NONHUMAN PRIMATE ULTRASOUND IMAGING WORKSHOP

March 19–March 21, 2014
Michale E Keeling Center for Comparative Medicine and Research
Bastrop, TX

Sponsored by:
Core Imaging  ♦  A-Tune  ♦  Purina LabDiet®
Sound Eklin, Inc.  ♦  The Mannheimer Foundation, Inc.  ♦  Vet Imaging
Thank you to the Southwest National Primate Research Center for sponsoring the printing of the workshop program. Additional thanks to the Michale Keeling Center for Comparative Medicine and Research for hosting the workshop.
Thanks to our sponsors for your continued support.

**A-Tune**
3000 Joe DiMaggio Blvd Ste 57
Round Rock, TX 78665
Phone: (512) 243-8539
www.a-tune.de
Contact: Patrick Guider
Tick@lab is the software solution for the management of animal research facilities, including management protocols, meetings, inspections, animal orders, capacity management, stock and facility management, veterinary records, health management, breeding, cost accounting, reporting, and statistics. This 100% web technology is easy to learn, use, and integrate.

**Core Imaging**
908 West River Center Dr Ste E
Comstock Park, MI 49321
Phone: (616) 446-8258
Fax: (616) 785-2675
http://coreultrasound.com
Contact: Randy Laufersky
Core Imaging offers only the best brands of imaging equipment like Philips, SIUI, Rayence, and ServiceNet. We work with a wide range of veterinarians, veterinary facilities, and experience levels, and we’ll work with you to choose an imaging solution that best fits your practice and needs.

**Purina LabDiet®**
PO Box 19798
St. Louis, MO 63144
Phone: (636) 742-6295
Fax: (636) 234-8505
www.labdiet.com; www.testdiet.com
Contact: Tricia Lutman
Purina Mills is the International supplier of the LabDiet® and TestDiet® products used in lab animal nutrition. All products are manufactured in our ISO9001:2000 certified plant in Richmond, IN. Diets are available in Standard, Certified, Autoclavable, Irradiated, Vac-Pak, and Micro-Pak. Custom diets are also available upon request.

**Sound-Eklin, Inc.**
6359 Paso Del Lago
Carlsbad, CA 92011
Phone: (469) 273-0142
Fax: (817) 977-6950
www.soundeklin.com/products/ultrasound
Contact: Brad Bramblett
Sound-Eklin is the veterinary industry’s #1 digital imaging and PACS Company, with unchallenged leadership positions in ultrasound, digital radiography, imaging education, and PACS solutions. Ultrasound technologies, the General Electric Logiq, and Vivid ultrasound lines bring the right solution for diagnostic ultrasonography to every vet application and user.

**The Mannheimer Foundation, Inc.**
20255 SW 360th St
Homestead, FL 33034
Phone: (305) 510-8495
Fax: (305) 245-7650
Contact: Dr. Pablo Morales
The Mannheimer Foundation, Inc. is a not-for-profit organization whose mission is the advancement of biomedical research directed towards the improvement of human and animal health. The Foundation maintains SPF breeding colonies of cynomolgus macaques (SPF, for SRV/D, SIV, STLV, and B-virus), rhesus macaques, and hamadryas baboons. Research and breeding is conducted at both of the Foundation’s modern facilities. Advanced imaging, aseptic surgery, necropsy, and diagnostic laboratory capabilities are available. Biological tissues and body fluids are also available for scientific research. Nonhuman primate production, genetics, behavior, and cage designs are ongoing Foundation projects. Training opportunities with stipends are available for senior veterinary students and graduate veterinarians.

**Vet Imaging**
16 Technology, Ste 138
Irvine, CA 92618
Phone: (817) 304-0567
Fax: (545) 727-0650
www.vetimaging.com
Contact: Natalie S. Martus
VetImaging and SonoSite provide world-class ultrasound solutions. The SonoSite portable ultrasounds are widely considered the most technologically advanced portable ultrasounds in the world. They are light, compact, durable, reliable, simple-to-operate, feature fast 15-second startup, and are rugged enough for the U.S. Military. SonoSite ultrasounds includes an industry first, 5-year warranty and overnight loaner service.
workshop schedule

WEDNESDAY 03/19/14

3:00 – 4:30 p.m. Facility Tour

4:30 – 6:30 p.m. Dry Lab (no animals), Equipment Demo, Networking Session

THURSDAY 03/20/14

7:00 - 8:00 a.m. Registration

8:00 - 9:00 a.m. Lecture: Basics of Echocardiography, Fe Wright, DVM

9:00 - 10:00 a.m. Lecture: Practical Applications of Echocardiography for Nonhuman Primates: Rick D Lee, DVM

10:00 - 10:30 a.m. Break

10:30 - 11:30 a.m. Lecture: Contrast Media for Vascular Tracing: David Jimenez, DVM, DACVR

11:30 - 1:00 p.m. Lunch

1:00 - 4:30 p.m. Labs: Jimenez, Lee, Rapoport, Wright, Rioux, Parks, Sleeper and Massey

2:45 - 3:15 p.m. Break

4:30 – 6:30 p.m. Dry Lab (no animals), Equipment Demo, Networking Session

FRIDAY 03/21/14

8:00-9:00 a.m. Lecture: Echocardiography of Macaques, Meg Sleeper, DVM, DACVIM

9:00-10:00 a.m. Lecture: New World Primate Cardiology: Human and Non-Human Correlates, Clara Massey, MD

10:00-10:30 a.m. Break

10:30-12:00 a.m. Lecture: Cardiomyopathy of Great Apes, Gregg Rapoport, DVM, DACVIM; Rick Lee, DVM

12:00-1:00 p.m. Lunch

1:00-5:00 p.m. Labs: Jimenez, Lee, Rapoport, Wright, Rioux, Parks, Sleeper and Massey

2:45-3:15 p.m. Break
Basics of Echocardiography
Fe Wright, DVM

Topic coverage includes a focus on standard echocardiography, specifically transthoracic echocardiography. Modalities, applications, advances with examples of 2D gray scale, M mode, Doppler- (Color, Spectral, and Tissue Doppler) along with conventional parametric measurements and calculations will be discussed. A list of most reported cardiac diseases encountered in NHP’s and nontraditional species will be mentioned. A brief overview of other methodologies, including transesophageal echocardiography, strain imaging, and 3D echocardiography will be mentioned.

Practical Sonographic Imaging in Nonhuman Primates
Rick D Lee, DVM

Ultrasound imaging is a powerful, low-cost, noninvasive medical imaging tool used by laboratory animal veterinarians. Since most nonhuman primates must be anesthetized or sedated to perform an ultrasound examination, clinicians must be efficient in obtaining important diagnostic information in a short period of time. A comprehensive overview of the most common clinical applications of ultrasound imaging will be presented, along a review of recent nonhuman primate medical cases that used diagnostic ultrasonography. Additional cutting edge techniques using state-of-the art equipment to improve diagnostic imaging will also be presented in this session.

Contrast Media for Vascular Tracing
David A Jimenez, DVM, DACVR

This session is an introduction of ultrasonographic contrast agents, their physical properties, and methods of image acquisition. Ultrasound contrast agents allow for delineation of vascular spaces and evaluation of tissue perfusion. This has assisted in cardiac chamber evaluation, identifying abdominal parenchymal lesions, differentiating malignant from benign lesions, and localizing areas of ischemia or hemorrhage. Their use in human and veterinary medicine will be discussed, as well as potential uses for future research and clinical applications.
Echocardiography of Macaques
Margaret M Sleeper, VMD, DACVIM

This session is a review of the recognized naturally occurring heart diseases in macaques, followed by discussion of specific cases.

New World Primate Cardiology: Human & Nonhuman Correlates
Clara V Massey, MD

This presentation will include a discussion of the effects of hypertension on human primate and nonhuman primates. Examples of echo images of left ventricular hypertrophy and dilated cardiomyopathy, human, and nonhuman will be discussed.

Cardiomyopathy in Great Apes
Rick D Lee, DVM and Gregg Rapoport, DVM, DACVIM

Heart disease is common in captive great apes. While numerous types of heart disease have been reported, acquired cardiomyopathy appears to be most prevalent. Idiopathic Myocardial Fibrosis (IMF) is the major cause of mortality in captive great apes species. Systemic hypertension has been associated with sodium intake in the chimpanzees, and has also occurred concurrently with heart disease in the gorilla. Standard echocardiographic reference values have recently been established to enable clinicians to evaluate cardiovascular health in great apes. Early recognition and correct diagnosis of cardiovascular disease is critical. This session will discuss diagnosis and treatment of cardiovascular disease in general, with a comprehensive discussion on cardiomyopathy in captive great apes.
David A Jimenez, DVM, DACVR
Assistant Professor of Radiology
University of Georgia
501 D W Brooks Dr
Athens, GA 30602-5023
Phone: (706) 654-2830
Email: jimenez@uga.edu

Rick D Lee, DVM
President
Leeway Consulting & Staffing
3415 South 198th St
Seatac, WA 98188
Phone: (206) 592-2053
Fax: (206) 592-2058
Email: ricklee.dvm@gmail.com

Clara V Massey, MD
Cardiologist/Professor
University of South Alabama College of Medicine
2451 Fillingim St Ste 10B
Mobile, AL 36617
Phone: (251) 471-7919
Fax: (251) 470-5888
Email: cmassey@health.southalabama.edu

Virginia L Parks, RLATG, BS
Animal Resources Manager
UT MD Anderson
650 Cool Water Dr
Bastrop, TX 78602
Phone: (512) 332-7328
Fax: (512) 332-7367
Email: danceswithprimates@yahoo.com

Gregg Rapoport, DVM, DACVIM
Assistant Professor of Cardiology
University of Georgia
501 D W Brooks Dr
Athens, GA 30602-5023
Phone: (706) 206-7947
Fax: (706) 583-0919
rapoportg@gmail.com

Jacqueline Rioux, RDMS, RVT, RDCS
Sonographer
Concentric Healthcare
1880 E Morten Ave
Phoenix, AZ 85020
Phone: (602) 350-7764
Email: azjacq@yahoo.com

Margaret M Sleeper, VMD, DACVIM
Associate Professor of Cardiology-Clinician Educator
University of Pennsylvania School of Veterinary Medicine
Department of Clinical Studies
Section of Cardiology
3900 Delancy St
Philadelphia, PA 19104-5052
Phone: (215) 898-6439
Email: sleeper@vet.upenn.edu

Fe Wright, DVM
Investigator
GlaxoSmithKline
709 Swedeland Rd UMW 2630
King of Prussia, PA 19406
Phone: (610) 270-4838
Fax: (610) 270-4054
Email: febolivar.b.wright@gsk.com
Record of Participation in Continuing Education Program
Nonhuman Primate Ultrasound Imaging Workshop sponsored by the Association of Primate Veterinarians (APV), March 19–21, 2014

This form is provided to attendees of the annual APV workshop as official documentation of attendance at the workshop. Attendees are advised to record their attendance at presentations and to supplement this information with a copy of the official program. Every hour of participation in the seminars and scientific sessions of an APV workshop is potentially worth one hour of credit for documentation of continuing education. The 2013 workshop provides approximately 16 contact hours of continuing education. The final number of contact hours will be available after the Workshop. Additional information on the various state requirements of CE credits is available from the American Veterinary Medical Association (AVMA). Final determination of the acceptance of a program is up to the individual state licensing authority.

Alan Brady, Secretary

Print name of participant

Signature of participant

Signature of contact person/faculty

At the 2014 APV Nonhuman Primate Ultrasound Workshop, I attended the following lectures and/or presentations:

- Basics of Echocardiography
- Practical Applications of Echocardiography for Nonhuman Primates
- Contrast Media for Vascular Tracing
- Labs
- Echocardiography of Macaques
- Echocardiography of New World Monkeys
- Cardiography of Great Apes
- Labs (2)

Application is pending to have this program approved by the American Association of Veterinary State Boards (AAVSB) RACE Program for Continuing Education. Please contact AAVSB’s RACE Program at 3100 Main Street, Suite 208, Kansas City, MO, 64111 or info@aavsb.org should you have any comments or suggestions regarding this program.