2016 TRI-STATE WORKSHOP DESCRIPTIONS April 27-29, 2016, Doubletree Hotel, Cedar Rapids, Iowa

Main Speaker: Tissue Identification for the Histotechnologist **(Sponsored by Newcomer Supply)**
Sarah Britton, MS, HTL (ASCP)
This workshop is designed to review the basics of tissue, and the key cell types that are the building blocks of all tissue. It will discuss the different types of epithelium and connective tissue found inside the human body. These concepts will then be used to give an overview of tissue types by organ system with correlations to disease processes and special staining. Systems that will be discussed include: Gastrointestinal, Hepatobiliary, Urinary, Respiratory, Endocrine, Skin, the Male and Female reproductive systems, and Nerve tissue.

#1. Troubleshooting and Standardizing Automated Special Stains **(Sponsored by Agilent Technologies)**
Debra Cobb, HT, BS, MBA
In today's world of automation in the Histology Laboratory, troubleshooting special stains and adjusting the workflow has become more complicated. This workshop will address the common issues such as: background staining on slides, drying and dewaxing on board, debris on slides, uneven staining, stain too dark/too light, workflow, and turnaround time. What once was considered efficient 20 years ago is no longer efficient in today's laboratories. Increased workload has made it harder to keep up with the demand. Standardization of laboratory processes helps achieve the consistency in testing results. This workshop will address the benefits of automating Special Stains: Reduces risk of error, Improves workflow and overall efficiency, Improves turn-around time, Enhances staining consistency, and improves safety for staff and environment.

#2. Intro to IHC and Advanced IHC
Lauren Hopson **(Sponsored by Cell Marque Corporation)**
Introduction to IHC and Panel Diagnostics
This workshop is designed to develop or improve basic IHC knowledge and uncover what goes on "behind the scenes" inside your IHC automated platform. We will begin with a detailed look at the techniques involved in IHC, and the different components that go into building an immuno stain. We will start by understanding the process of antibody development, and learn about the interaction between tissue, antibodies and detection chemistries. The various types of detection will be explored, and how their differences affect the outcome of a stain. We will also investigate the different formats available for antibodies, and the advantages and disadvantages they bring. Next, we will take a look at how these variables can affect your staining.

Advanced IHC--Mystery Diagnosis
A diagnosis is a lot like solving a mystery, with immunohistochemistry supplying some of the most helpful clues. Join us as we discover and learn the key antibodies for a variety of different tumor types to help identify the mystery diagnosis in a series of patient case studies. We will identify staining characteristics and diagnostic utilities for each antibody, as well as learn how and why pathologists order these antibodies alone and/or in a panel. Attendees will learn about the relationship between different tumors and what immunohistochemical characteristics help differentiate them by learning how to use antibody flow charts and panels. There will be frequent opportunities to answer quiz questions with patient case studies from the course material to earn prizes. Attendees will have the opportunity to create their own Antibody Cheat Sheet for continued quizzing at home and reference in the future.

#3. A Birdseye View: Murine Ocular Histology and Neurohistology for the Histotechnologist
Katherine Gibson-Corley, DVM, PhD
Tissues from the central nervous system (CNS) and the eye offer unique challenges to the histotechnologist. From understanding the proper orientation for different regions of the brain to embedding a mouse eye so it will not pop out of a paraffin block, working with these tiny tissues can be daunting. This workshop will cover the basic gross anatomy and histology of the mouse brain, spinal cord and eye with comparisons to human tissues. Participants will also be introduced to common background lesions in the eye and central nervous system of mice. These tissues are very susceptible to handling artifacts, so tissue handling techniques will be highlighted. Other topics will include appropriate fixation and sectioning, troubleshooting problems when dealing with delicate CNS tissues and important stains used for the evaluation of both ocular pathology and neuropathology in a research setting.

#4. Special Stains for Connective Tissue in the Clinical Laboratory **(Sponsored by Newcomer Supply)**
Sarah Britton, MS, HTL (ASCP)
This workshop is designed to review the basic principles for the commonly used connective tissue stains used in clinical labs. Included in the discussion will be staining for collagen, muscle, elastin, reticulin and fibrin. Stains to be discussed will include a few of the trichrome methods, Mallory's PTAH method for striated muscle, Verhoff Van Gieson, Aldehyde Fuchsin and many others. For each stain the discussion will include: proper controls, best fixatives, purpose of the reagents, staining mechanisms and troubleshooting improperly stained sections.

#5. Molecular Pathology Overview **(Sponsored by Biocare)**
Jason Ramos, Ph.D.
Molecular pathology is often a less familiar entity for those accustomed to IHC and proteins. This seminar is intended to provide a comprehensive overview of basic molecular biology to offer a better understanding of the applications and diagnostic relevance of molecular pathology. A review of the scientific principles of molecular biology will be conducted. This will include understanding the transcription and translation processes. Different molecular techniques from PCR to ISH will be covered. The pros and cons of these techniques will be discussed, including which molecular techniques and methods are best suited for diagnostic, screening or treatment assessment purposes. The presentation will also look at the future for molecular pathology, and discuss routes for personalized medicine.

#6. Change Management, Lean & Six Sigma: Effective Practices for the AP Lab
Terry Dunn **(Sponsored by Roche Diagnostics)**
Do any of these statements sound familiar: I need to grow my outpatient business, I need to find 10% savings in my budget, I need to increase my staff's efficiency, I need to get my slides out faster, I need to take on the work from the other location here. And with all that, an overriding mandate—I need to make sure we don't have any mistakes! One lab error changes a patient's life forever. That same error can erode the two things you feverishly protect: customer trust—both referring physicians and patients—and your bottom line. This workshop will describe the fundamental elements of Lean Six Sigma and Change Management methodology (LSS/CM). You will learn how the practical tools and insights of LSS/CM can help improve the safety, productivity and quality in the lab, and assist with cost reduction. We will review real life case study examples of Lean/SS/CM in the lab and provide takeaway ideas that can be applied to your laboratory.

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2016 TRI-STATE SEMINAR DESCRIPTIONS **April 27, 2016, Doubletree Hotel, Cedar Rapids, IA**

Please Note: Seminars are open to all registered attendees. Pre-registration for individual seminars is not required. Seminars will be held on Wednesday mid-afternoon/early evening, with some seminar talks running simultaneously.

3:00 – 4:00 pm; Wednesday, April 27th

1. Modeling Cystic Fibrosis: An Example of the Crucial Role for Pathology in Translational Research **David Meyerholz DVM, PhD**

Cystic fibrosis (CF) is caused by mutations in the CF transmembrane conductance regulator (CFTR) gene product. CF causes disease in several organs, but lung disease is recognized as an organ with severe disease in CF. In the mid twentieth century, kids with CF were considered fortunate if they lived long enough to attend grade school. Since that time, increased understanding of CF has led to medical advances that have extended the median life span to nearly 40 years. However, the morbidity and mortality associated with CF lung disease is still too high. Mouse models were unable to reproduce CF lung disease, so new CF models (pig, ferret and others) were developed in recent years. New model species such as the CF pig and ferret have required extensive pathology support to: 1) validate these models, 2) test long held hypotheses regarding CF disease, 3) re-evaluate CF lung disease from a modern perspective and 4) test the efficacy of novel therapies and biomarkers. Pathology plays an important and critical role for study of CF pathogenesis and for efficient translation of these findings to develop new treatments to help people with CF live better and longer lives.

2. The Thyroid Gland: Normal, Non-Neoplastic and Neoplastic Conditions **Robert Robinson, MD, PhD**

This presentation will illustrate normal and abnormal histopathologic features of the thyroid gland, including the most common diseases seen in the pathology lab. Illustrations of critical histologic features of processes using routine hematoxylin and eosin stained sections as well as the use of immunohistochemical studies will be highlighted.

4:00 – 5:00 pm; Wednesday, April 27th

1. Selected Topics in Forensic Histopathology **Harry Carson, MD**

Forensics is currently a topic of interest in the sciences and media. Forensics is also a field with special considerations for histotechnologists. This lecture will examine some of the technical issues that histotechnologists face in handling forensic cases, and review some interesting interpretative outcomes of forensic histotechnology. Following this lecture, the participant will be aware of the kinds of forensic cases that come to the attention of the histotechnologist even in community practice, understand some important technical considerations that may arise, and have an appreciation of how tissue handling and histotechnology contribute to the management and diagnosis of forensic cases.

2. Express Yourself: Diagnostic Immunohistochemistry to Assign Tumor Type and Site of Origin **Andrew Bellizzi, MD PhD**

This lecture will describe a contemporary approach to the immunohistochemical workup of a tumor of unknown histotype or origin. This workup blends traditional markers (e.g., keratin, S-100, and LCA) with so-called "next-generation immunohistochemistry," which takes advantage of discoveries in molecular genetics and developmental biology to bring cutting edge diagnostics to paraffin.

5:00 – 6:00 pm; Wednesday, April 27th

1. Muscle Biopsy Evaluation – Histotechnologists Play a Critical Role **Steven A. Moore, MD, PhD**

Patients with neuromuscular disease often undergo a muscle biopsy as a component of their overall clinical and laboratory evaluation. Histotechnologists at many institutions play critical roles once the tissue is received by Pathology. This presentation will illustrate how to optimize biopsy freezing and fixation that will support a broad range of methodologies used by muscle pathologists to identify disease. Patient case presentations will show diagnostic examples of histochemistry, enzyme histochemistry, immunostaining, and electron microscopy.

2. Student Case Vignettes – A Brief Account of Six Patient Cases,

The purpose of this presentation is to discuss six patient cases that have traveled through the routine histology laboratory on their path to an accurate diagnosis. Six students within the Mayo School of Health Sciences Histology Technician program will briefly present a case that has inspired them during their journey to becoming a professional Histology Technician. Each patient vignette will discuss the normal morphologic features of the body site being presented, a general description of the disease and related pathology, details of the patient case, and suggestions on how this patient's tissue may need to be managed in the histology laboratory. Learners will walk away with a basic understanding of the four patient cases presented and an appreciation for how their work impacts patient care.