



Welcome to **Montréal!**
Bienvenue à **Montréal!**

STP 36th Annual Symposium Musculoskeletal System

PROGRAM



Montréal, Québec, Canada
June 24–29, 2017

Table of Contents



| | |
|--|------------|
| Annual Symposium Overview/Schedule | 5 |
| Committees | 7 |
| Awards | |
| Lifetime Achievement Award | 9 |
| Distinguished Early Career Award | 10 |
| Outstanding Mentor Award | 11 |
| Daniel Morton and Laura Dill Morton Scholarship..... | 12 |
| Student Awards..... | 12 |
| Best Paper and Review Awards..... | 13 |
| General Information | |
| Receptions, Awards Ceremony, Business Meeting, and Other Events..... | 14 |
| Registration Information | 14 |
| Membership Offer | 15 |
| Speaker Ready Room..... | 15 |
| Poster Information..... | 15 |
| Exhibit Hall..... | 15 |
| Safety and Security Tips | 16 |
| Neighborhood Map | 17 |
| Convention Centre Maps | 18 |
| Program | |
| NTP Satellite Symposium..... | 21 |
| Career Development Workshop | 22 |
| Continuing Education Courses | 22 |
| Scientific Sessions | 24 |
| Poster Presentations | |
| Poster Setup and Presentation Times..... | 29 |
| Poster Presentation Index..... | 30 |
| Sponsored Events and Exhibits | |
| Sponsored Event and Exhibitor-Hosted Session | 36 |
| Exhibit Hall Map and Exhibitor Listing..... | 37 |
| Exhibitor Descriptions..... | 38 |
| Sponsorship | |
| Society Sponsors | Back Cover |

In our continuing efforts to reduce paper usage and to provide pre-meeting access to meeting materials, including speaker and poster abstracts, the attendee list, session evaluations, and links to meeting-related events and surveys, attendees are encouraged to download the STP 2017 Mobile App from the Apple or Android stores, or access the mobile web version at www.toxpath.org/am2017/app.asp.

Meeting materials can also be viewed online: www.toxpath.org/am2017/materials.asp. You will be prompted for a login. Members can access with normal STP login. Other attendees can access with login provided via email.

Welcome Bienvenue

from the STP President

Dear Colleagues and Guests,

Welcome to Montréal, Québec, Canada for the 36th Annual Symposium of the Society of Toxicologic Pathology (STP)! Our sessions in the Palais des Congrès de Montréal/Montréal Convention Centre promise to provide a wealth of knowledge, entertainment, and camaraderie. Thank you for coming!

The 2017 Scientific Program Planning Committee has assembled an outstanding week of sessions on the “Toxicologic Pathology of the Musculoskeletal System.” Take a few minutes to review the schedule of scientific talks, poster sessions, and special events in the Program to enjoy the greatest benefit from your week. A new option for planning this year is our mobile meeting app, which can be downloaded from the Apple or Android app stores, or www.toxpath.org/am2017/app.asp.

As always, the meeting starts on Saturday with the all-day interactive NTP Satellite Symposium, “Pathology Potpourri,” that focuses on presentations of challenging lesions. This symposium is free to all attendees.

The half-day Continuing Education (CE) courses on Sunday still have openings! Just stop by the STP Registration Desk (located just outside the Exhibit Hall) to sign up for one or more of these optional half-day courses:

- CE 1—Sunday AM:** Impact on the Stage-Aware Assessment of the Reproductive Tract;
- CE 2—Sunday AM:** Current Practices and Challenges in Method Validation;
- CE 3—Sunday PM:** Tissue-Based Image Analysis; and
- CE 4—Sunday PM:** What You Always Wanted to Know about Immunotoxicology in Pharmaceutical Development...but Were Afraid to Ask.

The annual Town Hall session will occur Monday evening at 5:30 pm. The topic this year will be “Histopathology Grading.” Please plan to attend and give your opinion on this important subject.

Two career development programs are offered this year. The Career Development Workshop, “Transition Points in a Pathologist’s Career,” will be offered on Sunday, and the Career Development Lunchtime Seminar, “STP Special Interest Groups: Role and Relevance for Your Toxicologic Pathology Career,” will take place on Monday after the first scientific session. These events are open to all at no additional cost, but registration is required.

The exhibitors in the Exhibit Hall are a valued part of our meeting, and I strongly encourage you to visit them. This year, exhibits will open on Sunday at 1:00 pm (prior to the Welcome Reception) and will remain open until Tuesday at noon, so plan to visit early. A buffet lunch on Monday in the Exhibit Hall is open to all attendees.

STP Special Interest Groups (SIGs) have scheduled meetings during the week. The SIGs meetings are open to all. Please check the Registration Desk for meeting times and locations for Cardiovascular Toxicologic Pathology, Clinical Pathology, Digital Pathology and Image Analysis, Environmental Toxicologic Pathology, Immune System, Juvenile Pathology, Medical Devices, Neuropathology, Pig Toxicologic Pathology, and Reproductive Pathology.

June is a particularly wonderful time to visit Montréal. The free afternoon on Tuesday will be a great opportunity to explore the city. I encourage you to discover Montréal’s numerous attractions—many are within a short walk from the convention centre.

In closing, I look forward to meeting you throughout the week and at the President’s Reception (on Wednesday evening following the Awards Ceremony and Annual Business Meeting.)

Enjoy the meeting, and thank you for supporting your Society!

Sincerely,



Brad Bolon, DVM, MS, PhD, DACVP, DABT, ATS, FIATP
STP President

The STP 2017 Annual Symposium App

Quick Start Guide

iPhone 6 Layout

Select your name to access your profile and to manage your communications and privacy settings.



Scroll down to view additional icon buttons for each of the features and tools within the app.

Use the universal search tool:

Schedule—by Session or Event Title, Session or Event Type, Speakers

Poster Abstracts—by Title, Poster Number, Author Name or Affiliation, or Abstract Content

Speakers—by Name or Affiliation

Exhibitors—by Company Name or Booth Number

The Search tool will search all content within the app.



Download the app (STP 2017) from your app marketplace or access the Annual Symposium App at www.toxpath.org/am2017/app.asp



Annual Symposium Overview

All events are in the Convention Centre unless otherwise indicated.

| Friday, June 23, 2017 | | |
|-------------------------|--|--|
| 4:00 PM–6:00 PM | Registration | Room 517 Foyer |
| Saturday, June 24, 2017 | | |
| 8:00 AM–6:00 PM | Registration | Room 517 Foyer |
| 9:00 AM–4:30 PM | NTP Satellite Symposium | Room 517c |
| 7:00 PM–10:00 PM | Sponsored Reception <i>Sponsored by Charles River</i> | Le Westin, Fortifications Ballroom |
| Sunday, June 25, 2017 | | |
| 7:00 AM–6:00 PM | Registration | Room 517 Foyer |
| 8:00 AM–12:00 Noon |  Career Development Workshop Transition Points in a Pathologist's Career <i>Sponsored by EPL, Inc.</i> | Room 518 |
| 8:00 AM–12:00 Noon |  Morning Continuing Education (CE) Courses | |
| | CE1: Impact of Age on the Stage-Aware Assessment of Reproductive Tract | Room 517d |
| | CE2: Current Practices and Challenges in Method Validation | Room 517c |
| 1:00 PM–7:00 PM | Exhibits and Poster Sessions Open | Room 517a |
| 1:30 PM–5:30 PM |  Afternoon Continuing Education (CE) Courses | |
| | CE3: Tissue-Based Image Analysis | Room 517d |
| | CE4: What You Always Wanted to Know about Immunotoxicology in Pharmaceutical Development...but Were Afraid to Ask | Room 517c |
| 5:30 PM–7:00 PM | STP Welcome Reception | Room 517a |
| 7:00 PM–8:30 PM | Student/Mentor Mixer (<i>All Students and Invited Mentors</i>) <i>Sponsored by EPL, Inc.</i> | Terrasse Nelligan (<i>Off-Site Venue</i>) |
| Monday, June 26, 2017 | | |
| 7:00 AM–5:30 PM | Registration | Room 517 Foyer |
| 8:00 AM–9:00 AM | Symposium Welcome and Keynote Address: Overview of Morphological Assessments of the Musculoskeletal System | Room 517c |
| 9:00 AM–12:00 Noon | Session 1 (AM): Toolbox for the Evaluation of the Musculoskeletal System | Room 517c |
| 9:00 AM–4:00 PM | Exhibits and Poster Sessions Open | Room 517a |
| 9:50 AM–10:20 AM | Break: Please visit the Exhibits and Poster Sessions. | Room 517a |
| 12:00 Noon–1:30 PM | Luncheon for Registered Attendees in the Exhibit Hall | Room 517a |
| 12:30 PM–1:30 PM |  Career Development Lunchtime Series STP Special Interest Groups: Role and Relevance for Your Toxicologic Pathology Career <i>Sponsored by EPL, Inc.</i> | Room 518 |
| 1:30 PM–5:00 PM | Session 2 (PM): Bone Therapeutics: Safety Considerations | Room 517c |
| 3:00 PM–3:30 PM | Break: Please visit the Exhibits and Poster Sessions. | Room 517a |
| 5:30 PM–6:30 PM | Town Hall Meeting: Points to Consider in Histopathology Severity Grading | Room 517c |
| 7:00 PM–9:00 PM | Mystery Bone, Joint, and Musculoskeletal Pathology Session <i>Sponsored by HistoTox Labs, Inc.</i> | Room 517c |

Tuesday, June 27, 2017

| | | |
|--------------------|---|----------------|
| 7:00 AM–12:00 Noon | Registration | Room 517 Foyer |
| 8:00 AM–12:00 Noon | Session 3 (AM): Unintended Pharmacologic Effects on Bone | Room 517c |
| 9:00 AM–12:00 Noon | Exhibits and Poster Sessions Open | Room 517a |
| 9:50 AM–10:20 AM | Break: Please visit the Exhibits and Poster Sessions. | Room 517a |
| 12:15 PM–1:15 PM | Exhibitor-Hosted Session | Room 519a |
| 12:15 PM–4:00 PM | Student Outing (<i>All Students and Invited Mentors</i>) <i>Sponsored by EPL, Inc.</i> | Room 521b |
| 12:30 PM–1:15 PM | Lunchtime “Chalk Talk” | Room 518 |
| Tuesday Afternoon | FREE TIME | |

Wednesday, June 28, 2017

| | | |
|--------------------|--|---------------------------------|
| 7:30 AM–5:30 PM | Registration | Room 517 Foyer |
| 8:00 AM–12:00 Noon | Session 4 (AM): Bone As an Endocrine Organ | Room 517c |
| 9:00 AM–11:30 AM | Poster Sessions Open | Room 517a |
| 9:45 AM–10:15 AM | Break: Please visit the Poster Sessions. | Room 517a |
| 12:30 PM–1:30 PM | Nanotechnology Reflections: Understanding the Toxicologic Pathology of Nanoscale Interactions <i>Sponsored by IATP and STP</i> | Room 518 |
| 1:30 PM–5:30 PM | Session 5 (PM): Structural Approaches to Bone and Joint Repair | Room 517c |
| 3:00 PM–3:30 PM | Break | Room 517 Foyer |
| 5:30 PM–6:30 PM | Awards Ceremony and Annual Business Meeting | Room 517c |
| 7:00 PM–9:00 PM | President’s Reception | Le Westin, Montréal Ballroom |

Thursday, June 29, 2017

| | | |
|--------------------|--|----------------|
| 7:30 AM–12:00 Noon | Registration | Room 517 Foyer |
| 8:00 AM–12:00 Noon | Session 6 (AM): Evaluation of Skeletal Muscle | Room 517c |
| 10:00 AM–10:25 AM | Break | Room 517 Foyer |
| 12:00 Noon | Meeting Adjourned | |

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Awards

2017 STP Lifetime Achievement Award

Gordon C. Hard, DVSc, PhD, DSc, FRCPath, FRCVS, FATS, DACVP



The Society of Toxicologic Pathology is proud to honor Gordon Hard as the recipient of the 2017 STP Lifetime Achievement Award.

An internationally recognized expert in renal carcinogenesis, renal toxicology, and renal toxicologic pathology, Dr. Hard's main interests are in the mechanistic aspects of toxicology, comparative pathology, chemical carcinogenesis, mechanisms of carcinogenesis, and risk assessment. Dr. Hard has been instrumental in shaping and developing the global field of toxicological pathology through his research and participation in a wide range of international pathology related activities as well as through his leadership within the Society of Toxicologic Pathology.

Dr. Hard's involvement with STP, since joining in 1984, has been significant and extensive. He laudably served as Associate Editor-at-Large (1996–1999) and Editor-in-Chief

for *Toxicologic Pathology* (1999–2002); service preceded and followed as an Editorial Board Member, spanning four decades of active involvement with the journal. He also has been actively involved in harmonization of nomenclature especially for renal and urinary tract lesions, serving as primary author of the *Guides for Toxicologic Pathology* of proliferative and non-proliferative lesions of the kidney and lower urinary system in the rat and as an STP representative on the INHAND Urinary System Working Group. He has published 182 scientific papers, including book chapters such as "Kidney" in the *Handbook of Toxicologic Pathology*, the widely-used reference text for pathologists in industrial settings. His research has impacted on regulatory decision making in the hazard/risk assessment of certain chemicals, both in the United States and in Europe.

Dr. Hard completed a veterinary degree (DVSc) in 1959 and a PhD in 1968 at the University of Sydney, Australia. He began his research career in renal carcinogenesis at the MRC Toxicology Unit, Carshalton Beeches, UK in 1968, and was awarded a DSc from the University of Melbourne in 1978 for his then currently published work. His primary appointments have been at the Fels Research Institute, Philadelphia, Pennsylvania, where he was Professor of Pathology and Associate Director for Research Administration (1978–1985); the British Industrial Biological Research Association in the UK, serving as Director and CEO (1985–1988); and the American Health Foundation, Valhalla, New York, as Director of Administration and Senior Toxicologist (1991–2001). He is currently a global consultant in toxicology and pathology. In 2015, Dr. Hard was awarded DVSc from Sydney University for a thesis consisting of 50 of his recent research papers under the theme of *Renal Carcinogenesis*.

Through his extensive research, service and educational contributions, Dr. Hard has propelled the growth of toxicologic pathology as a discipline and promoted the STP in all sectors: industrial, government and academically. Based on a lifetime of significant achievement and continued contributions to the field of toxicologic pathology, the STP takes great pleasure in honoring Gordon Hard as the 2017 Lifetime Achievement Awardee.

2017 STP Distinguished Early Career Award

Famke Aeffner, DVM, PhD, DACVP



The Society of Toxicologic Pathology recognizes Famke Aeffner, DVM, PhD, DACVP, as the 2017 STP Distinguished Early Career Awardee. Dr. Aeffner received her DVM (2007) from the University of Veterinary Medicine, Hannover, Germany, and completed a five-year combined PhD and residency program in veterinary anatomic pathology from The Ohio State University. In 2013, she graduated with her PhD in Translational Medicine (thesis title: *Pathophysiologic Effects of Influenza Infection on the Murine Lung and Evaluation of Novel Therapeutic Targets*); in 2014 she became a Diplomate, American College of Veterinary Pathologists. Dr. Aeffner currently is a Principal Pathologist at Amgen Inc. in South San Francisco, California.

Dr. Aeffner's career since graduation was spent at Flagship Biosciences Inc., Westminster, Colorado, where her efforts were instrumental in developing new uses for digital pathology algorithms, advanced image analysis, and molecular assay development. Her initial role with Flagship was as a Pathologist. In short order, Dr. Aeffner was promoted to Associate Director of Pathology, where she served as lead pathologist on key client projects ranging from discovery and efficacy studies to retrospective analysis of clinical trial tissues as well as in support of ongoing clinical trials. Dr. Aeffner was also involved in shaping the company's scientific strategy, where her capabilities were essential to numerous patent filings and many publications and platform presentations.

A highly-motivated comparative pathologist and research scientist, with demonstrated leadership experience and advanced analytical skills, Dr. Aeffner's special expertise is in the field of digital image analysis of human and animal tissue sections, especially to investigate oncology, immunoncology, medical devices and animal models of human disease. She has extensive experience in biomarker assay development, validation, and interpretation of chromogenic and fluorescent immunohistochemistry. Her collaborative research has been instrumental to clinically translatable research programs on immune-oncology and muscular dystrophy and is a driving force for the advancement of digital image analysis in the field.

Dr. Aeffner is renowned for her work ethic, learning agility, and teamwork—as well as her energetic and dynamic personality. Her accomplishments in her early career are already impacting the global veterinary and human pathology communities. She volunteers her time for committee work within the STP, including serving as the leader for the newly organized Digital Pathology Special Interest Group. In addition, Dr. Aeffner gives back by offering seminars to residency programs throughout the United States on digital pathology and image analysis. For all that she has accomplished in her early career, the STP is proud to honor Dr. Aeffner as the 2017 Distinguished Early Career Awardee.

2017 STP Outstanding Mentor

Keith G. Nelson, DVM, PhD, DACVP



The Society of Toxicologic Pathology is proud to recognize Keith Nelson as the recipient of the 2017 STP Outstanding Mentor Award.

Dr. Nelson is a Senior Principal Pathologist and Residency Training Coordinator at MPI Research in Mattawan, Michigan, and holds an adjunct faculty position in the Department of Pathobiology and Diagnostic Investigation at Michigan State University (MSU). He completed his combined anatomic pathology residency and PhD at Colorado State University in 2006, when he joined MPI Research, a contract research organization. MPI Research had, at that time, recently started a combined residency program with MSU and

Dr. Nelson was immediately involved in training the MPI-MSU residents. In 2012, he took on the residency training coordinator duties and worked to codify and improve the residency training, putting forth multiple posters detailing the refinement of the MPI-MSU residency and proposing benefits of and methods for combined academic-industry training. Under his direction, MPI Research's unique training program has expanded to include veterinary students and external residents interested in shorter-term externships.

Dr. Nelson enthusiastically introduces trainees and newer pathologists to toxicologic pathology in the CRO setting, providing training in GLP practices, laboratory animal pathology, reading safety toxicity studies, and other facets of toxicologic pathology. He has made it a priority for students, residents, and internal technical staff to develop collaborative projects with MPI Research investigators, with numerous residents and externs winning STP student travel awards for presentations based on these projects.

Dr. Nelson has diligently served on many committees related to student outreach and engagement within the STP, including the Career Development and Outreach Committee, Joint Education Based Committee, Student Outreach and Engagement Task Force, and Awards Committee, as well as serving on the ACVP Student Chapters Committee and Student Externship Award Committee. As the JEBC chair, he has championed the STP Student Externship Scholarships, as well as working to promote other STP student-focused awards. In addition to directly providing mentorship and training, Dr. Nelson motivates others to engage, a hallmark skill of a great teacher. Not only have MPI Research residents successfully continued on in toxicologic pathology, with extensive involvement in the field, but he works with a wide range of external trainees to expand knowledge of and interest in the profession of toxicologic pathology. As a true asset to the field of toxicologic pathology, the Society is proud to recognize Keith Nelson as the recipient of the 2017 Outstanding Mentor Award.



2017 Daniel Morton and Laura Dill Morton Scholarship

Elizabeth S. Clark, DVM, DACVP

The Ohio State University

Dr. Elizabeth Clark received both her BS in Molecular and Cellular Biology (2007) and DVM (2012) from the University of Illinois Urbana-Champaign. In 2012, she joined the Combined Anatomic Pathology Residency and PhD Program at The Ohio State University. She became a Diplomate of the American College of Veterinary Pathologists in 2016; she will receive her PhD in May 2017. Dr. Clark undertook her PhD in the laboratory of Dr. Christopher Breuer at Nationwide Children's Hospital (NCH). She studied tissue engineered vascular grafts and the mechanisms underlying graft stenosis in both large and small animal models. While at NCH, she has also had the opportunity to evaluate devices to treat pediatric cardiovascular and large airway disease. She has enjoyed collaborating with diverse groups of clinicians for these preclinical studies. As she transitions to her next position she looks forward to developing

expertise in the field of toxicologic pathology. She is honored to receive the Daniel Morton and Laura Dill Morton Scholarship that honors their contributions and dedication to the field of pathology and the Society of Toxicologic Pathology.

Society of Toxicologic Pathology Student Travel Awards

Mei-Ling Bermudez

University of Cincinnati

Elizabeth Clark

The Ohio State University

Sarah Coe

Michigan State University

Jessica Fortin

University of Missouri

Katherine Horzmann

Purdue University

Rebecca Kohnken

The Ohio State University

Amit Kumar

Michigan State University

Mizuki Kuramochi

Osaka Prefecture University

Alexandria Macleod

University of Minnesota

Michelle Magagna

Michigan State University

Shan Naidu

Louisiana State University

Society of Toxicologic Pathology Student Poster Award

Channing Bancroft

University of Minnesota, College of Veterinary Medicine

We would like to congratulate Channing Bancroft, MS, for winning the 2017 STP Student Poster Award for her poster entitled, "Effects of 17- α -Estradiol Treatment on Naturally Occurring Stifle Osteoarthritis in Aged Mice." The Eleventh Annual STP Student Poster Award competition occurred during the 2016 ACVP/ASVCP Concurrent Annual Meeting held in New Orleans, Louisiana, December 3-7, 2016. The poster presentations were evaluated by a panel of judges composed of members of the Society of Toxicologic Pathology and the American College of Veterinary Pathology.

2017 STP/TEPSS Student Award

Shivani Ghaisas

Iowa State University

We would like to congratulate Shivani Ghaisas, MS, for winning the 2017 Society of Toxicologic Pathology/Toxicologic and Exploratory Pathology Specialty Section, SOT (STP/TEPSS) Award for her poster entitled, "Neuronal Protection against Oxidative Insult by Polyanhydride Nanoparticle-Based Mitochondria-Targeted Antioxidant Therapy." The 2017 STP/TEPSS Student Award competition occurred during the 2017 Society of Toxicology (SOT) Annual Meeting held in Baltimore, Maryland, March 12-16, 2017. The poster presentations were evaluated by a panel of judges composed of members of the SOT Toxicologic and Experimental Pathology Specialty Section and the Society of Toxicologic Pathology.

Society of Toxicologic Pathology Young Investigator Awards

(See pages "Young Investigator Judging Times" on page 15 for judging times.)

Winners will be announced at the Awards Ceremony at 5:30 pm on Wednesday, June 28, in Room 517c.

Toxicologic Pathology Best Paper Awards

Best Paper Award for Original Manuscript

Recommended Methods for Brain Processing and Quantitative Analysis in Rodent Developmental Neurotoxicity Studies

Toxicologic Pathology, vol. 44, 1: pp. 14–42. First published August 21, 2015.

Robert H. Garman¹, Abby A. Li², Wolfgang Kaufmann³, Roland N. Auer⁴, and Brad Bolon⁵.

¹Consultants in Veterinary Pathology, Inc., Murrysville, PA, ²Exponent Inc., Oakland, CA, ³Merck KGaA, Darmstadt, Germany, ⁴Hôpital Ste-Justine, Département de Pathologie, Université de Montréal, Montréal, Québec, Canada, ⁵GEMpath Inc., Longmont, CO.

Best Paper Award for Invited Review/Review

Pigs in Toxicology: Breed Differences in Metabolism and Background Findings

Toxicologic Pathology, vol. 44, 4: pp. 575–590. First published April 4, 2016.

Kristi L. Helke¹, Keith G. Nelson², Aaron M. Sargeant³, Binod Jacob³, Sean McKeag⁴, Julius Haruna⁵, Vimala Vemireddi⁶, Melanie Greeley⁷, Derek Brocksmith⁸, Nicole Navratil⁹, Alain Stricker-Krongrad⁸, and Charlotte Hollinger¹⁰.

¹Medical University of South Carolina, Charleston, SC, ²MPI Research, Mattawan, MI, ³Charles River Laboratories—Pathology, Spencerville, OH, ⁴Covance Laboratories Limited, Harrogate, North Yorkshire, United Kingdom, ⁵CiToXLAB North America Inc., Laval, Québec, Canada, ⁶Covance Laboratories, Inc., Chantilly, VA, ⁷WIL Research, Ashland, OH, ⁸Sinclair Research Center and Sinclair BioResources, Columbia, MO, ⁹Marshall BioResources, North Rose, NY, ¹⁰Zoological Health Program, Wildlife Conservation Society, Bronx, NY.



Society of Toxicologic Pathology Modular Education Course: Toxicologic Pathology of the Respiratory System

September 24–27, 2017

The Hotel Minneapolis, Minneapolis, Minnesota

On behalf of the STP Education Committee

Co-Chairs: Melissa Schutten and Paula Katavolos (Genentech)

STP Modular Course Scholarships are available to eligible students and trainees with a demonstrated interest in the field of toxicologic pathology. Application deadline is July 31.

Topics Will Include:

- Overview of Respiratory System
- INHAND, Study Design Considerations, and DMPK
- Investigative Tools: From Animal Models to Imaging Practical Case Studies
- Preclinical to Clinical Translatability and Regulatory Considerations



Visit www.toxpath.org to register and for more information.

**Topics subject to change.*

General Information

Meeting Events

Welcome Reception

Sunday, June 25, 5:30 PM–7:00 PM

Room 517a

The STP Welcome Reception will kick off the week in the Exhibit Hall for all registered meeting attendees. Please wear your badge and bring your Welcome Reception ticket. (Your Welcome Reception ticket will also serve as your drink ticket; it was distributed with your badge). Tickets for guests 18 years of age or older* accompanying a registered attendee may be purchased for \$30 (USD) at the registration desk.

**To ensure their safety, children under the age of 18 are not permitted in the Exhibit Hall.*

Student/Mentor Mixer

Sponsored by EPL, Inc.

Sunday, June 25, 7:00 PM–8:30 PM

Terrasse Nelligan (Off-Site Venue)

For all students and invited mentors. Refreshments will be provided.

Lunch in the Exhibit Hall

Monday, June 26, 12:00 Noon–1:30 PM

Room 517a

Lunch for all registered scientific attendees. Please visit with our Exhibitors!

Student Outing

Sponsored by EPL, Inc.

Tuesday, June 27, 12:15 PM

Room 521b

The STP Student Outing will be teaming up with Guidatour to engage in some friendly competition as we go head to head on a Scavenger Hunt adventure through Old Montréal. Lunch will be served prior to the outing. The adventure will end at a local tavern.

Awards Ceremony and Annual Business Meeting

Wednesday, June 28, 5:30 PM–6:30 PM

Room 517c

STP award recipients will be recognized at this time, followed immediately by the Annual Business Meeting.

President's Reception

Wednesday, June 28, 7:00 PM–9:00 PM

Le Westin, Montréal Ballroom, 11th floor

One ticket to this event is provided to all meeting registrants. Please wear your badge and bring your President's Reception ticket that was provided with your badge. Drink tickets will be distributed at the door. Additional tickets can be purchased on-site for \$65. (For children of attendees 11–17 years old: \$35). Attendees with children under 11 years of age are permitted to attend the President's Reception at no charge as long as the child is under the supervision of the parent at all times.

Complimentary WiFi Options

Complimentary WiFi is available on Levels 1 and 5 of the Palais des congrès de Montréal. See Registration for passcode information.

Registration Information

Room 517 Foyer

Friday, June 23 4:00 PM–6:00 PM

Saturday, June 24 8:00 AM–6:00 PM

Sunday, June 25 7:00 AM–6:00 PM

Monday, June 26 7:00 AM–5:30 PM

Tuesday, June 27 7:00 AM–12:00 Noon

Wednesday, June 28 7:30 AM–5:30 PM

Thursday, June 29 7:30 AM–12:00 Noon

Registration Materials

Badges, Program, event tickets, and ribbons (if appropriate), will be available for pickup at the Registration Desk (see registration hours above). Attendees are encouraged to bring a bag or backpack as meeting bags will not be provided.

Meeting Materials/Mobile App

Meeting publications, handouts, attendee list, committee and ancillary meetings schedule, and evaluation forms will be posted on the Annual Meeting's "Meeting Materials" webpage when available. STP members will use their regular login to access this page. Nonmember attendees will receive a login and password via email to access the website. Attendees are also encouraged to download the STP 2017 Mobile App from the Apple or Android stores, or www.toxpath.org/am2017/app.asp.

Symposium Registration

Member, Nonmember, and Student full meeting registration fee include the symposium proceedings, access to scientific sessions, Exhibit Hall, morning and afternoon breaks during the scientific sessions, Monday lunch in the Exhibit Hall, and admission for one to the Welcome Reception and President's Reception.

Exhibitor Registration

Complimentary: Two full meeting registrations are provided to exhibiting companies with the purchase of each booth. The Exhibitor registration fee includes admission to the scientific sessions, Exhibit Hall access, afternoon breaks, Monday lunch held in the Exhibit Hall, and admission for one to the Welcome Reception and President's Reception.

Reduced Registration: The Exhibitor registration fee (\$380 USD) is for companies with more than two exhibitors. This reduced registration does not include admission to the scientific sessions, but does include breaks in the Exhibit Hall, and one admission to the Welcome Reception and President's Reception.

Guest Registration

The Guest registration fee includes one admission to the Welcome Reception (Sunday) and the President's Reception (Wednesday).

SPECIAL MEMBERSHIP OFFER: Nonmembers who apply for membership prior to July 1 and who are accepted will receive complimentary membership for the remainder of 2017 and the online journal issues for the remainder of the year. Please visit www.toxpath.org to apply for membership.

Speaker Ready Room

Room 521a

| | |
|--------------------------|--------------------|
| Saturday, June 24 | 12:00 Noon–5:00 PM |
| Sunday, June 25 | 7:00 AM–5:00 PM |
| Monday, June 26 | 7:00 AM–5:00 PM |
| Tuesday, June 27 | 7:00 AM–12:00 Noon |
| Wednesday, June 28 | 7:00 AM–5:00 PM |
| Thursday, June 29 | 7:00 AM–11:00 AM |

Poster Information

Room 517a

The poster board size is 4'x 8' (horizontal) and requires the use of pushpins to hold it in place.

Poster setup and teardown times are as follows:

Poster Setup

| | |
|-----------------------|--------------------|
| Sunday, June 25 | 8:00 AM–12:00 Noon |
|-----------------------|--------------------|

Your poster must be set up by 12:00 Noon on Sunday, June 25.

Poster Teardown

| | |
|--------------------------|------------------|
| Wednesday, June 28 | 11:30 AM–1:00 PM |
|--------------------------|------------------|

If your poster is not removed before 1:00 PM on Wednesday, June 28, it will be removed and placed near the Registration Desk for pickup.

Poster Presentation Times

Please plan to attend your posters during the following times:

| | |
|--------------------------|---------------------|
| Sunday, June 25 | 6:00 PM–6:30 PM |
| Monday, June 26 | 9:50 AM–10:20 AM |
| | and 3:00 PM–3:30 PM |
| Tuesday, June 27 | 9:50 AM–10:20 AM |
| Wednesday, June 28 | 9:45 AM–10:15 AM |

Young Investigator Judging Times

| | |
|------------------------|---------------------|
| Monday, June 26 | 7:15 AM–8:00 AM, |
| | 9:50 AM–10:20 AM, |
| | and 3:00 PM–3:30 PM |
| Tuesday, June 27 | 9:50 AM–10:20 AM |

Exhibit Hall

Room 517a

The Exhibit Hall will be a center of activity during this year's Symposium, kicking off with a Welcome Reception in the Exhibit Hall on Sunday evening, June 25.

A luncheon in the Exhibit Hall will be offered for all registered attendees on Monday, June 26, and morning and afternoon refreshment breaks will be held in the hall throughout the week unless otherwise noted. Scientific poster sessions will also be held Sunday evening through Wednesday in the Exhibit Hall.

The Society values the support of exhibitors and believes the relationship between exhibiting companies and the STP membership is a mutually beneficial one. Don't forget to visit Room 517a.

Exhibit Hall Policies

Out of courtesy for the scientific presenters and exhibitors, we appreciate your compliance with the following policies:

Photography Policy

- Photography of poster presentations is prohibited without the specific consent of the presenter(s)/author(s).
- Photography of exhibitor booths and/or equipment is prohibited without the specific consent of the exhibitor.

Children Under 18 Years of Age

- To ensure their safety, children under the age of 18 are not permitted in the Exhibit Hall at any time including during the Exhibit hours, Welcome Reception, and Poster Sessions.

Exhibitor Setup

| | |
|-------------------------|--------------------|
| Saturday, June 24 | 1:00 PM–4:00 PM |
| Sunday, June 25 | 8:00 AM–12:00 Noon |

All exhibits must be set up by 12:00 Noon.

Exhibit Hall Hours

| | |
|------------------------|--------------------|
| Sunday, June 25 | 1:00 PM–7:00 PM |
| Monday, June 26 | 9:00 AM–4:00 PM |
| Tuesday, June 27 | 9:00 AM–12:00 Noon |

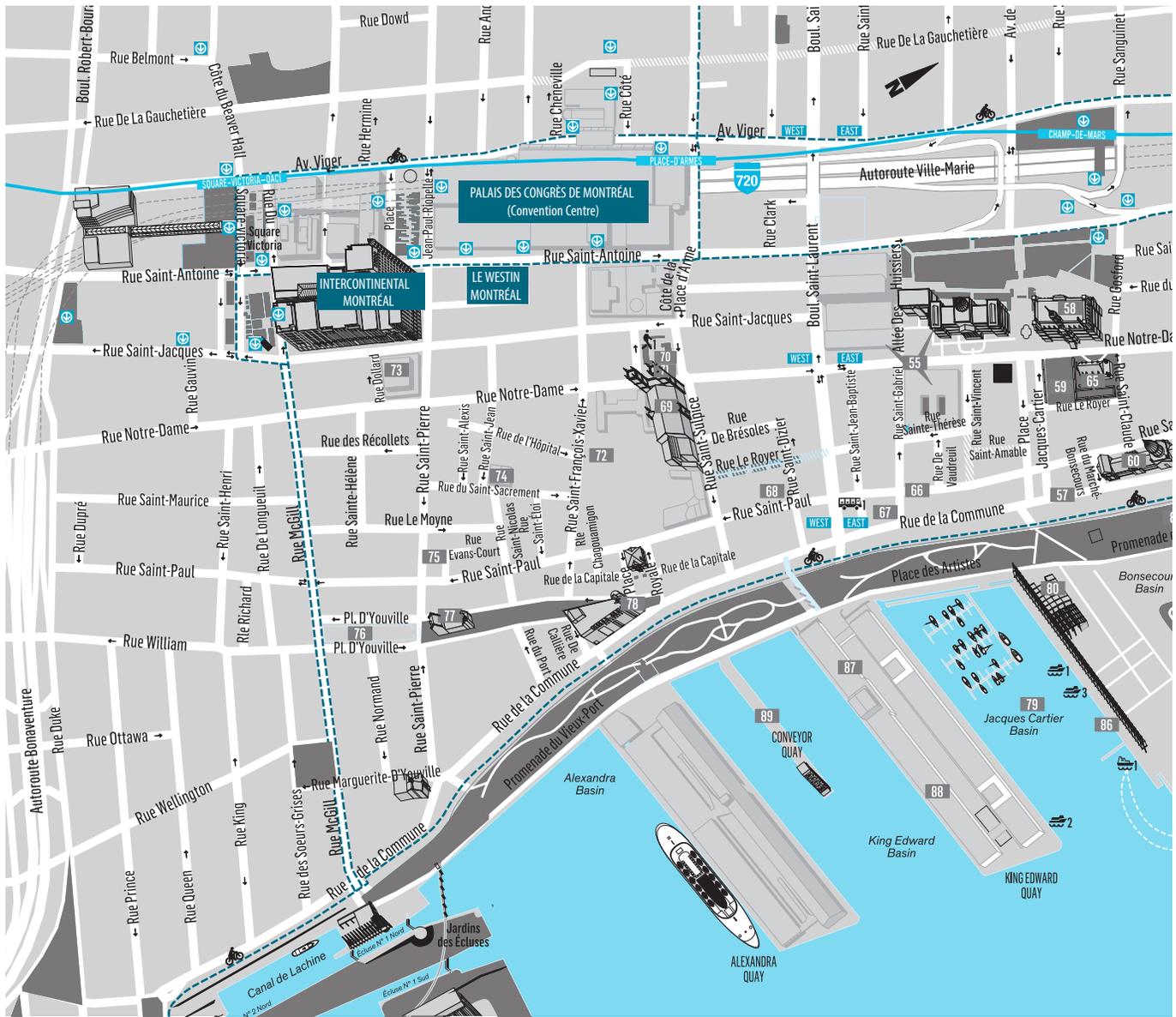
Exhibitor Teardown

| | |
|------------------------|--------------------|
| Tuesday, June 27 | 12:00 Noon–4:00 PM |
|------------------------|--------------------|

Safety and Security Tips

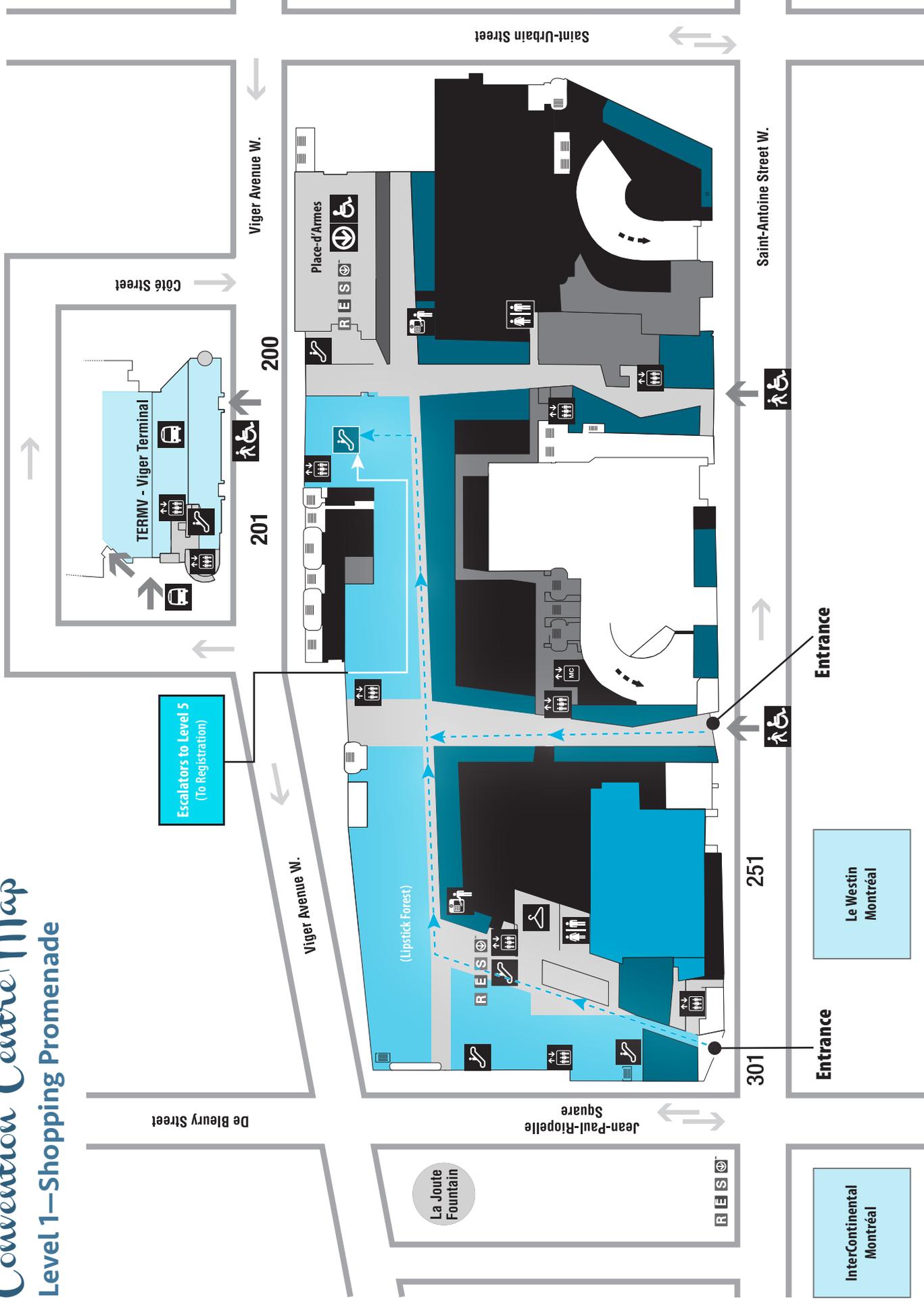
1. When inside the conference venue, name tags should be worn and visibly displayed at all times. For security reasons, we recommend that you DO NOT wear your badge outside of the conference venue. If you lose your badge, please notify registration immediately.
2. Walk in well-lit areas at night and never walk alone.
3. Please do not leave any bags or articles unsecured in any display area, meeting room, or public area. Laptops and other small computers are easy targets for thieves. If you note any suspicious articles, packages, persons, or activity please contact the event staff or security immediately.
4. Due to the nature of our meeting, there is a risk that we may be the target of protest activity. STP has a response plan to address this possibility. Here are some guidelines to deal with protest activity:
 - a. If you see a protest forming or in progress, you should notify STP or venue staff immediately. We will implement our response plan to ensure our meeting is safe and secure.
 - b. Do not attempt to engage or argue with protesters. These groups seek confrontation as a tool for publicity.
 - c. Do not give interviews to press personnel. STP representatives will respond to the press.
 - d. If you notice any suspicious individuals in the meeting areas or hotel, especially handing out literature, please notify STP security or venue security personnel. You should not attempt to engage these persons or stop them yourself.
 - e. If there is a disruption in a meeting room, you should remain calm. Notify security and allow them to deal with the disruption.
5. Do not give your lodging information to any person outside of known STP staff.
6. Photography is not permitted in the Exhibit Hall. This includes digital pictures taken using cell phone cameras.
7. Large packages and bags are not permitted in the Exhibit Hall area.

Montréal Neighborhood Map



Convention Centre Map

Level 1—Shopping Promenade



Escalators to Level 5
(To Registration)

TERMV - Viger Terminal

La Joute Fountain

Le Westin Montréal

InterContinental Montréal

Entrance

Entrance

Viger Avenue W.

Saint-Antoine Street W.

Saint-Urbain Street

Viger Avenue W.

Jean-Paul-Riopelle Square

De Bleury Street

200

201

251

301

(Lipstick Forest)

Place-d'Armes

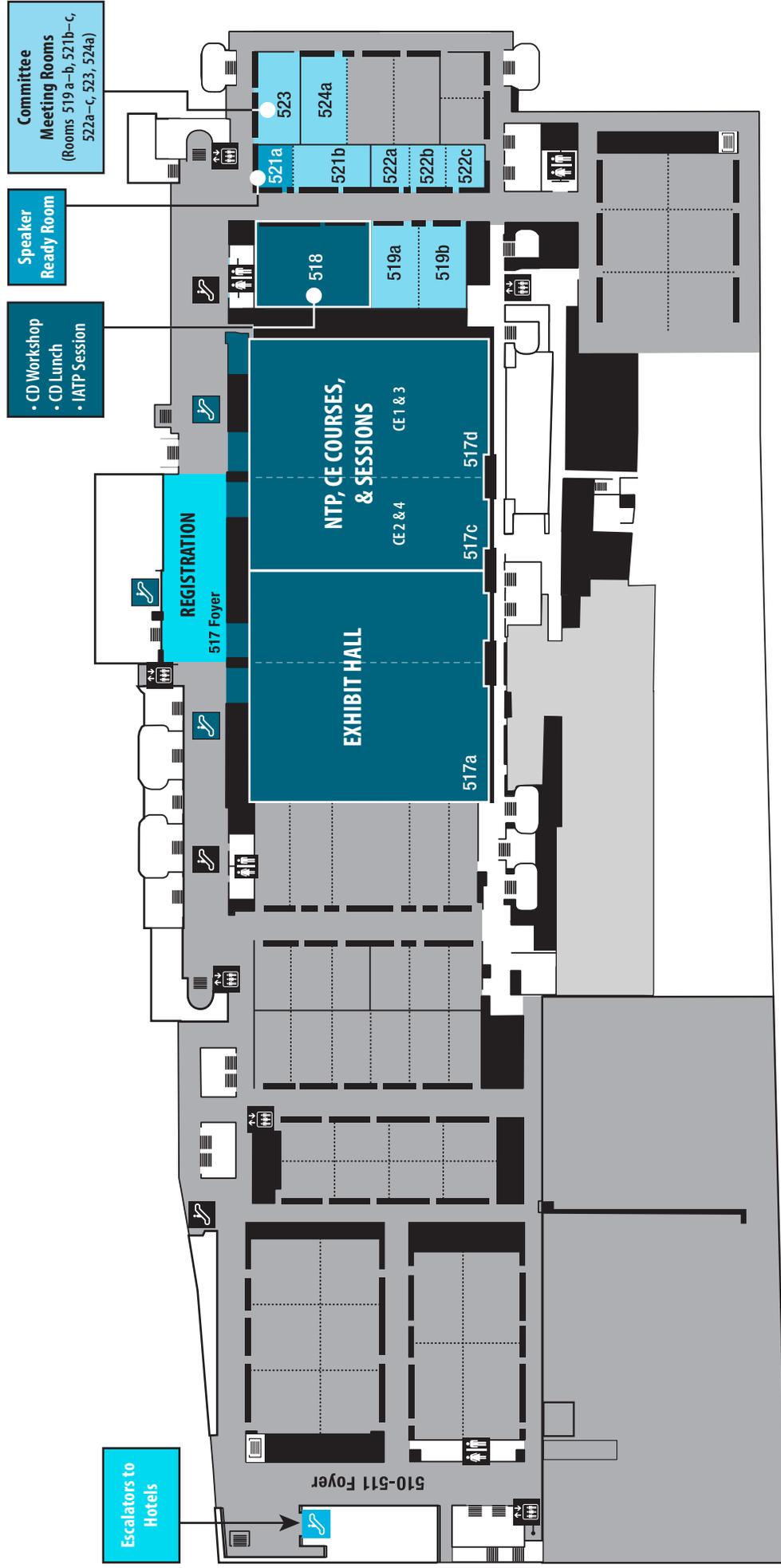
RES

RES

RES

Convention Centre Map

Level 5





Society of Toxicologic Pathology

Founded: 1971
Membership: 1,250

Be an international leader for improvement of human, animal, and environmental health using an interdisciplinary scientific approach based in pathology and toxicology.

SPECIAL MEMBERSHIP OFFER:

Nonmember registrants who apply for membership prior to **July 1** and who are accepted, will receive complimentary Membership for the rest of 2017 and the online journal issues for the remainder of the year.

What Are the Benefits of STP Membership?



Publications

- Society's journal, *Toxicologic Pathology* (online)
- Online *Scope* Newsletter



Collaboration

- Annual Symposium
- Committees
- Other Activities
- Regional Meetings
- Working Groups



Member Access

- **ToxPathNet** —Member Network
- ToxPath Newsgroup
- Early Drafts of Position Papers
- Full-Text Articles from *Toxicologic Pathology*
- STP Business Activities
- STP Membership Directory
- Surveys Conducted by the Scientific and Regulatory Policy Committee
- Career Surveys
- Presentations on Toxicologic Pathology for Nonpathologists (Regulators, Toxicologists, and Students)
- STP Special Interest Groups
- CE Courses and Selected Presentations



Education

- Continuing Education
- Modular Education Course
- Regional Meetings
- Webinars



Special Interest Groups

- Cardiovascular Toxicologic Pathology
- Clinical Pathology
- Digital Pathology and Image Analysis
- Environmental Toxicologic Pathology
- Immune System
- Juvenile Pathology
- Medical Devices Special Interest Group
- Neuropathology
- Pig Toxicologic Pathology
- Reproductive Pathology

Join Today

Fast and Easy Online Membership Application

To learn more about STP activities visit www.toxpath.org. To apply online, select Membership Application from the navigation bar. Students are invited to apply for Student Membership.

www.toxpath.org

Program

Saturday, June 24

NTP Satellite Symposium: Pathology Potpourri

9:00 AM–4:30 PM

Room 517c

Chair: Susan A. Elmore, MS, DVM, DACVP, DABT, FIATP,
NTP and NIEHS, Research Triangle Park, NC

The object of this interactive symposium is to provide continuing education on interpreting pathology slides, to generate lively and productive conversation, and to have a good time. During each talk, the speakers will project a series of images of lesions on one screen with a choice of diagnoses/answers on a separate screen. The members of the audience will then vote using wireless keypads and the results will be displayed on the screen. Time is allowed for discussion after each voting session.

9:00 AM–9:10 AM Welcome and Introductory Remarks

Susan A. Elmore, MS, DVM, DACVP,
DABT, FIATP, National Toxicology
Program, NIEHS, Research
Triangle Park, NC

9:10 AM–9:30 AM Renal Papillary Perplexities

Torrie Crabbs, DVM, DACVP, Experimental
Pathology Laboratories, Inc., Research
Triangle Park, NC

9:30 AM–10:00 AM Straight from the Heart

Ramesh C. Kovi, BVSc&AH, MVSc,
PhD, DACVP, Experimental Pathology
Laboratories, Inc., Research
Triangle Park, NC

10:00 AM–10:30 AM Pathology Grab Bag

Erin Quist, DVM, MS, PhD, DACVP,
Experimental Pathology Laboratories, Inc.,
Research Triangle Park, NC

10:30 AM–11:00 AM Break

**11:00 AM–11:30 AM Flexing Your Muscle: Techniques
to Strengthen Muscle Biomarker
Assessment**

Famke Aeffner, DVM, PhD, DACVP,
Amgen, South San Francisco, CA

11:30 AM–12:00 Noon Reproduction Deduction

Susan A. Elmore, MS, DVM, DACVP,
DABT, FIATP, National Toxicology
Program, NIEHS, Research
Triangle Park, NC

12:00 Noon–1:30 PM Lunch on Your Own

**1:30 PM–1:50 PM Implant Inquisition: Medical
Device Pathology Assessment/
Approval Process**

Lyn M. Wancket, DVM, PhD, DACVP,
NAMSA, Northwood, OH; and Shayne
C. Gad, PhD, DABT, Gad Consulting
Services, Raleigh, NC

1:50 PM–2:10 PM

(Re)modelling Bone

Gail Pearce, BVM&S, DACVP,
GlaxoSmithKline, Ware, United Kingdom

2:10 PM–2:30 PM

Location, Location, Location

Jessica Hoane, DVM, DACVP, Charles
River Laboratories, Inc., Durham, NC

2:30 PM–3:00 PM

I Just Can't Go on Dying Like This

Wanda M. Haschek-Hock, BVSc, PhD,
DACVP, DABT, FIATP, Dept. of Pathobiology,
University of Illinois, Urbana, IL

3:00 PM–3:30 PM Break

3:30 PM–3:50 PM

**Mast Cells in the Brain: Let's Keep
an Open Mind**

Dinesh Bangari, BVSc&AH, PhD, DACVP,
Sanofi Genzyme, Framingham, MA

3:50 PM–4:30 PM

**Bones Are No Mystery:
Understanding the INHAND Skeletal
Nomenclature and Its Application**

Stacey Fossey, DVM, PhD, DACVP,
DABT, AbbVie Bioresearch Center,
Worcester, MA

NTP SYMPOSIUM | CONTINUING EDUCATION COURSE | SCIENTIFIC SESSION CONTINUING EDUCATION CREDITS

AAVSB RACE PROVIDER #56

The NTP Satellite Symposium is approved by the AAVSB RACE to offer a total of 5.00 CE Credits (5.00 max) being available to any one veterinarian: and/or 5.00 Veterinary Technician CE Credits (5.00 max.) This RACE approval is for the subject matter categorie(s) of: Category Two: Non-Scientific Clinical using the delivery method(s) of: Seminar/Lecture.

The CE Courses are approved by the AAVSB RACE to offer a total of 3.50 CE Credits per course (3.50 max) being available to any one veterinarian: and/or 3.50 Veterinary Technician CE Credits (3.50 max.) This RACE approval is for the subject matter categorie(s) of: Category One: Scientific using the delivery method(s) of: Seminar/Lecture.

The Scientific Sessions are approved by the AAVSB RACE to offer a total of 20.00 CE Credits (20.00 max) being available to any one veterinarian: and/or 20.00 Veterinary Technician CE Credits (20.00 max.) This RACE approval is for the subject matter categorie(s) of: Category One: Scientific using the delivery method(s) of: Seminar/Lecture.

These approvals are valid in jurisdictions which recognize AAVSB RACE; however, participants are responsible for ascertaining each board's CE requirements. RACE does not "accredit," "endorse," or "certify" any program or person, nor does RACE approval validate the content of the program. Certificates of attendance will be provided at the conclusion each CE Course and also at the end of the final Scientific Session. Please contact the AAVSB RACE program if you have any comments/concerns regarding this program's validity or relevancy to the veterinary profession.

Sunday, June 25

 **Career Development Workshop**

8:00 AM–12:00 Noon

Room 518

Transitions in a Pathologist's Career

Sponsored by EPL, Inc.

Co-Chairs: Shambhunath Choudhary, BVSc, PhD, DACVP, Charles River Laboratories, Spencerville, OH; and **Tanasa Osborne, DVM, PhD, DACVP,** Novartis Institutes for Biomedical Research, East Hanover, NJ

Pathologists at all levels, stages, and ages can be found within various organizations. This includes pathologists just entering the workforce, moving up the ladder, or those who have been working for 15, 20, or 30 years. There are multiple points in a pathologist's career that require, even demand, changes in responsibilities, competencies, attitudes, and thinking which may ultimately determine the pathologist's success. However, career transitions can be difficult and often hard to explain. Whether developing a specialty at the start of your career or transitioning out of full time employment, as a pathologist you're likely to ask yourself a number of questions along the way including: Why would you want to do that? Isn't that a little risky? Are you really qualified? Is the timing correct? And the most important one—How to get others onboard with your career transition. The objective of this session is to provide a forum to discuss challenges associated with career transitions and other relevant questions.

- 8:00 AM–8:05 AM **Introduction**
- 8:05 AM–8:40 AM **Building Your Niche As an Early Career Pathologist**
Deepa Rao, BVSc, MS, PhD, DABT, DACVP, US FDA, Silver Spring, MD
- 8:40 AM–9:15 AM **Transitioning to Management in Big Pharma—What's in Your Toolbox?**
Rick R. Adler, DVM, PhD, GlaxoSmithKline, King of Prussia, PA
- 9:15 AM–9:50 AM **Transitioning to Management: Skill Set and Competencies Helpful in a Contract Research Organization (CRO) Setting**
Kevin S. McDorman, DVM, PhD, DACVP, Charles River Laboratories, Frederick, MD
- 9:50 AM–10:20 AM **Break**
- 10:20 AM–10:55 AM **Consulting Is a Viable Option**
John E. Dillberger, DVM, PhD, J. Dillberger LLC, Preclinical Development Service, Nashville, IN
- 10:55 AM–11:30 AM **Transition from Full-Time to Consultant after Retirement**
Ricardo Ochoa, DVM, PhD, DACVP, Pre-Clinical Safety Inc., Niantic, CT
- 11:30 AM–12:00 Noon **Panel Discussion**

 **CE 1 (Sunday AM)**

8:00 AM–12:00 Noon

Room 517d

Impact of Age on the Stage-Aware Assessment of Reproductive Tract

Co-Chairs: Karen Regan, DVM, DACVP, DABT, Regan Path Tox Services, Inc., Ashland, OH; and **Karyn Colman, BVetMed, MRCVS,** Novartis, East Hanover, NJ

The evaluation of the reproductive system in the context of toxicological pathology requires a good understanding of the normal physiology and morphology of the reproductive organs. Stage-aware assessment of the reproductive organs can provide important information on the potential of toxicity of a compound in the early steps of the drug development. However, the reproductive organs undergo major morphological and physiological changes from birth to senescence, and therefore the interpretation of reproductive morphological alternation and/or pathology sometimes becomes complex. This interactive course presents the different aspects of reproductive toxicological pathology that pathologists will face during the various phases of drug development, from challenges in juvenile and immature animals to changes associated with senescence, with emphasis on the stage-aware assessments of male and female reproductive organs in typical laboratory animal species (rodents, dogs, and NHP).

- 8:00 AM–8:40 AM **Stage-Aware Assessment in Adult (Sexually Mature) Males**
Claudine Tremblay, DVM, MSc, DACVP, Charles River Laboratories, Montréal, Québec, Canada
- 8:40 AM–9:20 AM **Stage-Aware Assessment in Adult (Sexually Mature) Females**
Karyn Colman, BVetMed, MRCVS, Novartis, East Hanover, NJ
- 9:20 AM–10:00 AM **Maturity and the Assessment of Male Reproductive Toxicologic Effects in Large Animal Species**
Katharine Whitney, DVM, PhD, DACVP, Abbvie, North Chicago, IL
- 10:00 AM–10:30 AM **Break**
- 10:30 AM–11:15 AM **Immaturity, Adolescence, and Puberty: Interpretation of Female Reproductive System in Nonrodents (Dog and NHP)**
Justin Vidal, DVM, PhD, MPI Research, Mattawan, MI
- 11:15 AM–12:00 Noon **Early Senescence in Female Rodents: Recognizing and Interpreting the Changes in Preclinical Studies**
Karen Regan, DVM, DACVP, DABT, Regan Path Tox Services, Inc., Ashland, OH

 **CE 2 (Sunday AM)**

8:00 AM–12:00 Noon

Room 517c

Current Practices and Challenges in Method Validation

Co-Chairs: *Florence Poitout, DVM, DACVP, DECVCP, Charles River, Montréal, Québec, Canada; and Mehrdad Ameri, DVM, MS, PhD, DACVP, GlaxoSmithKline, King of Prussia, PA*

This course will address current practices, problems, and future directions of method validation, and a review of current regulatory requirements for clinical and preclinical biomarker validation. It will focus on non-traditional instrumentations such as multiplex ligand binding assays now used to support many stages of drug development, but with unique challenges, compared to single-plexed assays that necessitate various adjustments for validation and sample analysis. Quantitative mass spectrometry validation may also be challenging as this technology is now an integral part of operations in a growing number of clinical pathology laboratories and could certainly gain more space in drug development and preclinical toxicology testing. Pitfalls and challenges encountered in the validation of biomarkers and flow cytometry assays in support of large molecule (biologics) in different species will be presented. The current preclinical safety biomarker qualification process and the role of pathologists and clinical pathologists will be reviewed; from the use of shared histopathology lexicons and blinded vs. open histopathology evaluation, study design, data interpretation, and data curation for statistical evaluation. Emphasis will be placed on the complementary roles of the anatomic pathologist in the phenotypic anchoring of safety biomarker changes, and that of the clinical pathologist for understanding pathophysiological and analytical aspects unique to each novel biomarker.

- 8:00 AM–8:45 AM **Challenges in Quantitative Mass Spectrometry Assay Validations**
Jennifer Colangelo, PhD, Pfizer, Groton, CT
- 8:45 AM–9:30 AM **Challenges in Multiplex Binding Assays**
Simon Lavallée, BSc, Charles River, Montréal, Québec, Canada
- 9:30 AM–10:00 AM **Break**
- 10:00 AM–10:30 AM **Strategies and Pitfalls in Biological Biomarker Validation**
Adam Aulbach, DVM, DACVP, MPI Research, Mattawan, MI
- 10:30 AM–11:15 AM **Validation Challenges in Flow Cytometry**
Marie-Soleil Piché, PhD, Charles River, Montréal, Québec, Canada
- 11:15 AM–12:00 Noon **The Role of Anatomic and Clinical Pathologists in Biomarker Qualification**
Daniela Ennulat, DVM, PhD, GlaxoSmithKline, King of Prussia, PA

 **CE 3 (Sunday PM)**

1:30 PM–5:30 PM

Room 517d

Tissue-Based Image Analysis

Co-Chairs: *Jean-René Galarneau, DVM, MSc, DACVP, Novartis, Cambridge, MA; Marielle Odin, DVM, DVSc, RochePharma, Basel, Switzerland; and Sasmita Mishra, DVM, MS, PhD, DACVP, Covance, Fishers, IN*

Digital pathology is in the process of revolutionizing the way pathologists conduct their art. Quantitative image analysis is a rapidly evolving area of digital pathology. The quantification of histological features on photomicrographs is not a new concept but it used to be cumbersome, resource intensive, and limited to specialists and specialized laboratories. However, recent technological advances like highly efficient automated whole slide digitizer (scanner) systems, innovative image analysis platforms, and the emergence of pathologist-friendly image annotation and analysis systems means that quantitation of features on histological digital images will become more and more prominent in our daily professional life. There is a plethora of potential use for quantitative image analysis in pathology including confirmation of equivocal findings noted by a pathologist, increasing the sensitivity of features detection, quantification of signal intensity, improving efficiency, etc. There is no denying that quantitative image analysis is part of the future of pathology but there are also numerous potential pitfalls when trying to estimate volumetric features from a few 2-D sections. This continuing education session on quantitative image analysis will offer a broad overview of the field, a hands-on toxicologic pathologist's experience with image analysis, a talk on how to apply basic stereology principle in order to avoid biases in image analysis, and finally, a reflection on the future of image analysis in the toxicologic pathology field.

- 1:30 PM–2:20 PM **Pathology through Pixels: Where We Are, Where We Need to Be**
Robert Dunstan, DVM, PhD, DACVP, AbbVie, North Chicago, IL
- 2:20 PM–3:10 PM **An Investigative Toxicologic Pathologist's Experiences with Whole Slide Image Analysis**
Chandra Saravanan, DVM, MS, PhD, DACVP, Novartis, Cambridge, MA
- 3:10 PM–3:45 PM **Break**
- 3:45 PM–4:35 PM **Reducing Bias in Image Analysis Data by Applying Stereological Principles**
Danielle Brown, DVM, MS, DACVP, DABT, Charles River, Durham, NC
- 4:35 PM–5:25 PM **Image Analysis Solutions to Drive Investigative Pathology**
Vanessa Schumacher, DVM, MS, DACVP, DABT, Roche Innovation Center, Basel, Switzerland
- 5:25 PM–5:30 PM **Panel Discussion**

CE 4 (Sunday PM)

1:30 PM–5:30 PM

Room 517c

What You Always Wanted to Know About Immunotoxicology in Pharmaceutical Development... but Were Afraid to Ask

Sponsored by the American College of Toxicology (ACT)

Co-Chairs: **L. Peyton Myers, PhD**, US FDA, Silver Spring, MD; and **Michael Holsapple, PhD, ATS**, Michigan State University, East Lansing, MI

As evidenced by ICH S8, M3(R2), as well as S6(R1) Guidelines, the immune system has long been an important target in pharmaceutical development. Because of this attention, the science behind safety risks associated with the immune system has evolved, resulting in attention on immunotoxicology assessment tools. In recent years, as more pharmaceuticals are targeting specific immune targets, more immunotoxicology tools have been applied. This course will provide an overview of some of the most important immunotoxicology drug development platforms. Dr. Holsapple will set the stage by briefly reviewing ICH Guidelines and current paradigms in immunotoxicology. The next talks by recognized leaders in Immunotoxicology will focus on three important platforms. All of these talks will highlight how the data derived from these platforms are used to inform, highlighting strengths and limitations. Dr. Lebec will consider the application of immunophenotyping to safety assessment. Dr. Holsapple will describe the utility of the T-dependent antibody response (TDAR) as the “gold standard” in immunotoxicology. Dr. Rao will address the dichotomy of the role of cytokines, as “friend or foe.” The final talk by Dr. Myers will provide a regulatory perspective on immunotoxicology, including trends in immunotoxicology assessment for recent US FDA approvals.

- | | |
|-----------------|--|
| 1:30 PM–2:10 PM | Studies Setting the Stage: What You Always Wanted to Know about Immunotoxicology <i>Michael Holsapple, PhD, ATS, Michigan State University, East Lansing, MI</i> |
| 2:10 PM–2:50 PM | Immunophenotyping: Application to Safety Assessment <i>Hervé Lebec, PharmD, PhD, DABT, Amgen Inc., South San Francisco, CA</i> |
| 2:50 PM–3:20 PM | The “Gold Standard”: Utility of the T-Dependent Antibody Response <i>Michael Holsapple, PhD, ATS, Michigan State University, East Lansing, MI</i> |
| 3:20 PM–3:50 PM | Break |
| 3:50 PM–4:30 PM | Cytokines: Friend or Foe? <i>Gautham Rao, PhD, DABT, Genentech Inc., South San Francisco, CA</i> |
| 4:30 PM–5:30 PM | Immunotoxicology, Regulatory Perspective <i>L. Peyton Myers, PhD, US FDA, Silver Spring, MD</i> |

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| 5:30 PM–7:00 PM | Welcome Reception (Room 517a) |
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Monday, June 26

Symposium Welcome and Keynote Address

8:00 AM–9:00 AM

Room 517c

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| 8:00 AM–8:10 AM | Symposium Welcome |
| 8:10 AM–9:00 AM | Keynote Address: Overview of Morphological Assessments of the Musculoskeletal System <i>Cathy Carlson, DVM, PhD, DACVP, University of Minnesota, St. Paul, MN</i> |

Session 1

9:00 AM–12:00 Noon

Room 517c

Toolbox for the Evaluation of the Musculoskeletal System

Co-Chairs: **Jacquelin Jolette, DVM, MSc**, Charles River Laboratories, Senneville, Québec, Canada; and **Theresa Boulineau, DVM, MS, DACVP**, Livingston, NJ

The musculoskeletal system is often a *bête noire* for diagnostic and experimental pathologists. To effectively tackle this system, this session will provide an overview of available tools that can be used to uncover changes in bones and muscles. The first two presentations will focus on familiar histopathology tools including case studies in addition to also exploring other approaches such as bone biomarkers, biomechanical testing, histomorphometry, and various imaging tools that can characterize effects at the organ, tissue, and cell levels. The third presentation will highlight nomenclature changes from the recently published INHAND bone and joint publication and the rationale for these changes. Finally, we will explore species, age, and anatomic considerations regarding evaluation of the skeleton that are relevant for preclinical study design.

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| 9:00 AM–9:05 AM | Introduction <i>Jacquelin Jolette, DVM, MSc, Charles River Laboratories, Senneville, Québec, Canada; and Theresa Boulineau, DVM, MS, DACVP, Livingston, NJ</i> |
| 9:05 AM–9:50 AM | Bone Toolbox: Biomarkers, Biomechanics, Imaging Tools, Histomorphometry <i>Aurore Varela, DVM, MSc, DABT, Charles River Montréal, Québec, Québec, Canada</i> |
| 9:50 AM–10:20 AM | Break (Room 517a) |
| 10:20 AM–11:05 AM | Diagnostic Criteria for Bone and Joint Lesions: Using INHAND Nomenclature <i>John Vahle, DVM, PhD, DACVP, Eli Lilly & Company, Indianapolis, IN</i> |
| 11:05 AM–11:50 AM | Preclinical Models for Skeletal Research <i>Matthew R. Allen, PhD, Indiana University School of Medicine, Indianapolis, IN</i> |
| 11:50 AM–12:00 Noon | Panel Discussion |
| 12:00 Noon–1:30 PM | Lunch in the Exhibit Hall for Registered Scientific Attendees (Room 517a) |

Career Development Lunchtime Series

12:30 PM–1:30 PM

Room 518

STP Special Interest Groups: Role and Relevance for Your Toxicologic Pathology Career

Sponsored by EPL, Inc.

Chair: Famke Aeffner, DVM, PhD, DACVP, Amgen, South San Francisco, CA

This session will include a panel of members of the Society of Toxicologic Pathology (STP) who are also members of one or more Special Interest Groups (SIG); they will talk about their experiences with SIGs. Topics of discussion may include: what leads/has led to the formation of SIGs, how SIGs contribute to the strategic plans of the STP and the field of toxicologic pathology, how do individual members of SIGs contribute to the missions of SIGs, and/or what role(s) SIGs may have in the careers of toxicologic pathologists. The goal of the panel discussion will be to familiarize STP members with the SIGs, their contributions to the STP and toxicologic pathology, and how joining one or more SIG can be mutually beneficial to the toxicologic pathologist and the SIGs of interest.

Session 2

1:30 PM–5:00 PM

Room 517c

Bone Therapeutics: Safety Considerations

Co-Chairs: Rogely Boyce, DVM, PhD, DACVP, Amgen, Clay, WV; and Chris Jerome, BVetMed, PhD, Wake Health, Winston-Salem, NC

The first presentation will be an overview of a major regulatory requirement in the nonclinical filing package for bone therapeutics, studies designed to assess the impact of an agent on bone quality. While relatively few bone therapeutics are currently under development, the experience with those previously developed can inform the evaluation of bone safety classes. Two presentations will focus on safety issues associated with classes of drugs whose primary mechanism of action is inhibition of bone resorption. An overview of safety issues that have been identified largely through clinical experience will be followed by a discussion of typical findings associated with this class of agents in general and reproductive toxicology studies will be reviewed, highlighting INHAND nomenclature. Similarly, safety and regulatory issues associated with classes of drugs whose primary mechanism of action is stimulation of bone formation, known broadly as bone anabolic agents will be presented, with a major focus on carcinogenicity risk assessment. The final pair of presentations will be an introduction to a rapidly evolving area in bone therapeutics, treatment of rare genetic bone diseases, and the development challenges associated with these indications and novel therapeutic modalities.

1:30 PM–1:35 PM

Introduction

Rogely Boyce, DVM, PhD, DACVP, Amgen, Clay, WV

1:35PM–2:10 PM

Regulatory Requirements for Assessment of Bone Safety

Michael Ominsky, PhD, Radius Health, Inc., Waltham, MA

2:10 PM–2:45 PM

Antiresorptives Safety Concerns—Clinical Perspective

Jacques P. Brown, MD, FRCPC, Laval University, Laval, Québec, Canada

2:45 PM–3:00 PM

Antiresorptives—Toxicology Perspective

Rogely Boyce, DVM, PhD, DACVP, Amgen, Clay, WV

3:00 PM–3:30 PM

Break (Room 517a)

3:30 PM–4:10 PM

Anabolics—Potential Safety Concerns

Luc Chouinard, DVM, DACVP, Charles River Montréal, Senneville, Québec, Canada

4:10 PM–4:45 PM

Therapeutics for Rare Bone Diseases—Clinical Perspective

Frank Rauch, MD, McGill University, Montréal, Québec, Canada

4:45 PM–5:00 PM

Rare Bone Disease—Toxicology Perspective

Rogely Boyce, DVM, PhD, DACVP, Amgen, Clay, WV

Town Hall Meeting

5:30 PM–6:30 PM

Room 517c

Points to Consider in Histopathology Severity Grading

The severity grade is an important component of a histopathologic diagnosis that can help characterize both treatment-related effects and the test system. Severity grades and their implications are not always fully understood and may lead to some confusion between pathologists, toxicologists and regulatory reviewers. Confusion may emanate from a lack of understanding of the routine approach pathologists use in assigning severity grades. In addition, some variation in grading practices and grade assignment can occur between pathologists, test facilities, and studies. Such variation has the potential to cause confusion when evaluating results across studies or across drug targets or programs. As such, a Scientific and Regulatory Policy Committee (SRPC) Working Group (WG) was chartered by the Executive Committee of Society of Toxicologic Pathology to review the assignment and communication of histopathology grades and grading criteria. The goal of the WG is to facilitate a better understanding by toxicologists and regulatory reviewers of severity grades to enhance effective communication in regulatory submissions. This Town Hall discussion will review the WG efforts to date and will provide an open forum to discuss the use of severity grades with the Society's Membership at large. Points to consider include discussion of the purpose and function of histological grading, defining grading criteria, reducing variability within grading, the implications of linking severity grades to adversity, use of statistical analysis of grades, and the implications for implementation and use of SEND-compliant data. Please join us for this interactive discussion reviewing an upcoming SRPC Points to Consider Manuscript.

Mystery Bone, Joint, and Musculoskeletal Pathology Session

Sponsored by HistoTox Labs, Inc.

7:00 PM–9:00 PM

Room 517c

Co-Chairs: *Stacey Fossey, DVM, PhD, DACVP, DABT, AbbVie, Worcester, MA; Timothy LaBranche, DVM, PhD, DACVP, Blueprint Medicines, Cambridge, MA; and Kathryn E. Gropp, DVM, PhD, DACVP, Pfizer, Groton, CT*

This session will provide attendees with the opportunity to expand their knowledge through focused histopathology case review. Cases will be available for review online prior to the STP Annual Meeting to foster discussion during the face-to-face session in Montréal. Case materials are being sought to span the breadth of spontaneous and induced disease, with contemporary target-based toxicities highlighted.

Tuesday, June 27

Session 3

8:00 AM–12:00 Noon

Room 517c

Unintended Pharmacologic Effects on Bone

Co-Chairs: *James Hartke, DVM, PhD, DACVP, Celgene Corporation, San Diego, CA; Jairo Nunes, DVM, MSc, PhD, DACVP, Takeda Pharmaceuticals, Cambridge, MA; and Stacey Fossey, DVM, PhD, DACVP, DABT, AbbVie, Worcester, MA*

Bone is a metabolically active tissue and undergoes changes in structure and composition as a result of direct and indirect pharmacologic activity in toxicology studies. Examples of molecular pathways (WNT, SHH, VEGF) and bone findings will be presented with emphasis on describing the pathogenesis and how the basic biology was altered in the growth plate, metaphysis, trabecular bone, and bone marrow. The impact of the findings along with de-risking strategies will be discussed.

- 8:00 AM–8:05 AM **Introduction**
James Hartke, DVM, PhD, DACVP, Celgene Corporation, San Diego, CA; Jairo Nunes, DVM, MSc, PhD, DACVP, Takeda Pharmaceuticals, Cambridge, MA; and Stacey Fossey, DVM, PhD, DACVP, DABT, AbbVie, Worcester, MA
- 8:05 AM–8:50 AM **WNT-Mediated Modulation of Bone Metabolism: Implications for WNT Targeting to Treat Extra-Skeletal Disorders**
Alexander G. Robling, PhD, Indiana University, Indianapolis, IN
- 8:50 AM–9:30 AM **Physis in Crisis**
Kendall Frazier, DVM, PhD, DACVP, DABT, GlaxoSmithKline, King of Prussia, PA
- 9:30 AM–9:50 AM **Student Presentation: Carnosine Intervention in the Thy1- α Syn Mouse Model of Parkinson's Disease**
Mei-Ling Bermudez, MS, University of Cincinnati, Cincinnati, OH

9:50 AM–10:20 AM **Break (Room 517a)**

10:20 AM–10:40 AM **Effects of Hedgehog (Hh) Pathway Inhibition on Growth Plates**
Melissa Schutten, DVM, PhD, DACVP, Genentech, South San Francisco, CA

10:40 AM–11:15 AM **Effect on Cancellous Bone in the Metaphysis**
Kathryn E. Gropp, DVM, PhD, DACVP, Pfizer, Groton, CT

11:15 AM–11:50 AM **Bone Findings Secondary to Anti-Neoplastic Compounds: Marrow Hematopoietic, Bone, and Cytokine Cross-Talk**
Lise Loberg, PhD, DABT, Abbvie, North Chicago, IL

11:50 AM–12:00 Noon **Closing Remarks**
James Hartke, DVM, PhD, DACVP, Celgene Corporation, San Diego, CA; Jairo Nunes, DVM, MSc, PhD, DACVP, Takeda Pharmaceuticals, Cambridge, MA; and Stacey Fossey, DVM, PhD, DACVP, DABT, AbbVie, Worcester, MA

Lunchtime “Chalk Talk”

12:30 PM–1:15 PM

Room 518

This informal lunch session will start with a presentation by the Keynote Speaker, Dr. Cathy Carlson, on best practices for producing high quality bone slides. Examples of staining and tissue handling mishaps will follow as an icebreaker exercise. Then bone experts (Drs. Carlson, Chris Jerome, and Katy Gropp) will be available for attendees either collectively or individually (using white boards) to answer questions from attendees. Attendees are expected to bring their own lunches.

Afternoon

Free Time

Wednesday, June 28

Session 4

8:00 AM–12:00 Noon

Room 517c

Bone As an Endocrine Organ

Co-Chairs: *Susan Y. Smith, MSc, Charles River Laboratories, Senneville, Québec, Canada; and Dana B. Walker, DVM, DACVP, MS, PhD, Novartis Institute of Biomedical Research, Cambridge, MA*

The objective of this session is to highlight developments in the evolving role of the skeleton as an endocrine organ, and its relevance in toxicology evaluations as part of a whole-body, systems biology approach to drug safety assessment. Evidence to date is convincing that at least two hormones known to be produced by the skeleton: osteocalcin and FGF23, are involved respectively in energy metabolism, and mineral homeostasis and metabolism. Research indicates that an imbalance in these critical functions has pathophysiological ramifications affecting the function of major organ systems. Speakers in this session are experts in their domain and will present state-of-the-art talks on the role of bone in energy metabolism, the central and peripheral nervous system, and our current understanding of the actions of FGF23; the session will conclude with a talk on the immunoskeletal interface to highlight how this relationship can impact physiological and pathological function of bone.

- 8:00 AM–8:05 AM **Introduction**
Susan Y. Smith, MSc, Charles River Laboratories, Senneville, Québec, Canada
- 8:05 AM–8:55 AM **Energy Metabolism of Bone**
Katherine Motyl, PhD, Maine Medical Center Research Institute, Scarborough, ME
- 8:55 AM–9:45 AM **Bone and the Nervous System**
Paul Baldock, PhD, Garvan Institute of Medical Research, Sydney, Australia
- 9:45 AM–10:15 AM **Break (Room 517a)**
- 10:15 AM–11:05 AM **Pleiotropic Actions of FGF23**
Reinhold Erben, Univ.-Prof., Dr.med, Dr.med.vet., University of Veterinary Medicine, Vienna, Austria
- 11:05 AM–11:55 AM **Bone and the Immune System**
M. Neale Weitzmann, PhD, Atlanta Department of Veterans Affairs Medical Center, Atlanta, GA
- 11:55 AM–12:00 Noon **Closing Remarks**
Dana B. Walker, DVM, DACVP, MS, PhD, Novartis Institute of Biomedical Research, Cambridge, MA

Nanotechnology Reflections: Understanding the Toxicologic Pathology of Nanoscale Interactions

Sponsored by IATP and STP

12:30 PM–1:30 PM

Room 518

Co-Chairs: *Darlene Dixon, DVM, PhD, DACVP, FIATP, NIEHS/NTP, Research Triangle Park, NC; and Robert R. Maronpot, DVM, MS, MPH, DACVP, DABT, FIATP, Maronpot Consulting LLC, Raleigh, NC*

Speaker: *Ann F. Hubbs, DVM, PhD, CDC/NIOSH/HELD, Morgantown, WV*

Registration required. Lunch will not be provided.

Session 5

1:30 PM–5:00 PM

Room 517c

Structural Approaches to Bone and Joint Repair

Co-Chairs: *Lyn Wancket, DVM, PhD, DACVP, NAMSA, Northwood, OH; and Timothy LaBranche, DVM, PhD, DACVP, Blueprint Medicines, Cambridge, MA*

Repair of bone and joint tissue is a unique endeavor for two reasons. First, structural integrity is key to restoring normal function. Second, essential to this repair is a combination of both organic and inorganic tissue components, each with their own discrete role to play. This session will cover methods and models used to evaluate novel approaches for repairing bones and joints. The first talk will provide an overview of bone and joint devices, with an emphasis on preclinical and clinical evaluations of implant sites. The next presentation will show an example of *ex vivo* tissue engineering as a therapeutic option for arthritis. The third talk will compare the benefits and limitations of different animal models of joint damage and repair. Finally, the session will conclude with an overview of the unique standards and guidance that steer approval of these novel bone and joint treatments.

- 1:30 PM–2:15 PM **Bone and Joint Devices: Evaluating Repair from the Ground (Substance) Up**
Lyn Wancket, DVM, PhD, DACVP, NAMSA, Northwood, OH
- 2:15 PM–3:00 PM **Biologic Joint Repair Strategies**
Keiichi Kuroki, DVM, PhD, DACVP, University of Missouri, Columbia, MO
- 3:00 PM–3:30 PM **Break (Room 517a)**
- 3:30 PM–4:15 PM **Animal Models of Joint Damage and Repair**
Timothy LaBranche, DVM, PhD, DACVP, Blueprint Medicines, Cambridge, MA
- 4:15 PM–5:00 PM **Regulatory Considerations for Medical Devices**
Karen Manhart, VMD, ANP, DACVP, US FDA, Silver Spring, MD

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| 5:30 PM–6:30 PM | Awards Ceremony and Annual Business Meeting (Room 517c) |
| 7:00 PM–9:00 PM | President's Reception (Le Westin, Montréal Ballroom) |

Thursday, June 29

Session 6

8:00 AM–12:00 Noon

Room 517c

Evaluation of Skeletal Muscle

Co-Chairs: *Wendell P. Davis, DVM, DACVP, Charles River Laboratories, Sherbrooke, Québec, Canada; and Stéphane Thibault, DVM, DACVP, DABT, Pfizer Inc., San Diego, CA*

The symposium's final scientific session will focus on the skeletal muscle and begin with a review of the basic toolbox for evaluating skeletal muscle in toxicology studies including specimen collection and orientation, species differences, and common background findings. Commonly used histochemical stains and other specialized approaches utilized in the evaluation of skeletal muscle will be discussed. The second presentation will provide an overview of the classic skeletal muscle biomarkers and current commercially available assays and conclude with an update on the status of the US FDA working groups' qualification efforts and discussion of case studies analyzing the performance of biomarker assays in drug development. The next presentation will focus on Sarcopenia and highlight the importance of health issues associated with aging in the worldwide population. Key mechanisms currently implicated in the pathophysiology and progression of this condition will also be discussed, as well as the current controversies and future directions in the field of Sarcopenia research. The final presentation will include a review of several animal models of muscular dystrophy and utilize Duchenne's muscular dystrophy to illustrate some emerging image analysis tools being employed to mitigate the challenge of providing quantitative clinical biomarker data in patients.

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| 8:00 AM–8:05 AM | Introduction <i>Wendell P. Davis, DVM, DACVP, Charles River Laboratories, Sherbrooke, Québec, Canada; and Stéphane Thibault, DVM, DACVP, DABT, Pfizer Inc., San Diego, CA</i> |
| 8:05 AM–8:50 AM | Toolbox for Evaluation of the Musculoskeletal System <i>Kathryn E. Gropp, DVM, PhD, DACVP, Pfizer Inc., Groton, CT</i> |
| 8:50 AM–9:40 AM | Skeletal Muscle Injury Biomarkers: Assay Qualification Efforts and Translation to the Clinic <i>Richard A. Goldstein, DVM, Pfizer Inc., Groton, CT</i> |

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| 9:40 AM–10:00 AM | Student Presentation: Proliferative Cartilaginous Lesions in the Tibiotarsal Joints of HuNOG Mice <i>Alexandria MacLeod, DVM, University of Minnesota College of Veterinary Medicine, St. Paul, MN</i> |
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10:00 AM–10:25 AM **Break**

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| 10:25 AM–11:15 AM | Sarcopenia: The Lion in the Path <i>Thomas W. Buford, PhD, University of Florida, Gainesville, FL</i> |
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| 11:15 AM–12:00 Noon | Pathway-Specific Biomarker Quantification in Muscular Dystrophy: Comparing Molecular and Diagnostic Pathology Approaches <i>Kristin Wilson, DVM, PhD, DACVP, Flagship Biosciences, Westminster, CO</i> |
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12:00 Noon **Meeting Adjourned**

Poster Setup and Presentation Times

Poster Setup

Sunday, June 25 8:00 AM–12:00 Noon
 Your poster must be set up by 12:00 Noon on Sunday, June 25.

Poster Presentation Times

(Please plan to attend your posters during the following times).

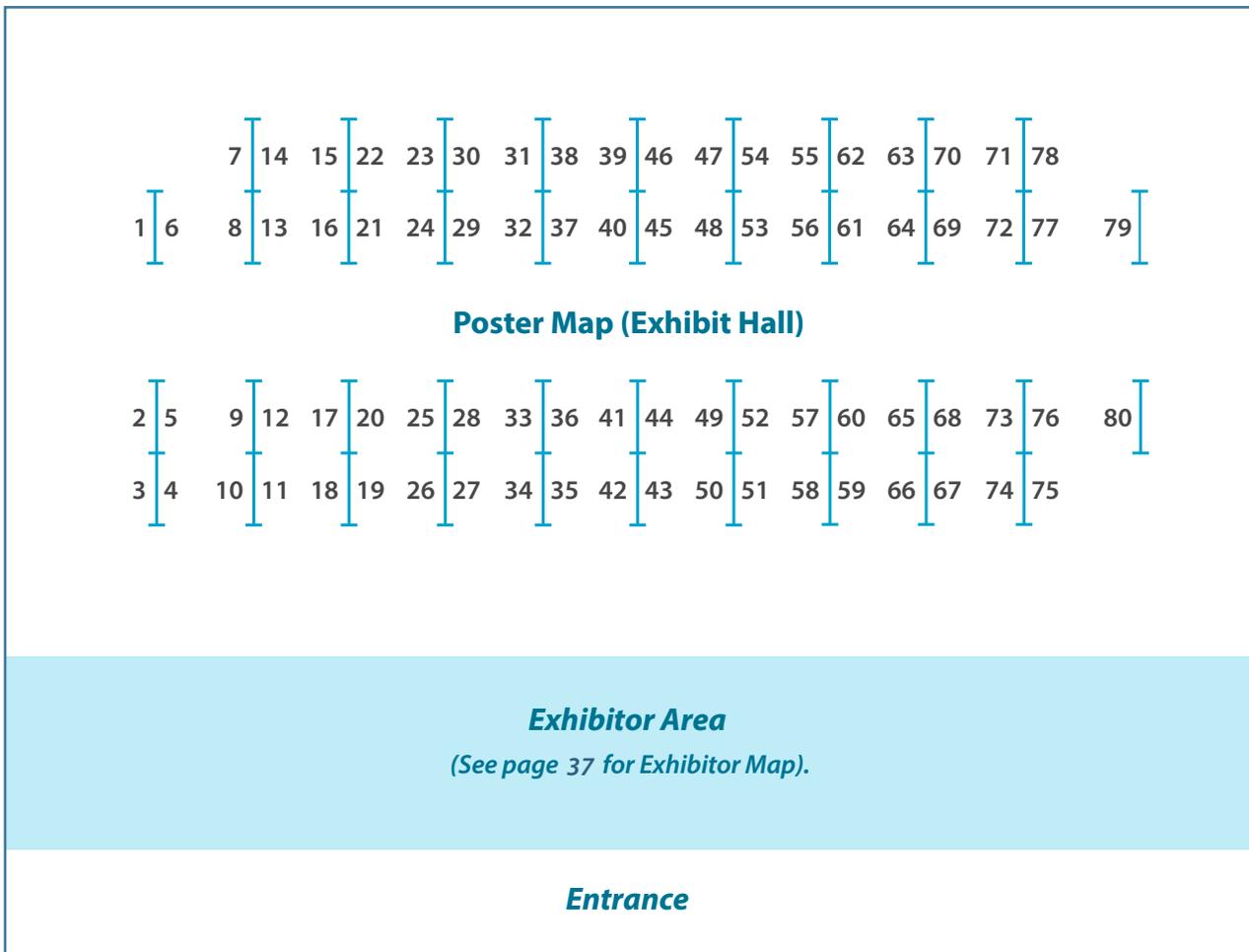
Sunday, June 25 (Welcome Reception) 6:00 PM–6:30 PM
 Monday, June 26 9:50 AM–10:20 AM
 and 3:00 PM–3:30 PM
 Tuesday, June 27 9:50 AM–10:20 AM
 Wednesday, June 28 9:45 AM–10:15 AM

Poster Teardown

Wednesday, June 28 11:30 AM–1:00 PM
 If your poster is not removed before 1:00 PM on Wednesday, June 28, it will be removed and placed near the Registration Desk for pickup.

Young Investigator Judging Times

Monday, June 26 7:15 AM–8:00 AM,
 9:50 AM–10:20 AM,
 and 3:00 PM–3:30 PM
 Tuesday, June 27 9:50 AM–10:20 AM



Poster Presentation Index

Annual Meeting materials can also be downloaded at www.toxpath.org/am2017/materials.asp or can be viewed via the new mobile app. STP members can access the materials with their normal member login. Nonmember attendees should use login sent via email.

Poster Categories

| | |
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| Young Investigator Candidates | 1-12 |
| Biomarkers | 13-14 |
| General Pathology/Toxicologic Pathology..... | 15-39 |
| New Technologies | 40-42 |
| Oncology/Carcinogenesis..... | 43-46 |
| Systemic/Organ-Specific Toxicologic Pathology..... | 47-80 |

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| 01 | Subcutaneous Hydrogel Delivery of IL-7 Induces Systemic T Cell Responses and Local Immune Cell Infiltration <i>Caroline Andrews¹, Julie Hixon¹, Wenqing Li¹, Scott Durum¹, ¹National Cancer Institute, Frederick, MD, United States</i> |
| 02 | Carnosine Intervention in the Thy1-aSyn Mouse Model of Parkinson's Disease <i>Mei-Ling Bermudez¹, Kim Seroogy¹, Mary Beth Genter¹, ¹University of Cincinnati, Cincinnati, OH, United States</i> |
| 03 | Protective Role of Sildenafil against Carbon Tetrachloride-Induced Nephrotoxicity by Augmenting the Availability of Nitric Oxide and Antioxidant Enzymes <i>Shubham Goyal¹, Gurpreet Kaur¹, Bhartendu Sharma², Pyare Lal Sharma², ¹Baddi University of Emerging Sciences and Technology, Baddi, Himachal Pradesh, India, ²Maharaja Agrasen University, Baddi, Himachal Pradesh, India</i> |
| 04 | Developmental Toxicity of Trichloroethylene (TCE) in Zebrafish (<i>Danio rerio</i>) <i>Katharine Horzmann¹, Jennifer Freeman¹, ¹Purdue University, West Lafayette, IN, United States</i> |
| 05 | Damage-Associated Molecular Patterns (DAMPs) and MHC Class II-Expressing Cells in Thioacetamide (TAA)-Induced Rat Liver Injury <i>Mizuki Kuramochi¹, Takeshi Izawa¹, Munmun Pervin¹, Alexandra Bondoc¹, Mohammad Rabiul Karim¹, Mitsuru Kuwamura¹, Jyoji Yamate¹, ¹Osaka Prefecture University, Laboratory of Veterinary Pathology, Izumisano, Osaka, Japan</i> |
| 06 | A New "Old" Approach to Analyse the Rat Fetus and Placenta at 19.5 Days of Gestation <i>Phanie L. Charest^{1,4}, Pauline Herst^{1,4}, Maryse Lessard^{1,4}, Deborah Sloboda³, Mathieu Dalvai^{1,4}, Marie-Odile Benoit-Biancamano², Janice L. Bailey^{1,4}, ¹Université Laval, Québec, Québec, Canada, ²Université de Montréal, Montréal, Québec, Canada, ³McMaster University, Hamilton, Ontario, Canada, ⁴Centre de Recherche en Reproduction, Développement et Santé Intergénérationnelle, Québec, Québec, Canada</i> |
| 07 | Folic Acid As an Answer to the Impact of Arctic Contaminants on Inuit: What Is the Effect on the Father and the Health of His Offspring? <i>Phanie L. Charest^{1,3}, Maryse Lessard^{1,3}, Pauline Herst^{1,3}, Mathieu Dalvai^{1,3}, Marie-Odile Benoit-Biancamano², Janice L. Bailey^{1,3}, ¹Université Laval, Québec, Québec, Canada, ²Université de Montréal, Montréal, Québec, Canada, ³Centre de Recherche en Reproduction, Développement et Santé Intergénérationnelle, Québec, Québec, Canada</i> |
| 08 | Evaluation of Microcalcification in Cardiovascular Medical Devices <i>Elizabeth Clark^{1,2}, Sharon Cheatham¹, Joanne Chisolm¹, Victoria Pepper¹, Cameron Best¹, Ekene Onwuka¹, Quiang Zhou³, Jian Meng³, Serge Rousselle⁴, Toshiharu Shinoka¹, Andrew Yates¹, Kan Hor¹, Christopher Breuer¹, John Cheatham¹, ¹Nationwide Children's Hospital, Columbus, OH, United States, ²The Ohio State University, College of Veterinary Medicine, Columbus, OH, United States, ³Beijing Med-Zenith Medical Scientific Co., Beijing, China, ⁴Alizee Pathology, Thurmont, MD, United States</i> |
| 09 | Insights into the Effect of Subtle Chemical Modification of Aryl Chroloethylurea (CEU) As Small Molecules Targeting Either β-Tubulin or Prohibitin and Thioredoxin-1 <i>Jessica S. Fortin¹, Alexandre Patenaude², Bernadette Bouchon³, René C. Gaudreault⁴, ¹Veterinary Medical Diagnostic Laboratory, University of Missouri, Columbia, MO, United States, ²Axis of Neuroscience, University Hospital Center of Québec, Québec, Québec, Canada, ³Unité Mixte de Recherche 484, Institut National de la Santé et de la Recherche Médicale-Université d'Auvergne, Clermont-Ferrand, France, ⁴CCR CHU de Québec, Axe oncologie, Hôpital Saint-François d'Assise, Québec, Québec, Canada</i> |
| 10 | Diminished microRNA-29b Results in Overexpression of BRD4 and BRD4-Related Oncogenes in Cutaneous T-Cell Lymphoma <i>Rebecca Kohnken¹, Jing Wen¹, Bethany Mundy-Bosse¹, Max Yano¹, Leah Grinshpun¹, Kathleen McConnell¹, Ashleigh Keiter¹, Alex Hartlage¹, James Bradner², Michael Caligiuri¹, Pierluigi Porcu³, Anjali Mishra¹, ¹Ohio State University, Columbus, OH, United States, ²Harvard Medical School, Boston, MA, United States, ³Thomas Jefferson University, Philadelphia, PA, United States</i> |

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| 11 | Incidence and Age Association of Increased Stromal Collagen in Testes of Cynomolgus Monkeys <i>Sarah Coe¹, Justin D. Vidal², Keith Nelson^{1,2}, ¹Michigan State University College of Veterinary Medicine, East Lansing, MI, United States, ²MPI Research, Mattawan, MI, United States</i> |
| 12 | Vaccination of Mice with VC2, a Novel Mutant Strain of Herpes Simplex Virus 1, Protects against Ocular Herpesvirus Infection <i>Shan Naidu¹, Brent Stanfield¹, Nithya Jambunathan¹, Nagarjuna Cheemarla¹, Vladamir Chouljenko¹, Renée Carter¹, Ingeborg Langohr¹, Konstantin Kousoulas¹, ¹Louisiana State University, Baton Rouge, LA, United States</i> |
| 13 | An Immunohistochemical Investigation of Renal Phospholipidosis and Toxicity in Rats <i>Jing Ying Ma¹, Sandra Snook², Charles Johnson², David La², ¹Pathology and Toxicology, Janssen Research & Development, LLC, San Diego, CA, United States, ²Pathology and Toxicology, Janssen Research & Development, LLC, Spring House, PA, United States</i> |
| 14 | Detection and Correlation of Kidney Safety Biomarker (Kim-1 and Clusterin) in Urine and <i>In Situ</i> Expression of Kim-1 and Clusterin in Kidneys from Renal Toxicity Model Using Gentamicin or Cyclosporine in Rats <i>Takayuki Tsuchiya¹, Yi-Zhong Gu¹, Caron Leach¹, Erdos Zoltan¹, Erjia Wang¹, Katerina Vlasakova¹, Warren Glaab¹, Sean Troth¹, ¹Merck & Co. Inc., West Point, PA, United States</i> |
| 15 | Gastric Cryptosporidiosis in Immunocompetent Cynomolgus Macaques (<i>Macaca fascicularis</i>) <i>Tracy Carlson¹, Keith Nelson¹, Daniel Patrick¹, ¹MPI Research, Mattawan, MI, United States</i> |
| 16 | Analyst and Smear Variability in Cytological Bone Marrow Cell Differential Counts and Assessment of Full Differentials and Proliferating and Maturing Cell Stage Differentials <i>Caitlyn Carter¹, Eric Howard¹, Laura Cregar¹, Adam Aulbach¹, ¹MPI Research, Mattawan, MI, United States</i> |
| 17 | Preclinical <i>In Vitro</i> and <i>In Vivo</i> Safety Evaluation of Cinnamon Extract <i>Jeong-Hwan Che^{1,2}, Hak Mo Lee¹, Yun-Soon Kim¹, Ji-Ran You¹, Euna Kwon¹, Eun-Young Cho¹, Jung-Hee Yoon¹, Byeong-Cheol Kang^{1,2}, ¹Biomedical Research Institute, Seoul National University Hospital, Seoul, Republic of Korea, ²Seoul National University College of Medicine, Seoul, Republic of Korea</i> |
| 18 | Short-Term Toxicity Evaluation of Aloe Vera Whole-Leaf Freeze Dried Powder in SD Rats <i>Tao Chen^{1,2}, Li Wang^{1,2}, Chunyan Hu^{1,2}, Hongxia Li^{1,2}, ¹West China School of Medicine, West China Hospital, Sichuan University, Chengdu, China, ²West China-Frontier Pharma Tech, Chengdu, China</i> |
| 19 | Rodent Hepatocellular Tumor Responses in the National Toxicology Program (NTP) Bioassays <i>Raveena Chhabria¹, Grace Kissling¹, Marcus Jackson¹, Jennifer Fostel¹, Robert Sills¹, Arun Pandiri¹, ¹National Institute of Environmental Health Sciences, Research Triangle Park, NC, United States</i> |
| 20 | Uterine Subserosal Cysts in Harlan Sprague-Dawley Rats from National Toxicology Program Studies <i>Daven Jackson-Humbles¹, John Seely², Ronald Herbert¹, David Malarkey¹, Barry McIntyre¹, Paul Foster¹, Darlene Dixon¹, ¹National Institute of Environmental Health Sciences, National Toxicology Program, Research Triangle Park, NC, United States, ²Experimental Pathology Laboratories, Inc., Research Triangle Park, NC, United States</i> |
| 21 | Heterotopic Ossification in the Achilles Tendon (Calcanean Tendon) of the NOD/scid/IL2rY-/- Mouse <i>Julius Haruna¹, Malcolm Gains¹, Karen Wong¹, Christiana Glover¹, ¹CitoxLAB North America Inc., Laval, Québec, Canada</i> |
| 22 | Ninety-Day Toxicity and Single-Dose Toxicokinetics Study of Alpha-Glycosyl Isoquercitrin in Sprague-Dawley Rats <i>Shim-mo Hayashi¹, Mihoko Koyanagi¹, Abraham Nyska², Jeffrey P. Davis³, Micheal P Jokinen³, Robert Maronpot⁵, Yuval Ramot⁴, ¹San-Ei Gen, F.F.I., Inc., Osaka, Japan, ²Sackler School of Medicine, Tel Aviv University and Consultant in Toxicologic Pathology, Timrat, Israel, ³Integrated Laboratory Systems, Research Triangle Park, NC, United States, ⁴Hadassah University Medical Center, Jerusalem, Israel, ⁵Maronpot Consulting LLC, Raleigh, NC, United States</i> |
| 23 | INHAND: International Harmonization of Nomenclature and Diagnostic Criteria for Lesions—An Update—2017 <i>Charlotte Keenan¹, Julia Baker², Alys Bradley³, Dawn Goodman⁴, Takanori Harada⁵, Shim-mo Hayashi⁶, Ronald Herbert⁷, Wolfgang Kaufmann⁸, Rupert Kellner⁹, Beth Mahler⁷, Emily Meseck¹⁰, Thomas Nolte¹¹, John Vahle¹², Katsuhiko Yoshizawa¹³, ¹CM Keenan ToxPath Consulting, Doylestown, PA, United States, ²Charles River, Frederick, MD, United States, ³Charles River, Tranent, Scotland, United Kingdom, ⁴Independent Consultant, Potomac, MD, United States, ⁵The Institute of Environmental Toxicology, Joso-shi, Ibaraki, Japan, ⁶San-Ei Gen F.F.I., Inc., Toyonaka, Osaka, Japan, ⁷NIEHS, Research Triangle Park, NC, United States, ⁸Merck KGaA, Darmstadt, Germany, ⁹Fraunhofer ITEM, Hannover, Germany, ¹⁰Novartis Institute for Biomedical Research, East Hanover, NJ, United States, ¹¹Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach an der Riss, Germany, ¹²Eli Lilly & Company, Indianapolis, IN, United States, ¹³Mukogawa Women's University, Nishinomiya, Hyogo, Japan</i> |
| 24 | Common Spontaneous Histopathologic Findings in Juvenile Domestic Pigs Used in Nonclinical Research Studies <i>Amit Kumar^{1,2}, Shelley Beazley¹, ¹MPI Research, Mattawan, MI, United States, ²Michigan State University, Lansing, MI, United States</i> |

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| 25 | <p>Toxicity and Pharmacodynamics of Two CLL-1 T Cell Bispecific Antibodies with Varying CD3 Affinity</p> <p>Steven Laing¹, Brian Vuilleminot¹, Steven Leong¹, Siddharth Sukumaran¹, Maria Hristopoulos¹, Klara Totpal¹, Shannon Stainton¹, Elizabeth Lu¹, Alfred Wong¹, Lucinda Tam¹, Robert Newman¹, Diego Ellerman¹, Chen Gu¹, Mary Mathieu¹, Mark Dennis¹, Allen Nguyen¹, Bing Zheng¹, Crystal Zhang¹, Genee Lee¹, Yu-Waye Chu¹, Kedan Lin¹, Rodney Prell¹, Andrew Polson¹, ¹Genentech Inc., South San Francisco, CA, United States</p> |
| 26 | <p>Variance in Regional Skin Histoanatomy in Göttingen Minipigs</p> <p>Jennifer Lamoureux¹, Douglas Snider^{1,2}, Melissa Ashley¹, Keith Nelson^{1,2}, ¹MPI Research, Mattawan, MI, United States, ²Department of Pathobiology and Diagnostic Investigation, Michigan State University, East Lansing, MI, United States</p> |
| 27 | <p>Case Report: Extramedullary Hematopoiesis in Canine Pituitary Glands</p> <p>Xiuhua Lan¹, Rongrong Tan¹, Junwen Qiao¹, Henglei Lu¹, Beiyun Liu¹, Jiafeng Hua¹, Jun Shao¹, Jin Ren¹, ¹Center for Drug Safety Evaluation and Research, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai, China</p> |
| 28 | <p>Proliferative Cartilaginous Lesions in the Tibiotarsal Joints of HuNOG Mice</p> <p>Alexandria MacLeod¹, Piper Treuting², Timothy O'Brien¹, Cathy Carlson¹, ¹College of Veterinary Medicine, University of Minnesota, St. Paul, MN, United States, ²Department of Comparative Medicine and Histology, University of Washington, Seattle, WA, United States</p> |
| 29 | <p>A Retrospective Study of Background Histologic Findings in New Zealand White Rabbits</p> <p>Michelle Magagna¹, Keith Nelson², ¹Michigan State University, Lansing, MI, United States, ²MPI Research, Mattawan, MI, United States</p> |
| 30 | <p>Evaluation of Different and Alternative Fixatives in Substitution of Formalin in Toxicological Pathology</p> <p>Rosa Anna Manno¹, Elena Marastonì¹, Germano Oberto¹, Stefano Villa¹, ¹Research Toxicology Centre, Pomezia, Rome, Italy</p> |
| 31 | <p>Histology Provides Essential Context When Characterizing Chondrogenic Differentiation of Canine Bone-Marrow-Derived Mesenchymal Stromal Cells</p> <p>Maureen T. O'Brien¹, Melissa A. MacIvers¹, Lauren K. Dobson¹, W. Brian Saunders¹, ¹Texas A&M University, College Station, TX, United States</p> |
| 32 | <p>Toxicity of Hydroxyurea in Cynomolgus Monkeys</p> <p>Timothy Thullen¹, Evelyne Polack¹, Tracey Papenfuss³, Ivan Stone¹, John Setser³, Brian Wipke¹, Sriram Krishnamoorthy², Antrison Morris³, Tonika Bonhert¹, Natasha Penner¹, William Hobbs², David Light², Jim Fikes¹, Ken Loveday¹, ¹Biogen, Cambridge, MA, United States, ²Bioverativ, Waltham, MA, United States, ³Charles River Laboratories, Ashland, OH, United States</p> |
| 33 | <p>"Adversity of Lysosomal Accumulation" in Toxicity Studies, The Pathologists' Point of View—Results from the 5th ESTP International Expert Workshop in Barcelona, September 23–24, 2016</p> <p>Andreas Popp¹, Annamaria Braendli-Baiocco², Jeff Engelhardt³, Pierluigi Fant⁴, Holger Fischer², Sabine Francke⁵, Ryo Fukuda⁶, Sibylle Groeters⁷, Takanori Harada⁸, Johannes Harleman⁹, Wolfgang Kaufmann¹⁰, Stefan Kustermann², Barbara Lenz², Thomas Nolte¹¹, Xavier Palazzi¹², Gabriele Pohlmeier-Esch¹¹, Annette Romeike¹³, Agnes Schulte¹⁴, Beatriz Silva Lima¹⁵, Lindsay Tomlinson¹², ¹AbbVie Deutschland GmbH & Co. KG, Ludwigshafen, Germany, ²Roche Innovation Center, Basel, Switzerland, ³Ionis, Carlsbad, CA, United States, ⁴Charles River, St. Germain-Nuelles, France, ⁵US FDA, College Park, MD, United States, ⁶Takeda, Fujisawa, Japan, ⁷BASF SE, Ludwigshafen, Germany, ⁸Institute of Environmental Toxicology, Ibaraki, Japan, ⁹Fresenius Kabi, Bad Homburg, Germany, ¹⁰Merck KGaA, Darmstadt, Germany, ¹¹Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach, Germany, ¹²Pfizer, Boston, MA, United States, ¹³Covance Laboratories Inc., Saint-Germain-en-Laye, France, ¹⁴Federal Institute for Risk Assessment, Department Chemicals and Product Safety, Berlin, Germany, ¹⁵Universidade de Lisboa, Faculdade de Farmácia, Lisboa, Portugal</p> |
| 34 | <p>Intertubular Seminoma in Sprague-Dawley Rats: A Novel Presentation of a Rare Rodent Tumor?</p> <p>Erin Quist¹, Kyathanahalli Janardhan², Heather Jensen², Greg Olson³, Susan Elmore², ¹Experimental Pathology Laboratories, Inc., Research Triangle Park, NC, United States, ²National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC, United States, ³Toxicologic Pathology Associates, National Center for Toxicological Research, Jefferson, AR, United States</p> |
| 35 | <p>Using the Chemical Effects in Biological Systems (CEBS) Database to Answer Pathology Questions</p> <p>Eleanor Sheridan¹, Cari Martini¹, Michael Shaw¹, Keith Shockley², Amy Brix³, Asif Rashid¹, Isabel Lea¹, Jennifer Fostel⁴, ¹ASRC Federal Vistrionix, Morrisville, NC, United States, ²Division of Intramural Research, NIEHS, Durham, NC, United States, ³EPL, Inc., Research Triangle Park, NC, United States, ⁴Division of the National Toxicology Program, NIEHS, Durham, NC, United States</p> |
| 36 | <p>Characterization of Focal Ectopic Myelinated Nerve Fibers in the Retina of a Cynomolgus Monkey: A Spontaneous Background Finding</p> <p>Norimitsu Shirai¹, Mark Evans², ¹Pfizer, Groton, CT, United States, ²Pfizer, San Diego, CA, United States</p> |
| 37 | <p>Exacerbation of Seminiferous Tubule Dilatation by Fibrous Hypoplasia in Cynomolgus Monkey Testes</p> <p>Vimala Vemireddi^{1,2}, Dianne Creasy¹, ¹Envigo (formerly Huntingdon Life Sciences), East Millstone, NJ, United States, ²Covance Laboratories, Inc., Chantilly, VA, United States</p> |
| 38 | <p>Lipopolysaccharide-Mediated Autophagy Protects against Thioacetamide-Induced Acute Liver Injury in Rats</p> <p>Mohammad Rabiul Karim¹, Munmun Pervin¹, Mizuki Kuramochi¹, Takeshi Izawa¹, Mitsuru Kuwamura¹, Jyoji Yamate¹, ¹Osaka Prefecture University, Laboratory of Veterinary Pathology, Izumisano-shi, Osaka, Japan</p> |

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| 39 | A Comparison of Autoimmunity Induced by Nivolumab or Ipilimumab in Two Humanized Mouse Models <i>Leah Zadrozny¹, Jim Weaver¹, Kenrick Semple¹, Katherine Shea¹, Kristina Howard¹, ¹US FDA, Silver Spring, MD, United States</i> |
| 40 | Measuring Thrombin Generation in Rats Using the Calibrated Automated Thrombogram <i>Déborah Culang¹, Florence Poutout-Belissent², Christian Bédard¹, ¹Université de Montréal, Saint-Hyacinthe, Québec, Canada, ²Charles River Laboratories, Senneville, Québec, Canada</i> |
| 41 | Selection of a Novel Lipid Nano Particles (LNP) Vehicle for Intramuscular Injection of Therapeutic mRNA <i>Eric Jacquinet¹, Joe Milano¹, Kimberly Hassett¹, Luis Brito¹, Kerry Benenato¹, Sathyajith Kumarasinghe¹, Deiby Faulkner¹, ¹Moderna Therapeutics, Cambridge, MA, United States</i> |
| 42 | Development of Digital Tissue Image Analysis Solution for Muscle Biopsies in Support of Disease-Modifying Therapies for Duchenne Muscular Dystrophy <i>Kristin Wilson¹, Jon Tinsley², AJ Milici¹, Famke Aeffner¹, Steven Moore³, Crystal Faelan¹, ¹Flagship Biosciences, Westminster, CO, United States, ²Summit Therapeutics, Abington, Oxfordshire, United Kingdom, ³Paul D. Wellstone Muscular Dystrophy Cooperative Research Center, Iowa City, IA, United States</i> |
| 43 | Comparison of Survival, Tumor Incidence, and the Incidence of Chronic Progressive Nephropathy in Carcinogenicity Studies Conducted in CD¹IGS Rats and CD-1[®]IGS Mice Fed 5002 or 5CR4 Certified Diets <i>Shambhunath Choudhary¹, Mark Morse¹, Aaron Sargeant¹, ¹Charles River Laboratories, Spencerville, OH, United States</i> |
| 44 | Constitutive Androstane Receptor (CAR)-Dependent Liver Tumor Induction by Imazalil in Mice <i>Kei Tamura^{1,3,4}, Kaoru Inoue¹, Miwa Takahashi¹, Yukio Kodama², Midori Yoshida⁵, ¹Division of Pathology, National Institute of Health Sciences, Setagaya-ku, Tokyo, Japan, ²Division of Toxicology, National Institute of Health Sciences, Setagaya-ku, Tokyo, Japan, ⁴Laboratory of Veterinary Pharmacology, School of Veterinary Medicine Azabu University, Chuo-ku Sagamihara, Kanagawa, Japan, ⁵Food Safety Commission of Japan, Minato-ku, Tokyo, Japan</i> |
| 45 | Alterations in MAPK Signaling in Alveolar Bronchiolar Carcinomas from B6C3F1/N Mice Exposed to Antimony Trioxide by Inhalation for Two Years <i>Thai Ton¹, Hua-Hua Hong¹, Shyamal Peddada¹, Keith Shockley¹, Gordon Flake¹, Matt Stout¹, Ramesh Kovi¹, Robert Sills¹, Arun Pandiri¹, ¹NIEHS, Research Triangle Park, NC, United States</i> |
| 46 | Exome Sequencing of Spontaneous and Chemically Induced Hepatocellular Carcinomas in B6C3F1/N Mice Identifies Unique Somatic Mutations <i>Miaoifei Xu¹, Scott Auerbach¹, Mark Hoenerhoff^{1,2}, Alex Merrick¹, Dhiral Phadke³, Ruchir Shah³, Hue-Hua Hong¹, Ramesh Kovi^{1,4}, Robert Sills¹, Arun Pandiri¹, ¹Division of National Toxicology Program (DNTP), NIEHS, Research Triangle Park, NC, United States, ²Unit for Laboratory Animal Medicine In Vivo Animal Core, University of Michigan Medical School, Ann Arbor, MI, United States, ³Sciome LLC, Research Triangle Park, NC, United States, ⁴Experimental Pathology Laboratories Inc., Research Triangle Park, NC, United States</i> |
| 47 | Intravitreal D-Arginine Administration Results in Retinal Degeneration and Necrosis in Male New Zealand White Rabbits <i>Helen Booler¹, Roxanne Andaya¹, Vladimir Bantseev¹, ¹Genentech Inc., South San Francisco, CA, United States</i> |
| 48 | Retinal Toxicity Associated with Intravitreal Administration of Hyper- and Hypo-osmolar Vehicles <i>Helen Booler¹, Vladimir Bantseev¹, Aija McKenzie¹, Evan Thackerberry¹, ¹Genentech, Inc., South San Francisco, CA, United States</i> |
| 49 | Submandibular Blood Collection in C57Bl/6 Mice Associated with Hemorrhagic and Necrotizing Brain Lesions <i>Karrie Brenneman¹, James Hailey², Mary Payette¹, Jessica Doherty¹, Larry Whiteley¹, ¹Pfizer, Andover, MA, United States, ²Covance, Chantilly, VA, United States</i> |
| 50 | Radiation-Induced Renal Changes in the Göttingen Minipig <i>Danielle Brown¹, Thomas Measey², Oreola Donini², ¹Charles River Laboratories, Durham, NC, United States, ²Soligenix, Inc., Princeton, NJ, United States</i> |
| 51 | Comparison of the Intramuscular Tolerability to Five Long-Acting Drug Nanosuspensions with Similar Particle Sizes but Different Stabilizing Excipients, following a Single Intramuscular Administration in the Rat <i>Ronnie Chamanza¹, Nicolas Darville¹, Marjolein Van Heerden¹, Sandra De Jonghe¹, ¹Janssen Pharmaceutical Companies of Johnson & Johnson, Beerse, Antwerp, Belgium</i> |
| 52 | Spontaneous, Treatment-Related, and Iatrogenic Lesions in the Nasopharyngeal Ducts of Rats and Mice <i>Karen Cimon¹, Rodney Miller¹, Gabrielle Willson¹, Mark Cesta², David Malarkey², Ronald Herbert², ¹Experimental Pathology Laboratories, Inc., Research Triangle Park, NC, United States, ²Cellular and Molecular Pathology Branch, Division of the National Toxicology Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC, United States</i> |

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| 53 | Common Incidental and Procedural-Related Otic Microscopic Findings in the Guinea Pigs Used in Nonclinical Auditory Safety Studies <i>Phaedra Cole¹, Rachel Tapp¹, ¹MPI Research, Mattawan, MI, United States</i> |
| 54 | Previously Diagnosed Reticulum Cell Lesions of Rat Bone Marrow Stain Positive for Ionized Calcium Binding Adapter Molecule 1 (Iba1)—A Monocytic/Macrophage Cell Marker <i>Michelle Cora¹, Kyathanahalli Janardhan², Heather Jensen¹, Natasha Clayton¹, Greg Travlos¹, ¹Cellular and Molecular Pathology Branch, DNTP, NIEHS, Research Triangle Park, NC, United States, ²Integrated Laboratory Systems, Inc., Durham, NC, United States</i> |
| 55 | Histological Methods for Laryngeal Function Studies in the Rat and Rabbit <i>Abigail Durkes¹, ¹Purdue University, West Lafayette, IN, United States</i> |
| 56 | Juvenile Animal Studies in Support of Pediatric CNS Drugs: CDER's Experience Ten Years Later <i>Ikram Elayan¹, Arippa Ravindran¹, J. Edward Fisher, Jr.², ¹US FDA, Division of Psychiatry Products, Silver Spring, MD, United States, ²US FDA, Division of Neurology Products, Silver Spring, MD, United States</i> |
| 57 | Variability of Spleen and Mesenteric Lymph Node Pathology Parameters in Control Cynomolgus Monkeys (<i>Macaca fascicularis</i>): A Retrospective Assessment <i>Nancy Everds^{4,1}, James Reindel^{5,2}, Jonathan Werner³, William Craven⁴, ¹Seattle Genetics, Bothell, WA, United States, ²MPI Research, Mattawan, MI, United States, ³Amgen, Inc., Thousand Oaks, CA, United States, ⁴Amgen, Inc., South San Francisco, CA, United States, ⁵Amgen, Inc., Seattle, WA, United States</i> |
| 58 | Hepatocellular Proliferation in the Sprague-Dawley Rat: Comparison of Three Proliferation Markers after a Two-Week Treatment Period Using a Potent PPAR Compound <i>Frederic Gervais¹, Andre Schenka¹, Alixia Senechal¹, Spezia Francois¹, Pramila Singh¹, Bernard Palate¹, ¹CiTOXLAB France, Evreux, France</i> |
| 59 | The Novel Microtubule Targeting Agent (MTA) DZ-2384 Is Less Neurotoxic to the Dorsal Root Ganglia (DRG) and Sciatic Nerves of Sprague-Dawley Rats in Comparison to Docetaxel <i>Julius Haruna¹, Malcolm Gains¹, ¹CiToxLAB, Laval, Québec, Canada</i> |
| 60 | Immune Complex Glomerulopathy in Human CD19 Transgenic Mice <i>William Iverson¹, Jennifer Rojko², Erin Straley¹, Stephanie Oldham¹, Sean Turman¹, Yue Wang¹, ¹MedImmune, LLC, Gaithersburg, MD, United States, ²Charles River Laboratories, Inc., Frederick, MD, United States</i> |
| 61 | Corneal Lesions in Rats Induced by Intraperitoneal Injection of the Anesthetic Mixture of Three Drugs <i>Kyohei Kamio¹, Junya Morita¹, Yutaka Nakanishi¹, Yoshiki Ban¹, Minoru Sasaki¹, ¹Drug Safety, Drug Safety and Pharmacokinetics Laboratories, Taisho Pharmaceutical Co., Ltd., Saitama-shi, Saitama, Japan</i> |
| 62 | Pathophysiological Analysis of Skeletal Muscle in Obese Type 2 Diabetes Spontaneously Diabetic Torii (SDT) Fatty Rats <i>Yusuke Kemmochi¹, Takeshi Ohta², Norihiro Kaneshige², Sohei Katsumi², Eriko Taniai-Riya¹, Kaoru Toyoda¹, Akiko Anagawa-Nakamura¹, Yuzo Yasui¹, Akemi Takahashi¹, Kochi Kakimoto¹, Toshiyuki Shoda¹, Takahisa Yamada³, ¹Toxicology Research Laboratories, Central Pharmaceutical Research Institute, Japan Tobacco Inc., Hadano, Kanagawa, Japan, ²Biological/Pharmacological Research Laboratories, Central Pharmaceutical Research Institute, Japan Tobacco Inc., Takatsuki, Osaka, Japan, ³Laboratory of Animal Genetics, Graduate School of Science and Technology, Niigata University, Niigata, Japan</i> |
| 63 | Chondrodysplasia in a Stillborn Simmental Calf <i>Pankaj Kumar¹, Shambhunath Choudhary², ¹Kansas State University, Manhattan, KS, United States, ²Charles River Laboratories, Spencerville, OH, United States</i> |
| 64 | Pharmacologic Inhibition of Nav 1.7 in Sprague-Dawley Rats Does Not Recapitulate the Anosmia-Associated Decrease in Tyrosine Hydroxylase Expression Observed in the Olfactory Bulb of cNav1.7-/- Mice <i>Joan Lane¹, Adam Hargreaves², Virginie Piccicuto³, Daniel Aleksandrowicz¹, Katie Zokowski¹, Craig Swithenbank³, Josephine Burnett³, Andrew Postoyalko³, Claudia Harper¹, Norman Kim^{1,4}, Jim Fikes¹, ¹Biogen, Inc., Cambridge, MA, United States, ²PathCelerate, Ltd., Alderley Edge, Cheshire, United Kingdom, ³Covance Laboratories, Ltd., Harrogate, North Yorkshire, United Kingdom, ⁴Roivant Sciences, Basel, Switzerland</i> |
| 65 | A Preliminary Evaluation of Site Selection and Sample Handling for Minipig Dermal Studies <i>Keith Nelson^{1,2}, Melissa Ashley¹, Douglas Snider^{1,2}, Jennifer Lamoureux¹, ¹MPI Research, Mattawan, MI, United States, ²Michigan State University, East Lansing, MI, United States</i> |
| 66 | Integrating Immunopathology and Immunotoxicology to Evaluate Immunomodulatory Drugs <i>Tracey Papenfuss¹, Vanessa Peachee¹, Danice Wilkins², Jennifer Tichenor², Marie-Soleil Piche³, ¹Charles River Laboratories, Ashland, OH, United States, ²Charles River Laboratories, Reno, NV, United States, ³Charles River Laboratories, Senneville, Québec, Canada</i> |

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| 67 | Spontaneous Ectopic Choroid Plexus with Sclerosis in Adult Beagle Dogs in General Toxicity Studies Ingrid D Pardo ¹ , Ahmed M Shoieb ¹ , Robert Garman ² , Michael Mirsky ¹ , Rosemary Santos ¹ , Christopher Houle ¹ , ¹ Pfizer, Groton, CT, United States, ² Consultants in Veterinary Pathology, Inc., Murrysville, PA, United States |
| 68 | Radiation Causes Delayed Injury in the Kidneys of Rhesus Macaques George Parker ¹ , Eric Cohen ² , Kim Hankey ² , Ann Farese ² , Cynthia Swanson ¹ , Thomas MacVittie ² , ¹ Charles River Laboratories, Durham, NC, United States, ² University of Maryland School of Medicine, Baltimore, MD, United States |
| 69 | Delayed Radiation-Associated Changes in the Lungs of Rhesus Macaques George Parker ¹ , Ann Farese ² , Cynthia Swanson ¹ , Thomas MacVittie ² , ¹ Charles River Laboratories, Durham, NC, United States, ² University of Maryland School of Medicine, Baltimore, MD, United States |
| 70 | Acute and Prolonged Radiation-Associated Changes in the Gastrointestinal System of Rhesus Macaques George Parker ¹ , Cath Booth ² , Greg Tudor ² , Kim Hankey ³ , Ann Farese ³ , Cynthia Swanson ¹ , Thomas MacVittie ³ , ¹ Charles River Laboratories, Durham, NC, United States, ² Epistem, Ltd., Manchester, United Kingdom, ³ University of Maryland School of Medicine, Baltimore, MD, United States |
| 71 | Aortic Tears in Nonclinical Research Rodents Daniel Patrick ¹ , Barbie Gadsden ¹ , David Rehagen ¹ , ¹ MPI Research, Mattawan, MI, United States |
| 72 | Diversity of Thymic Cysts in Cynomolgus Monkeys Marcia Pereira Bacares ¹ , Vimala Vemireddi ¹ , ¹ Covance Laboratories Inc., Chantilly, VA, United States |
| 73 | Animal Model of Bronchopulmonary Dysplasia in Juvenile Rats Catherine Picut ¹ , Danielle Brown ¹ , Cynthia Swanson ¹ , Melanie Greeley ² , Daniel Kirkpatrick ² , Justin Palmer ² , Jeremy Nussbaum ² , ¹ Charles River Laboratories, Durham, NC, United States, ² Charles River Laboratories, Ashland, OH, United States |
| 74 | Thyroid Hormone Measurement in Rats, Correlation of Histopathology, and Possible Decision Tree for OECD 421/422/443 Maria Cecilia Rey Moreno ¹ , Volker Strauss ¹ , Steffen Schneider ¹ , Heike-Antje Marxfeld ¹ , Sibylle Gröters ¹ , Bennard van Ravenzwaay ¹ , ¹ BASF SE, Ludwigshafen, Germany |
| 75 | Drug-Induced Fluorosis in Skeletal/Dental Tissues in Rodent Chronic Toxicity Studies Yuki Seki ¹ , Yoshikazu Taketa ¹ , Shoji Asakura ¹ , Kyoko Nakano-Ito ¹ , Aya Goto ¹ , Etsuko Ohta ¹ , Kazuhiro Hayakawa ¹ , Satoru Hosokawa ¹ , ¹ Tsukuba Drug Safety, Eisai. Co., Ltd, Ibaraki, Japan |
| 76 | Molecular Pathology Approach to Characterize Unique Distribution of Drug-Induced Phospholipidosis in Rats Bhanu Singh ¹ , Manisha Sonee ¹ , Heng Keang Lim ¹ , Jennifer Ingram-Ross ¹ , Jing Ying Ma ² , Michael DuVall ¹ , Michael Kelley ¹ , Calvert Loudon ¹ , Rao N.V.S. Mamidi ¹ , ¹ Janssen Research and Development LLC, Spring House, PA, United States, ² Janssen Research and Development LLC, San Diego, CA, United States |
| 77 | Immunohistochemical Characterization of Ocular Inflammation Associated with Intravitreal Biotherapeutics Oliver Turner ¹ , Chandra Saravanan ² , Yan Gao ² , Sherry Nady ¹ , Danielle Diaz ¹ , Daher Ibrahim Aibo ¹ , Jean-René Galarneau ² , Keith Mansfield ² , Mark Milton ² , Vito Sasseville ² , ¹ Novartis, East Hanover, NJ, United States, ² Novartis, Cambridge, MA, United States |
| 78 | Histological Features of the Nasal Cavity in the Juvenile White Rabbit Yoshinori Yamagiwa ¹ , Shingo Nemoto ¹ , Masaaki Kurata ¹ , Hideyuki Sakaki ¹ , ¹ Senju Pharmaceutical Co., Ltd., Kobe, Hyogo, Japan |
| 79 | Effects of Scopolamine or SCH 23390 on Two-Way Active Avoidance Test and Expressions of Neuronal Cell Activity Marker at the Hippocampus and Amygdala in Rats Kyohei Yasuno ¹ , Erika Takahashi ¹ , Isao Igarashi ¹ , Takuma Iguchi ¹ , Kiyonori Kai ¹ , Kazuhiko Mori ¹ , ¹ Daiichi Sankyo Co., Ltd., Tokyo, Japan |
| 80 | Diuretic-Induced Bladder Wall Hypertrophy in Rats—Evaluation by Image Analysis Tsuyoshi Yoshikawa ¹ , Yukari Nishimura ¹ , Takuma Tsuchiya ¹ , Makoto Sato ¹ , Keisuke Kitaura ¹ , Satoshi Matsumoto ¹ , ¹ Nonclinical Research Center, Tokushima Research Institute, Otsuka Pharmaceutical Co., Ltd., Tokushima, Japan |

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Tuesday, June 27

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12:15 PM–1:15 PM

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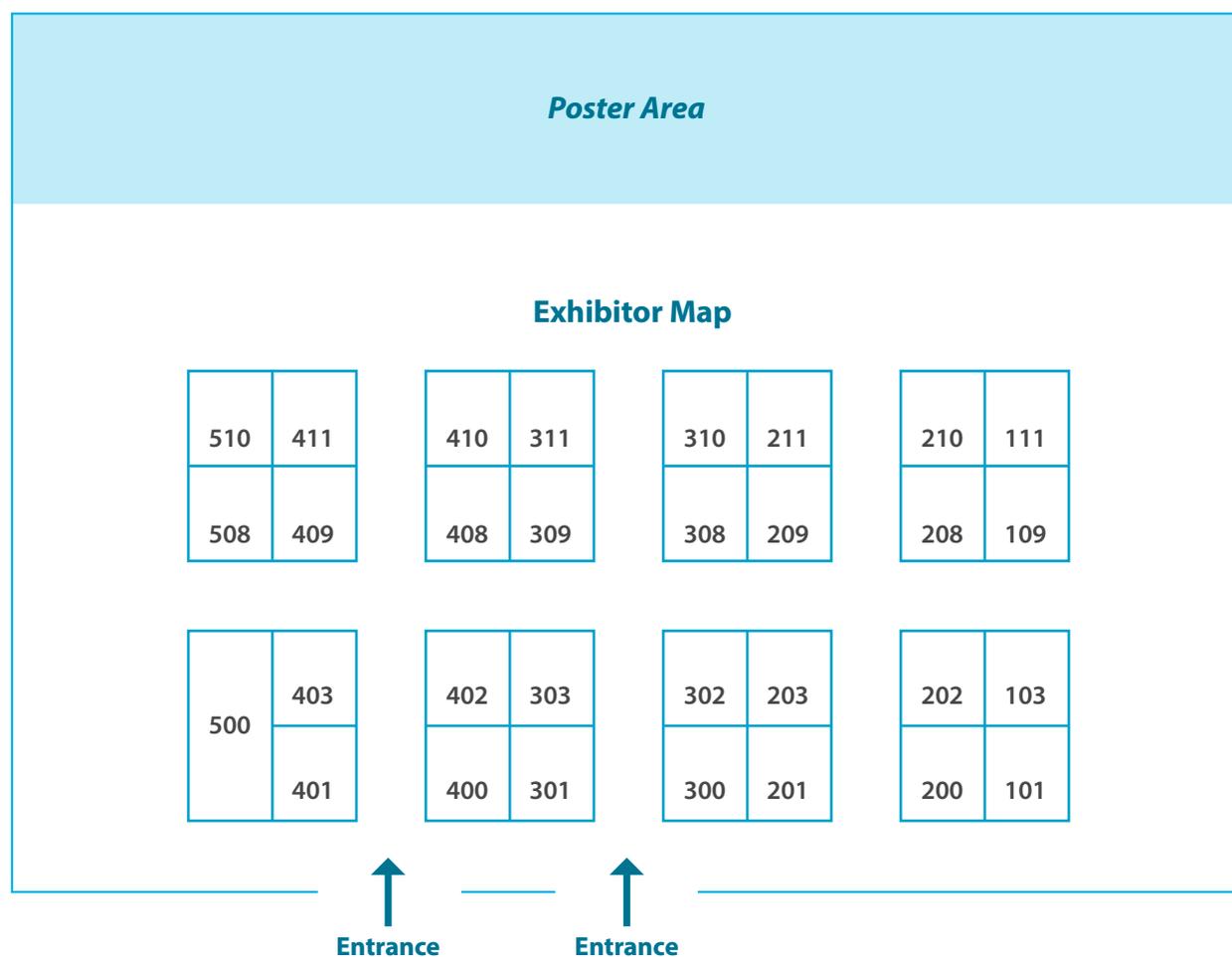
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The European Society of Toxicologic Pathology (ESTP) was established in 2002. ESTP has currently approximately 300 members, most of which are originating from Europe. In total, 26 countries are represented, 11 of which are overseas.

Goals: To promote toxicologic pathology not only in Europe but also globally by participating in activities together with other STPs. One major task is the completion of the INHAND initiative. Our annual congresses are considered of high quality; the next will be held in Lyon, France.

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Society of Toxicologic Pathology (STP) 500

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Founded in 1971, the Society of Toxicologic Pathology (STP) is a nonprofit association of pathologists and other scientists whose principal aim is the advancement of pathology as it pertains to changes elicited by pharmacological, chemical and environmental agents, and factors that modify these responses. The Society's vision: Be an international leader for improvement of human, animal, and environmental health using an interdisciplinary scientific approach based in pathology and toxicology. This vision will be accomplished through four primary goals: advocacy, education, globalization, and recruitment.

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