge) methodology for certification; and 3) a hands-on application of this process, using examples of current processes. The block is intended for trainers, supervisors and staff managers who are looking for ways to refine their existing training programs for greater success.

14 LAMA MANAGEMENT TRIATHLON OVERVIEW:

The Laboratory Animal Management Association (LAMA) is an organization dedicated to advancing the quality of management and care of laboratory animals around the world. This block will first address key obstacles that managers often encounter (e.g., ineffective communication, lack of employee motivation), and provide helpful tools to overcome them. This block is intended for trainers, supervisors and staff managers who want to learn how to enhance their leadership skills, promote productivity and create a positive laboratory work environment.

[illegible]



EMPLOYEE TRAINING: A TACTICAL APPROACH TO ACHIEVING CERTIFICATION

The foundation for any successful research institution is the employee. Trainers have the daunting task of ensuring that their trainees reach a level of competence as required by the facility where they work, published standards (like the Guide) and regulatory bodies. However, training programs often overlook guidelines for establishing standardization and metrics for measuring employee proficiency. This block is divided into three sections to address considerations in developing a training program: 1) the importance of certification in laboratory animal medicine training and management; 2) a framework from which to adapt an existing training program using the TASK (Technical Assessment for Skills and Knowledge) methodology for certification; and 3) a hands-on application of this process, using examples of current processes. The block is intended for trainers, supervisors and staff managers who are looking for ways to refine their existing training programs for greater success.

- Assessment as a Method of Skill Certification
Elton Machholz
- TASK Approach to Technical Assessment
Cassie Ruiz Verile
- Didactic Session: Group Exercises
Heather Waldis

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|---------------------|---|---------------------------|----------------------------|---------------------------------|--|--------------------------|-------------------------------|------------------------------------|-------------------------------------|--|--|----|
| HOME | SPECIALTY BLOCKS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9-10 | 11-12 | |
| SPEAKERS • • • • | | Welfare | Aquatics | Basic Biology and Care – Rodent | Basic Biology and Care – Large Animals | Common Diseases – Rodent | Infectious Disease Management | Genetically Modified Animal Models | Common Diseases – Nonrodent Species | Diagnostics Technique and Methodology – Part I and II • • | Behavior and Enrichment Part I and II • • | |
| < | Employee Training: A Tactical Approach to Achieving Certification | 13 | 14 | 15 | 16 | 17 | 18 | 19-20 | 21 | 22 | 23 | 24 |
| > | | LAMA Management Triathlon | Animal Facility Management | Animal Model Potpourri | Public Outreach: What Can We Do? | Discovery • • | Camp ACLAM; Part I and II | Microbiome Research | Biosecurity | Emerging Infectious Diseases | Managing Surgically Altered Animal Colonies | |

14

Specialty Blocks

LAMA MANAGEMENT TRIATHLON

OVERVIEW:

The Laboratory Animal Management Association (LAMA) is an organization dedicated to advancing the quality of management and care of laboratory animals around the world. This block will first address key obstacles that managers often encounter (e.g., ineffective communication, lack of employee motivation), and provide helpful tools to overcome them. This block is intended for trainers, supervisors and staff managers who want to learn how to enhance their leadership skills, promote productivity and create a positive laboratory work environment.

LAMA PRESENTATIONS:

- Overcoming the Hurdles of Communication
Steve Baker
- Hitting the Negotiation Targets
Diana Baumann
- Reaching the Medal Platform with Motivation
Cammie Symonowicz

ABSTRACTS:

Overcoming the Hurdles of Communication

Effective communication requires us to be aware of the process – how we send and receive messages, which channel is appropriate, how our tone and use of nonverbals can alter our message and how to give and receive feedback is critical for a 'win'. We will also explore differences in listening versus hearing and discuss how we express empathy can build and tear down relationships.

Hitting the Negotiation Targets

Building rapport with others, learning how to solve problems and work through the decision making process with assertiveness to achieve collaboration is key to individuals who are responsible for making sure teams operate effectively on a day-to-day basis.

Reaching the Medal Platform with Motivation

What are some strategies for managers to keep team members engaged and motivated in this ever changing world? Is motivation a skill that can be learned or is it a core value established early in our lives? How do managers tap into what's important to team members to produce the biggest results. Millennials, Gen X'ers, Baby Boomers, may all have different incentives but there's one common denominator we all share: happiness.

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Wednesday June 29th
LECTURE ROOM TWO

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|--|---|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK FIFTEEN: ANIMAL FACILITY MANAGEMENT | |
| 8:00am - 8:10am | Introduction/Announcements: <i>Ann Murray</i> |
| 8:10am - 9:00am | Managing Operational Efficiencies, Part I: Electronic Animal Health Records, Transitioning to a Paperless Vivarium: <i>Tasha Thomas</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Managing Operational Efficiencies, Part II: KPIs and Benchmarking: <i>Jeetendra Eswaraka</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Vibration, Noise and Ultrasonic Noise in the Animal Facility: <i>Jeremy Turner</i> |
| 11:15am - 11:30am | Panel Discussion: Animal Facility Management |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm- 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK SIXTEEN: ANIMAL MODEL POTPOURRI | |
| 1:30pm- 1:40pm | Introduction/Announcements: <i>TBD</i> |
| 1:40pm- 2:30pm | Prey Interception in Dragonflies: <i>Anthony Leonardo</i> |
| 2:30pm- 2:45pm | Break |
| 2:45pm - 3:35pm | Identification and Management of Common Clinical Conditions in Laboratory Rodents: <i>Nicole Monts de Oca and Cynthia Lockworth</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm- 4:45pm | Exotic Models: How to Manage the Not-So-Common Research Model: <i>George Lathrop</i> |
| 4:45pm - 5:00pm | Panel Discussion: Animal Model Potpourri |
| EVENING SCHEDULE | |
| Free Evening in the City | |

15 ANIMAL FACILITY MANAGEMENT OVERVIEW:

Organizations achieve more when key performance indicators (KPIs) are aligned with the company strategy, objectives, and overall mission. Further, it is well known that certain metrics can assist with financial forecasting, benchmarking and goal setting. This specialty block will review the operational efficiencies gained by transitioning to a paperless vivarium, guidelines to ensure regulatory compliance while executing successful benchmarking and KPI programs, and innovative methods to minimize the negative impact of noise on research. This block is geared towards directors, project and facility managers and vivarium supervisors.

16 ANIMAL MODEL
POTPOURRI OVERVIEW:

Ever wonder why dragonflies are considered one of nature's top predators? Or, are you looking to gain more insight from industry experts on how best to manage some of the common clinical observations many come across in your animal colonies? These topics, along with a review of the more exotic animal models currently being managed in research facilities, is what this potpourri provides.

| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
|-----------------------|---|---------------------------------|--------------------------------------|---|--|------------------------------------|---|--|--|---|---|
| SPEAKERS • • • • • | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II • • | 11-12 Behavior and Enrichment Part I and II • • | |
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ANIMAL FACILITY MANAGEMENT

OVERVIEW:

Organizations achieve more when key performance indicators (KPIs) are aligned with the company strategy, objectives, and overall mission. Further, it is well known that certain metrics can assist with financial forecasting, benchmarking and goal setting. This specialty block will review the operational efficiencies gained by transitioning to a paperless vivarium, guidelines to ensure regulatory compliance while executing successful benchmarking and KPI programs, and innovative methods to minimize the negative impact of noise on research. This block is geared towards directors, project and facility managers and vivarium supervisors.

ANIMAL FACILITY MANAGEMENT PRESENTATIONS:

- Managing Operational Efficiencies: Part 1 Electronic Animal Health Records, Transitioning to a *Paperless Vivarium*
- Managing Operational Efficiencies: Part 2: KPI's and Benchmarking *Jeetendra Eswaraka*
- Vibration, Noise and Ultrasonic Noise in the Animal Facility: Sources and Implications *Jeremy Turner*

ABSTRACTS:

Managing Operational Efficiencies: KPIs and Benchmarking

Vivarium operations have undergone a tremendous amount of change within the lab animal industry in the last decade. With reduced research funding in both academia and industry to support operational activities, facility management has been required to “innovate” and execute new operational paradigms to support the research. Fundamental change to this approach is the acceptance that ‘external partners’ or ‘insourcing solutions’ can be part of the solution to deal with the constant pressure on internal resources to staffing an operational vivarium. A second major shift in thinking in vivarium management approach is the adoption of “lean management” principles from the manufacturing industry to drive facility organization, equipment maintenance, ensure personnel safety, reduction of waste and improving productivity. This talk will focus on how the speaker’s personal experience with introduction of these new methods, and challenges that had to be overcome to make them successful. This content would be useful to vivarium directors or managers who are faced with personnel resource issues or suboptimal vivaria that are operationally inefficient. Introducing change, managing change and also measuring the success by developing key performance indicators (KPI) are some of the topics that will be addressed.

Vibration, Noise and Ultrasonic Noise in the Animal Facility: Sources and Implications

This course will highlight some of the sources of vibration, noise, and ultrasonic noise in the animal facility (e.g., fluorescent lighting, computers, ventilated caging systems, bedding change stations), their impact on research animals, and how to measure and manage them. Noise and vibration serve as stressors for research animals, thereby serving as confounding variables for virtually every area of biomedical and behavioral research. A major concern with both noise and vibration in animal facilities is that neither is well controlled, managed, or even monitored. For example, much of the noise in our facilities is in the ultrasonic range, which we human observers cannot hear, and the noise meters we typically use cannot measure. This course will demonstrate how measuring and mitigating noise and vibration problems in the vivarium can refine our animal models and reduce the number of animals used.

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16

ANIMAL MODEL POTPOURRI

Ever wonder why dragonflies are considered one of nature's top predators? Or, are you looking to gain more insight from industry experts on how best to manage some of the common clinical observations many come across in your animal colonies? These topics, along with a review of the more exotic animal models currently being managed in research facilities are what this potpourri provides.

- Prey Interception in Dragonflies
Anthony Leonardo
- Identification and Management of Common Clinical Conditions in Laboratory Rodents
Nicole Monts de Oca
Cynthia Lockworth
- Exotic Models: How to Manage the Not-So-Common Research Model
George Lathrop

Sophisticated sensorimotor behaviors often rely on model-driven control. In vertebrates, such as primates, even simple targeted actions use forward models to predict the sensory consequences of self-movement, inverse models to generate the motor commands needed to attain desired sensory states, and physical models to predict target properties. In contrast, whether internal models are used by invertebrates has remained unresolved. In this talk I will discuss how dragonflies rely in these internal models to make predictions while they catch moving prey. I will discuss both behavior, neural control, and husbandry in these remarkable animals.

The objective of this presentation is to assist clinical veterinarians, veterinary residents, and rodent healthcare personnel in the laboratory animal field with developing their skills in the identification and subsequent management of the most common clinical presentations found in rodent facilities. It will address the importance of early condition recognition as it pertains to the success of treatment or the performance of humane animal euthanasia. Common presentations, etiologies, and typical management choices for over forty conditions will be reviewed. Upon completion of the course, attendees will be able to recognize each condition, and develop familiarity with management options. Severe conditions requiring immediate attention will also be addressed.

| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
|----------|---|---------------------------------|--------------------------------------|---|--|------------------------------------|---|--|---|--|---|
| SPEAKERS | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II | 11-12 Behavior and Enrichment Part I and II | |
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Wednesday June 29th

LECTURE ROOM THREE

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|---|--|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK SEVENTEEN: PUBLIC OUTREACH: WHAT CAN WE DO? | |
| 8:00am - 8:10am | Introduction/Announcements: TBD |
| 8:10am - 9:00am | Speak Now or Forever Rest in Peace!: <i>Cindy Buckmaster</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Retire My Research Animals, Now What?: <i>Laura Conour</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | The Current Trends and Ongoing Threat of Animal Rights Extremism: <i>Stephen Morrill</i> |
| 11:15am - 11:30am | Panel Discussion: Public Outreach: What Can We Do? |
| 11:30am - 1:30pm | Networking Midday Break |
| 12:00pm - 1:00pm | Networking Hubs (pre-registration required) |
| BLOCK EIGHTEEN: DISCOVERY | |
| 1:30pm - 1:40pm | Introduction/Announcements: <i>Joe Cornicelli</i> |
| 1:40pm - 2:30pm | Nuts and Bolts of Atherosclerosis Studies in Mice: <i>Debra Rateri</i> Diet-Induced Metabolic Disease in Nonhuman Primates: <i>Kylie Kavanagh</i> |
| 2:30pm - 2:45pm | Break |
| 2:45pm - 3:35pm | Bone Metabolism: The Effect of Vivarium Temperature on Outcomes in the Study of Bone Metabolism. Does it Matter?: <i>Urszula Iwaniec</i> |
| 3:35pm - 3:50pm | Break |
| 3:50pm - 4:45pm | Oncology Research: Noninvasive Assessment of Efficacy Response in Tumors by Imaging |
| 4:45pm - 5:00pm | Panel Discussion: Discovery |
| EVENING SCHEDULE | |
| Free Evening in the City | |

17 PUBLIC OUTREACH: WHAT CAN WE DO? OVERVIEW:

Public awareness of the good that is accomplished through our efforts is often overshadowed by the negative pressure exerted from various animal rights organizations. As an industry, we need to better connect with the public and continually educate people on the importance of biomedical research and the work we do for both animal and man. This specialty block is ideal for those looking for guidance on how to help shift public perception and separate fact from fiction. The block will also address animal rights activism and effective strategies to proactively guard one's institution from attack.

18 **DISCOVERY OVERVIEW:**

Drug discovery and development are heavily dependent on the judicious application of animal models. Demonstration of efficacy in a relevant animal model of human disease is one of the initial steps in this pathway, and is often used as a go/no-go step in decision making. Relevant models must recreate the human pathology along with shared etiologic mechanisms. This block examines some models used in the discovery and development of therapies for the treatment of metabolic disorders. The presentations focus on disease modeling in rodents, the actual recapitulation of the disease in translational models, and the influence of husbandry and vivarium conditions on the data we derive from those studies.

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PUBLIC OUTREACH: WHAT CAN WE DO?

- **Speak Now, or Forever Rest in Peace!**
Cindy Buckmaster
- **Retire My Research Animals, Now What?**
Laura Conour
- **The Current Trends and Ongoing Threat of Animal Rights Extremism**
Stephen Morrill

- Research animal transportation
- Infiltration
- Civil disobedience
- Criminal acts
- AETA (Animal Enterprise Terrorism Act)
- The Beagle Freedom Project
- No New Animal Lab (NNAL),
targeting research at the University of
Washington, Seattle

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| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
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OVERVIEW:

Drug discovery and development are heavily dependent on the judicious application of animal models. Demonstration of efficacy in a relevant animal model of human disease is one of the initial steps in this pathway, and is often used as a go/no-go step in decision making. Relevant models must recreate the human pathology along with shared etiologic mechanisms. This block examines some models used in the discovery and development of therapies for the treatment of metabolic disorders. The presentations focus on disease modeling in rodents, the actual recapitulation of the disease in translational models, and the influence of husbandry and vivarium conditions on the data we derive from those studies.

DISCOVERY PRESENTATIONS:

- **Nuts and Bolts of Atherosclerosis Studies in Mice**
Debra Rateri
- **Diet-Induced Metabolic Disease in Nonhuman Primates**
Kylie Kavanagh
- **Bone Metabolism: The Effect of Vivarium Temperature on Outcomes in the Study of Bone Metabolism. Does it Matter?**
Urszula Iwaniec
- **Oncology Research: Noninvasive Assessment of Efficacy Response in Tumors by Imaging**
Vivek Mahajan

ABSTRACTS:

Nuts and Bolts of Atherosclerosis Studies in Mice

The objective of this presentation is to assist scientists and laboratory animal medicine staff in the development of experimental design and execution of atherosclerosis studies in mice. It will discuss choice of mouse model, animal husbandry and environmental factors, special considerations for monitoring mouse health during study, and successful dissection of the aorta for quantification of atherosclerosis. Upon completion of this course, attendees will be able to assist in the design and execution of an *in vivo* study considering the caveats of mouse models and environmental factors. They will also recognize humane endpoints and be able to properly harvest aortic tissue for analysis.

Diet-Induced Metabolic Disease in Nonhuman Primates

The objective of this presentation is to assist veterinarians and facilities staff to understand variable dietary ingredients and intended phenotypic presentations in nonhuman primates that result from experimental diets. Commercially available diets and ingredients will be reviewed. Methods and data generated from diet-fed primate models will be described.

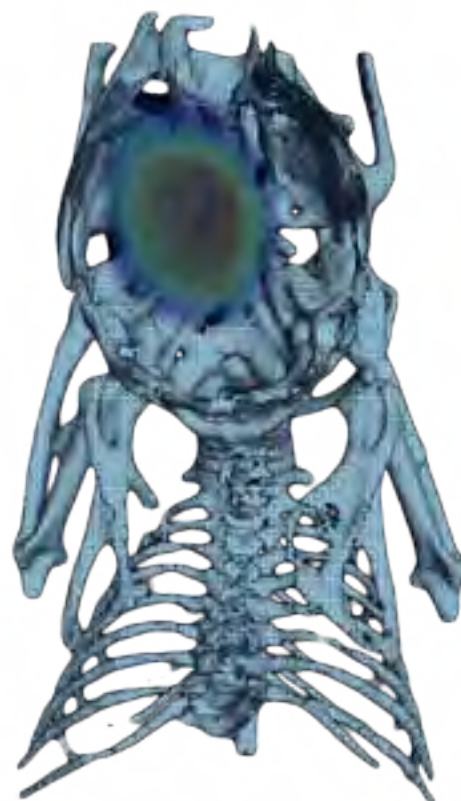
Bone Metabolism: The Effect of Vivarium Temperature on Outcomes in the Study of Bone Metabolism. Does it Matter?

Mice, because of their small size, short lifespan and ease of genetic manipulation, are a mainstay for cutting edge research in fundamental skeletal biology. However, in marked contrast to age-related cancellous bone loss in humans, cancellous bone loss in weight-bearing long bones in mice begins during growth, even as cortical bone continues to be accrued. As a consequence, mice exhibit low cancellous bone volume fraction prior to skeletal maturity (4 months of age). Unlike humans who are homeotherms, mice are facultative daily heterotherms, experiencing cyclic changes in core temperature and bouts of torpor when subjected to cold stress (temperatures below thermoneutral; $\sim 30^{\circ}\text{C}$ for mice) and/or caloric restriction. Activation of sympathetic signaling is important for mice to successfully adapt to low temperature and suppression of sympathetic tone has been reported to increase cancellous bone in mice. This presentation demonstrates the importance of vivarium conditions on bone metabolism studies, the impact it has on data interpretation, and the relevance of mice as an appropriate species for investigating these disorders.

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Oncology Research: Noninvasive Assessment of Efficacy Response in Tumors by Imaging

Most oncology drug efficacy studies are performed in cancer cells implanted in the flank of mice/rats instead of tissue of origin. There is a pressing need for transitioning to orthotopic models (cancer cells implanted in the tissue of origin) to recapitulate clinical disease progression and ability to monitor tumor growth and treatment response. Optical imaging allows this by detecting cancer cells (engineered to glow) *in situ* non-invasively. The technology is highly sensitive to enable growth monitoring in the tissue of implant and consequent micro-metastasis to distal tissues in real time. This presentation will allow attendees to understand imaging study design and methodology and the data generated will be discussed.



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Thursday June 30th
LECTURE ROOM ONE

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|--|---|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK NINETEEN: CAMP ACLAM <i>(separate registration)</i> | |
| 8:00am | Introduction/Announcements: <i>Mel Balk</i> Moderator: <i>Christina Weiner</i> |
| MORNING | Required Credentials for Board Eligibility: <i>Alyssa McIntyre</i> |
| | Helpful Hints for Reviewing Literature and Study Resources: <i>Mary Robinson</i> |
| | Review of Nomenclature: <i>Kate Pritchett-Corning</i> |
| | Mock Exam Camp ACLAM Committee: <i>Marie Debrue, Samer Jaber, Mary Ann McCrackin, Ayssa McIntyre, Mary Robinson, Christina Weiner, Marissa Wolfe</i> |
| 12:30pm - 1:30pm | Lunch and Panel Discussion: Diplomates Tell Their Own Story |
| BLOCK TWENTY: CAMP ACLAM <i>(separate registration)</i> | |
| AFTERNOON | Mock Exam: Review and Discussion: <i>Camp ACLAM Committee</i> |
| | Break to Roundtables: <i>Camp ACLAM Committee</i> |
| | Noteworthy Networking and Mentoring: <i>Camp ACLAM Committee</i> |

19-20 CAMP ACLAM: PART I AND II OVERVIEW:

The American College of Laboratory Animal Medicine (ACLAM) advances the humane care and responsible use of laboratory animals through certification of veterinary specialists, professional development, education and research. This specialty block is divided into two parts that combines didactic and hands-on mock-exam training. In addition to an overview, sessions will include study guides, roundtables, mentoring and networking. The blocks are intended for those looking to obtain tools and resources that are helpful when seeking ACLAM certification.

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19-20

Specialty Blocks

CAMP ACLAM – PART I AND II

OVERVIEW:

The American College of Laboratory Animal Medicine (ACLAM) advances the humane care and responsible use of laboratory animals through certification of veterinary specialists, professional development, education and research. This specialty block is divided into two parts that combines didactic and hands-on mock-exam training. In addition to an overview, sessions will include study guides, roundtables, mentoring and networking. The blocks are intended for those looking to obtain tools and resources that are helpful when seeking ACLAM certification.

ABSTRACTS:

Required Credentials for Board Eligibility

This presentation will discuss the requirements necessary to sit for the American College of Laboratory Animal Medicine certifying examination.

Helpful Hints for Reviewing Literature and Study Resources

The objective of this presentation is to provide guidance to clinical veterinarians who plan to sit for the American College of Laboratory Animal Medicine certification exam. Various study resources will be presented and tips on how to develop an organized study plan will be discussed. A sample study schedule will be handed out for use as a starting point for individual study plans. Upon completion of the course, attendees will have gained valuable knowledge regarding various reference materials and be able to create a personal, goal-driven schedule for review of these materials.

CAMP ACLAM, PART I

PRESENTATIONS:

- Welcome and Benefits of ACLAM
Mel Balk
- Required Credentials for Board Eligibility
Alyssa McIntyre
- Helpful Hints for Reviewing Literature and Study Resources
Mary Robinson
- Review of Nomenclature
Kate Pritchett-Corning
- Mock Exam
ACLAM Committee

- **LUNCH:** Diplomates Tell Their Own Story – Panel Discussion
Moderator: Christina M. Weiner
Panel: Marie Debrue, Mary Ann McCrackin, Marissa Wolfe, Samer Jaber, Alyssa McIntyre, Mary Robinson

CAMP ACLAM, PART II

PRESENTATIONS:

- Mock Exam: Review and Discussion *ACLAM Committee*
- Break to Roundtables *ACLAM Committee*
- Noteworthy Networking and Mentoring *ACLAM Committee*

The Nomenclature of Laboratory Animals

To aid in communication, standardized nomenclature for various laboratory animals has been agreed upon by scientists working with these animals. While all species used in a laboratory setting do not have strict naming rules promulgated by a central body, there are naming conventions in place for laboratory rodents. The main focus of this presentation will be on understanding the standardized nomenclature of mice and rats and what it does and does not communicate to the initiated. Some examples include understanding the basic rules used to name inbred, outbred, and genetically modified rodents. Although understanding mouse and rat nomenclature can seem challenging, plenty of examples, an overly-excitable presenter, and perhaps even a sing-along will help.

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| HOME | SPECIALTY BLOCKS | | | | | | | | | | |
| SPEAKERS • • • • • | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II • • | 11-12 Behavior and Enrichment Part I and II • • | |
| < | 13 Employee Training: A Tactical Approach to Achieving Certification | 14 LAMA Management Triathlon | 15 Animal Facility Management | 16 Animal Model Potpourri | 17 Public Outreach: What Can We Do? | 18 Discovery • • | 19-20 Camp ACLAM; Part I and II | 21 Microbiome Research | 22 Biosecurity | 23 Emerging Infectious Diseases | 24 Managing Surgically Altered Animal Colonies |
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Thursday June 30th
LECTURE ROOM TWO

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|--|---|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK TWENTY-ONE: MICROBIOME RESEARCH | |
| 8:00am - 8:10am | Introduction/Announcements: <i>TBD</i> |
| 8:10am - 9:00am | What is Microbiome Research?: <i>Lyn Bry</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Maintaining Models at a Germ-Free Health Status: <i>Maureen Bower</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Health Surveillance for Germ-Free Models: <i>Kate Eaton</i> |
| 11:15am - 11:30am | Panel Discussion: Microbiome Research |
| 11:30am - 1:00pm | Networking Midday Break (attention: shorter Midday break) |
| BLOCK TWENTY-TWO: BIOSECURITY | |
| 1:00pm- 1:10pm | Introduction/Announcements: <i>Guy Mulder</i> |
| 1:10pm- 2:00pm | Managing Risk: Identifying and Managing Critical Control Points to Reduce the Risk of Adventitious Rodent Infections: <i>Guy Mulder</i> |
| 2:00pm- 2:15pm | Break |
| 2:15pm - 3:05pm | When Biosecurity Fails: A Tactical Approach to Recovering From an Outbreak: <i>Bill White</i> |
| 3:05pm - 3:20pm | Panel Discussion: Biosecurity |
| 3:20pm | Closing Address |

21 MICROBIOME RESEARCH OVERVIEW:

Recent findings in the role that gut composition plays in human health have given rise to the relatively new field of microbiome research. However, with the potential for breakthroughs in medicine and nutrition also come new obstacles for LAR and researchers to overcome. This block will provide an overview of this emerging field. This block is geared towards those who want a better understanding of microbiome research, as well as tips on managing animal colonies bred for this purpose.

BIOSECURITY OVERVIEW:

The ultimate goal of any biosecurity program is to reduce or eliminate the potential of introducing an adventitious agent into your facility. However, despite maintaining comprehensive biosecurity program, the risk of a breach in biosecurity can never be completely eliminated. This specialty block will first examine the critical control points to address when looking to minimize risk in a vivarium. This will be followed by a tactical approach to recovering from a contamination in your animal facility.

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| SPEAKERS • • • • • | 1 Welfare | 2 Aquatics | 3 Basic Biology and Care – Rodent | 4 Basic Biology and Care – Large Animals | 5 Common Diseases – Rodent | 6 Infectious Disease Management | 7 Genetically Modified Animal Models | 8 Common Diseases – Nonrodent Species | 9-10 Diagnostics Technique and Methodology – Part I and II • • | 11-12 Behavior and Enrichment Part I and II • • | |
| < | 13 Employee Training: A Tactical Approach to Achieving Certification | 14 LAMA Management Triathlon | 15 Animal Facility Management | 16 Animal Model Potpourri | 17 Public Outreach: What Can We Do? | 18 Discovery • • | 19-20 Camp ACLAM; Part I and II | 21 Microbiome Research | 22 Biosecurity | 23 Emerging Infectious Diseases | 24 Managing Surgically Altered Animal Colonies |
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| MONDAY | | | TUESDAY | | | WEDNESDAY | | | THURSDAY | | |



Specialty Blocks

MICROBIOME RESEARCH

OVERVIEW:

Recent findings in the role that gut composition plays in human health have given rise to the relatively new field of microbiome research. However, with the potential for breakthroughs in medicine and nutrition also come new obstacles for LAR and researchers to overcome. This block will provide an overview of this emerging field. This block is geared towards those who want a better understanding of microbiome research, as well as tips on managing animal colonies bred for this purpose.

MICROBIOME PRESENTATIONS:

- What is Microbiome Research
Lyn Bry
- Maintaining Models at a Germ-Free Health Status
Maureen Bower
- Health Surveillance for Germ-Free Models
Kathryn A. Eaton

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| HOME | SPECIALTY BLOCKS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9-10 | 11-12 | |
| SPEAKERS • • • • | | Welfare | Aquatics | Basic Biology and Care – Rodent | Basic Biology and Care – Large Animals | Common Diseases – Rodent | Infectious Disease Management | Genetically Modified Animal Models | Common Diseases – Nonrodent Species | Diagnostics Technique and Methodology – Part I and II • • | Behavior and Enrichment Part I and II • • | |
| < | > | 13 | 14 | 15 | 16 | 17 | 18 | 19-20 | 21 | 22 | 23 | 24 |
| | | Employee Training: A Tactical Approach to Achieving Certification | LAMA Management Triathlon | Animal Facility Management | Animal Model Potpourri | Public Outreach: What Can We Do? | Discovery • • | Camp ACLAM; Part I and II | Microbiome Research | Biosecurity | Emerging Infectious Diseases | Managing Surgically Altered Animal Colonies |

22

OVERVIEW:

BIOSECURITY PRESENTATIONS:

- Managing Risk: Identifying and Managing Critical Control Points to Reduce the Risk of Adventitious Rodent Infections.

Guy Mulder

- When Biosecurity Fails:
A Tactical Approach to Recovering
from an Outbreak

William White

| HOME | SPECIALTY BLOCKS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9-10 | 11-12 | |
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| < | | 13 | 14 | 15 | 16 | 17 | 18 | 19-20 | 21 | 22 | 23 | 24 |
| > | | Employee Training: A Tactical Approach to Achieving Certification | LAMA Management Triathlon | Animal Facility Management | Animal Model Potpourri | Public Outreach: What Can We Do? | Discovery • • | Camp ACLAM: Part I and II | Microbiome Research | Biosecurity | Emerging Infectious Diseases | Managing Surgically Altered Animal Colonies |



Thursday June 30th
LECTURE ROOM THREE

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|---|--|
| 6:30am - 8:00am | Breakfast and Registration |
| BLOCK TWENTY-THREE: EMERGING INFECTIOUS DISEASES | |
| 8:00am - 8:10am | Introduction/Announcements: <i>TBD</i> |
| 8:10am - 9:00am | Emerging Infectious Diseases: Epidemiology - <i>Darin Carroll</i> |
| 9:00am - 9:15am | Break |
| 9:15am - 10:05am | Ebola: <i>Brianna Skinner</i> |
| 10:05am - 10:20am | Break |
| 10:20am - 11:15am | Mammalian Models for the Study of Influenza Viruses - <i>Jessica Belser</i> |
| 11:15am - 11:30am | Panel Discussion: Emerging Infectious Diseases |
| 11:30am - 1:00pm | Networking Midday Break (attention: shorter Midday break) |
| BLOCK TWENTY-FOUR: MANAGING SURGICALLY ALTERED ANIMAL COLONIES | |
| 1:00pm - 1:10pm | Introduction/Announcements: <i>TBD</i> |
| 1:10pm - 2:00pm | Care and Maintenance of Surgically Altered Rodent Models: <i>Velu Karicheti</i> |
| 2:00pm - 2:15pm | Break |
| 2:15pm - 3:05pm | Standing on the Shoulders of Giants: A Brief History of Physiologic Measurement in Animals and a Tribute to the Work of Pioneering Biophysicist, Dean Franklin: <i>R. Dustan Sarazan</i> |
| 3:05pm - 3:20pm | Panel Discussion: Managing Surgically Altered Animal Colonies |
| 3:20pm | Closing Address |

23 EMERGING INFECTIOUS DISEASES OVERVIEW:

Emerging infectious diseases are those in which incidence in humans has increased recently or threatens to increase in the near future. Whether they are completely new (e.g., Bourbon virus, Middle East respiratory syndrome) or reappearing (e.g., Zika virus), an outbreak anywhere is a risk everywhere. This specialty block will give participants a glimpse into the how researchers work to detect, prevent, and respond to outbreaks of infectious diseases such as Ebola. Presentations will discuss how small mammalian species are used in influenza virus research, including recent advances in animal modeling for viral research, and how these models aid in risk assessment. Sessions will also cover the anatomy of an outbreak investigation, and how veterinarians aid in outbreak response efforts.

24 MANAGING SURGICALLY ALTERED ANIMAL COLONIES OVERVIEW:

Improving the quality of physiological data collection is key to the advancement of animal research. The use of surgically altered animal models is both an effective means to achieve such progress and a way to promote the 3Rs. A critical component to success is the appropriate care and maintenance of these animals after surgery. This block will focus on the necessary care of surgically altered animals as well as review the various advances that have shaped the use of electronic instrumentation for physiological data collection.

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Small mammalian models, specifically the mouse and ferret, are widely employed to study the pathogenicity, transmissibility, and tropism of influenza viruses. This presentation will describe why the use of these species is desired for influenza virus research, and discuss the practical considerations that must be met for the successful implementation of these species in the laboratory, while underscoring the breadth of experimental designs and techniques currently available to study influenza viruses in these models. Examples of the application of these models to improve the risk assessment of emerging influenza viruses that pose a threat to human health will be highlighted.

24
Managing
Surgically
Altered Animal
Colonies

MANAGING SURGICALLY ALTERED ANIMAL COLONIES

OVERVIEW:

Improving the quality of physiological data collection is key to the advancement of animal research. The use of surgically altered animal models can be both an effective means to achieve such progress and a way to promote the 3Rs. A critical component to success is the appropriate care and maintenance of these animals after surgery. This block will focus on the necessary care of surgically altered animals as well as review the various advances that have shaped the use of electronic instrumentation for physiological data collection.

MANAGING SURGICALLY ALTERED ANIMAL PRESENTATIONS:

- Care and Maintenance of Surgically Altered Rodent Models
Velu Karicheti
- Standing on the Shoulders of Giants: A Brief History of Physiologic Measurement in Animals and a Tribute to the Work of Pioneering Biophysicist, Dean Franklin
R. Dustan Sarazan

ABSTRACTS:

Care and Maintenance of Surgically Altered Rodent Models

The objective of this presentation is to provide information to animal technicians, researchers and veterinary professionals on the care and maintenance of surgically altered rodent (rats and mice) models. The seminar will cover both acute care as well as chronic care of the rodents. The seminar will discuss the surgical rodent models including vascular and non-vascular catheterized models, neurological models, cardiovascular models, device implant models and soft tissue models. Upon the completion of the course, the attendees will understand the specific care necessary for both acute and long term care for each model, and be able to troubleshoot specific issues with surgical rodent models. The information presented has been drawn from more than 20 years of CRL experience in providing surgically altered rodents to investigators.

Standing on the Shoulders of Giants: A Brief History of Physiologic Measurement in Animals and a Tribute to the Work of Pioneering Biophysicist, Dean Franklin

We are all familiar with amazing technology that allows us to wirelessly monitor, control, communicate, visualize, and navigate (iPhone, Nest, echocardiography, GPS, etc.). However, few have an appreciation for the obstacles that were overcome by the early pioneers who first created and used this technology to explore the interesting physiology questions of the day. The objective of this presentation is to share

the pioneering work of scientists, research surgeons and engineers from the 1950s through 1980s that led to the development of most of the technology that we take for granted as *in vivo* researchers today. Many of these early experiments were captured on 16 mm film, some of which has been digitized and included in the presentation. Participants will leave this session with an appreciation for the amazing physiologic research that was conducted in conscious unrestrained animals (baboons, giraffes, sled dogs) many years ago with what, by today's standards, was very primitive technology, all of which they designed and built themselves.



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