2015 Mouse Pathobiology and Phenotyping Short Course

July 27-31, 2015

Short Course & Workshop on *Mouse Biology, Pathology, Genetics for Phenotyping and Translational Research*
[concurrent with graduate school course ME 680.712]

At Johns Hopkins University School of Medicine, Baltimore, MD USA

TARGET AUDIENCE: Scientists, faculty, postdocs, graduate students, veterinarians, pathologists who use or expect to use mice in translational research.

AIMS: To provide information, practical tools and skills essential to the optimal use of mice in translational research.

FORMAT & TOPICS: 5 day short-course on mouse biology, pathology, genetics, practical and multidisciplinary phenotyping for translational research, including lectures, 3 hands on laboratory session, exhibits, tours, poster session, pathology slide conference.
DVM/VMD RACE approved provider

SYLLABUS: **MOUSE PATHOBIOLOGY & PHENOTYPING MANUAL** is the core syllabus material, several sections can be **downloaded (free)**
Additional syllabus/lecture material is uploaded before the course, and provided at the course.

Visit Exhibits 9am Monday to 5pm Tuesday.

Contact Welza1@jhmi.edu for 2015 Exhibit Information

2015 EXHIBITORS

Sable Systems International

The Jackson Laboratory

Thermo Fisher Scientific

JHU CORES

PHENOTYPING CORE

BRB BEHAVIOR CORE

CMOR CENTER FOR METABOLISM AND OBESITY RESEARCH

SAIRP Small Animal Imaging Resource Program

Comprehensive Oncology Tissue Services Core

Transgenic & ES Cell Core

IACUC

JHU REGISTRATION
(Grad Students, Postdocs, Faculty and Staff)
After June 1, call or email for availability of laboratory sessions.
For **Graduate students and Postdocs, this is JHUSOM graduate school course ME:680.712**

Faculty/Staff Tuition Remission information/registration

NON-JHU REGISTRATION
Early registration (before June 15):
$800 for Lectures + Hands on Laboratory Sessions, $600 for Lectures Only.
After Jun 15: $1,000 for Lectures and Lab Sessions (call or email for availability),
$800 for Lectures Only.

BWI is the closest airport
BAL is the closest Amtrak station

Local Hotel Information (this course is at Johns Hopkins Hospital or East Baltimore Campus; 733 North Broadway; Baltimore, MD 21205)
Visitor Parking (McElderry or Caroline are Closest Garages)

2015 Program

MONDAY July 27	**INTRODUCTION to Mouse Pathobiology & Phenotyping + EXHIBITS + POSTERS**
8am-5pm	*Registration - Turner Concourse*
9-10am	Brayton - Introduction to phenotyping, mouse genetics, nomenclature & Famous Mice (PDF) *Web Resources: Summary Tables (doc), Famous Mice doc (PDF), Mouse Diseases doc (PDF)*
10-11	Brayton - Common Spontaneous Phenotypes and Diseases (NON infectious) (PDF)
11-12	Watson - Environmental influences on phenotypes 1 What is in your mouse environment? (PDF)
12-1	LUNCH - **VISIT EXHIBITS + POSTERS**
1-2	**KEYNOTE LECTURE: Sex as a Biological Variable in Rodent Models Stephanie Murphy, VMD, PhD, DACLAM; NIH (PDF)**
2-3	Watson - Environmental influences on phenotypes 2 What ELSE can impact your research and phenotypes: Your Surveillance Program .(PDF)
3-4	Brayton - Infections & infectious phenotypes that can impact your research (PDF)
4-5	Brayton - Immunodeficient Mice - options & challenges (PDF)
5-7pm	***RECEPTION, EXHIBITS & POSTER SESSION***
TUESDAY July 28	**GEM & Multidisciplinary Phenotyping + EXHIBITS, Core Tours**
9-10	Hawkins / Reeves – Making Mice - traditional and new transgenic technologies (PDF)
10-11	Crawford / Pletnikov – Emotional / Cognitive Phenotyping (PDF)
11-12	Mitzner – Pulmonary/Respiratory Phenotypes & Phenotyping (PDF)
12-1	***LUNCH & Tours - CMOR (metabolic) & BRB Imaging, Behavioral*** **+ EXHIBITS + POSTERS**
1-2	Doyle / Shaw - Ophthalmic Phenotyping (PDF)
2-3	Aja - Metabolic Phenotypes & Phenotyping (PDF)
3-4	Schrode / Lauer - Auditory/acoustic Phenotyping (PDF)
4-530	Foss - IMAGING for Phenotyping (PDF) Gabrielson - Cardiovascular phenotyping: In vivo functional correlations to pathology (PDF)
WEDNESDAY July 29	**Practical Phenotyping 1 DOWNLOAD LAB MANUAL - 50p PDF**
9-10	Watson - Clinical / Physical Exam - Modified SHIRPA *(Lab Manual - 50p PDF)* (PDF)

10-11	Brayton - Clinical Pathology - oversimplified (PDF)
11-12	Brayton & al - Online & other Resources (PDF)
12-1	***LUNCH (on your own) & Tours - CMOR (metabolic) & BRB Imaging, Behavioral***
130-3pm	Watson / Forbes & al LAB 1: Clinical Examination *(Lab Manual - 50p PDF)*
315-5pm	Forbes / Brayton & al LAB 2: Clinical Pathology and Specimen collection *(Lab Manual - 50p PDF)*

THURSDAY July 30	**Practical Phenotyping 2 DOWNLOAD LAB MANUAL - 50p PDF**
9-10	Brayton - Anatomic Pathology Phenotyping - Necropsy *(Lab Manual - 50p PDF)* (PDF)
10-11	Brayton - Anatomic Pathology Phenotyping - Trimming *(Lab Manual - 50p PDF)* (PDF)
11-12	Brayton - Microscopic Anatomy & Pathology by Virtual Microscopy *(Lab Manual - 50p PDF)*
12-1	***LUNCH (on your own)***
1-4	Forbes / Brayton et al. LAB 3: Anatomic Pathology - Necropsy *(Lab Manual - 50p PDF)*
4-5pm	Meeker - Basic Immunohistochemistry - principles and protocol development (PDF)

FRIDAY July 31	**Practical Phenotyping 3** **Advanced Pathology for Phenotyping & Translational Research**
9-11	Forbes / Brayton et al. LAB 4: Anatomic Pathology - Trimming *(Lab Manual - 50p PDF)*
11-12	***Digital Slide Case Conference***
12-1	***LUNCH (+ Slide Conference - Continued)***
1-2	J Ward - Evaluation of Embryonic & Perinatal Lethality In Mice (PDF)
2-3	D Haines - NCI Pathology Core Support for Basic and Translational Research: GEM, Xeno, TMAs and Nano (PDF)
3-4	T Cornish - An introduction to digital whole slide imaging and whole slide image analysis (PDF)

EXAM ! Must be completed by Midnight ET Sunday August 2.

MOUSE PATHOBIOLOGY & PHENOTYPING MANUAL

1st ed. 2009 and later selected sections available to download here.
Register for this course, or contact Dr. Brayton for updated revisions.

Section 1
Spontaneous Phenotypes and Conditions inCommon Mouse Strains & Stocks - 2009 1st ed (75pp)

Spontaneous Phenotypes and Conditions inCommon Mouse Strains & Stocks - 2013 3rd ed (84pp)

Section 2
Infectious Agents and Phenotypes in Mice - 2009 1st ed

Infectious Agents and Phenotypes in Mice - 2012 2nd ed

Section 3
Mouse Pathology Glossary: Non Neoplastic; Neoplastic - 2009 1st ed

Section 4
Anatomic Pathology - Necropsy & Trimming Protocol - 2009 1st ed

Anatomic Pathology - Necropsy & Trimming Protocol - 2013 3rd ed (in 2013 Lab Manual)

Section 5
(Relatively) Non Invasive Phenotyping

Section 6
Clinical Pathology Resources

Section 7
Metabolic Phenotyping Resources

Section 8
Pregnancy, embryo, pup evaluation

Previous Courses & Symposia

2013 JHU Short Course
2012 JHU Short Course
2011 JHU Short Course
2010 JHU Short Course
2009 JHU Symposium
2008 JHU Symposium
2007 JHU Symposium
2006 JHU Symposium
2008 ME 680.712 course schedule
2007 ME 680.712 course schedule

Additional Lecture/Syllabus Material

2014

JHU Small Animal Imaging Workshop, Mar 11-13, 2014
Brayton - Pathology Imaging PDF

2014 BTCure Workshop Vienna
Brayton - Immune Variation Among Inbred Strains and Sources PDF of PPT

2014 Mouse Models; Wellcome Trust
Immunodeficient MIce: Pathology, Phenotypes PDF of PPT

Brayton, C. (2014). Spontaneous diseases in commonly used mouse strains and stocks. MPD:Brayton1. Mouse Phenome Database web site http://phenome.jax.org. Bar Harbor, Maine USA, The Jackson Laboratory.

Brayton, C., C. Mckerlie, and S. Brown, (2014). CH 16. Analysis of Phenotype. Transgenic Animal Technology, A Laboratory Handbook. 3rd Ed. C. A. Pinkert: 431-488. Elsevier.

2013

2013 ECVP Summer School
Mouse Pathology (Spontaneous + Infectious) text + refs 50p PDF
Mouse Pathology summary tables - 14p docx
Rat Pathology summary tables - 11p docx

2013 FELASA Practical Pathology Workshop
Practical Pathology Protocol PDF 15 pages Practical Pathology PPT PDF 15 pages
Sample Submission Forms (http://www.hopkinsmedicine.org/mcp/PHENOCORE/TESTpath.html)

2012

Brayton, C.F., P.M. Treuting, and J.M. Ward, *Pathobiology of Aging Mice and GEM: Background Strains and Experimental Design.* Vet Path. 2012. **49**(1): p. 85-105.

Treuting, P.M., C.B. Clifford, R.S. Sellers, and C.F. Brayton, *Of mice and microflora: considerations for genetically engineered mice.* Vet Pathol, 2012. **49**(1): p. 44-63.

Sellers, R. S., C.B. Clifford, P.M. Treuting, and C.F. Brayton. (2012). "Immunological variation between inbred laboratory mouse strains: points to consider in phenotyping genetically immunomodified mice." Veterinary pathology 49(1): 32-43.

Brayton 2012 Mouse Cancer Models Lecture

Brayton 2012 Mouse Ageing Models Lectures

Brayton, C. and P. Treuting (2012). Phenotyping. Comparative Anatomy and Histology: A Mouse and Human Atlas P. Treuting and S. Dintzis. London, Elsevier (Academic Press): 361-381.

Danneman, P., Suckow, M.A., and Brayton, C.F. (2012). THE LABORATORY MOUSE. 2nd Ed. Boca Raton, FL, Taylor and Francis, CRC Press.

2011

Brayton, C. (2011). Nature and Nurture: impacts on mouse phenotypes and translational research. THE MOUSE AS A MODEL ORGANISM. T. Pihlajaniemi and C. Brakebusch, Springer.

For additional Course information, or to provide feedback or suggestions - contact Dr. Brayton.

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