DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE

2017-2018 ANNUAL REPORT

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DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE
FACULTY AND TRAINEE ROSTER

2017-2018

Chair

J. Charles Jennette, M.D., Brinkhous Distinguished Professor and Chair

Vice Chair

Joan M. Taylor, Ph.D., Professor, Vice Chair for Research, Associate Director of the McAllister Heart Institute

Herbert C. Whinna, M.D., Ph.D., Associate Professor, Vice Chair for Clinical Services, Director of McLendon Laboratories and Coagulation Laboratories

Monte S. Willis, M.D., Ph.D., MBA, Professor, Vice Chair for Academic Affairs (Separated April 15, 2018)

Associate Chair for Administration

Susan P. Evers, M.P.H.

Distinguished Professors

Dwight A. Bellinger, D.V.M., Ph.D. (Fred C. and Lelia B. Owen Distinguished Professor, Emeritus)

Joe W. Grisham, M.D. (Kenan Distinguished Professor, Emeritus)

Nobuyo N. Maeda, Ph.D. (Robert H. Wagner Distinguished Professor)

Marjorie S. Read, Ph.D. (Fred C. & Lelia B. Owen Professor, Emeritus)

Oliver Smithies, D.Phil. (Kay M. & Van L. Weatherspoon Eminent Distinguished Professor) (Deceased January 10, 2017)

Richard R. Tidwell, Ph.D. (Kenan Distinguished Professor) (Retired June 30, 2017)

Professors

Thomas W. Bouldin, M.D.
Frank C. Church, Ph.D.
William B. Coleman, Ph.D.
Leslie G. Dodd, M.D.
Rosann A. Farber, Ph.D.
Craig A. Fletcher, D.V.M, Ph.D.
William K. Funkhouser, M.D., Ph.D.
Peter H. Gilligan, Ph.D.
Virginia L. Godfrey, D.V.M., Ph.D.
Margaret L. Gulley, M.D.
Tracy M. Heenan, D.V.M
Kathleen A. Kaiser-Rogers, Ph.D.
David G. Kaufman, M.D., Ph.D.
Christopher P. Mack, Ph.D.
Susan J. Maygarden, M.D.
Melissa B. Miller, Ph.D.
Shanmugam Nagarajan, Ph.D.
Volker R. Nickeleit, M.D., Ph.D.
Judith N. Nielsen, D.V.M. (Retired March 31, 2018)

Howard M. Reisner, Ph.D. (Retired June 30, 2018)
John L. Schmitz, Ph.D.
Harsharan K. Singh, M.D.
Scott V. Smith, M.D.
Leigh B. Thorne, M.D., M.H.S.
Michael D. Topal, Ph.D. (Separated April 30, 2018)
Cyrus Vaziri, Ph.D.
Karen E. Weck, M.D.
Bernard E. Weissman, Ph.D.
Alisa S. Wolberg, Ph.D.
John T. Woosley, M.D., Ph.D.
Maimoona A. Zariwala, Ph.D.

Associate Professors
Jessica K. Booker, Ph.D.
Benjamin Calhoun, M.D., Ph.D, MBA (Joined October 2, 2017)
Brian C. Cooley, Ph.D.
Georgette A. Dent, M.D.
George Fedoriw, M.D.
Adil Gasim, M.D. (Joined January 2, 2018)
Susan C. Hadler, M.D., M.S.
Jonathon W. Homeister, M.D., Ph.D.
Peiqi Hu, M.D.
Masao Kakoki, M.D., Ph.D.
Mehmet Kesimer, Ph.D.
Jason Merker, M.D., Ph.D, (Joined April 23, 2018)
C. Ryan Miller, M.D., Ph.D.
Siobhan M. O'Conner, M.D. (Promoted November 1, 2017)
Yara A. Park, M.D.
Eizaburo Sasatomi, M.D., Ph.D.
Lori R, Scanga, M.D, Ph.D (Promoted November 1, 2017)
Steven Shipley, D.V.M.
Dimitri G. Trembath, M.D., Ph.D.
Julia W. Whitaker, D.V.M.
David C. Williams, Jr., M.D., Ph.D.
Hong Xiao, M.D.

Assistant Professors
Silvio Antoniak, Ph.D.
Pablo Ariel, Ph.D.
J. Todd Auman, Ph.D.
Xue Bai, Ph.D. (Joined May 1, 2018)
Victoria Baxter, Ph.D., D.V.M.
Christine Bookhout, M.D. (Joined July 1, 2017)
Claudia M. Brady, M.H.S.
Steven Cotton, Ph.D., (Joined March 1, 2018)
Yanzhe Gao, Ph.D. (Joined May 1, 2018)
Johann D. Hertel, M.D.

Nichole L. Korpi-Steiner, Ph.D.
Feng Li, Ph.D.
Jiandong Liu, Ph.D.
Charles "Tyler" Long, D.V.M. (Joined September 5, 2017)
Stephanie P. Mathews, M.D.
Nathan Montgomery, M.D., Ph.D. (Joined July 20, 2017)
Stephanie Montgomery, D.V.M., Ph.D.
Vincent J. Moylan, Jr., M.S.
Andrea Penton, Ph. D. (Joined July 10, 2017)
Li Qian, Ph.D.
Jay S. Raval, M.D.
Allison Rogala, D.V.M.
Marian A. Rollins-Raval, M.D., M.P.H.
Teresa "Danielle" Samulski, M.D. (Joined September 1, 2017)
Rance "Chad" Siniard, M.D. (Joined July 10, 2017)
Eric Weimer, Ph.D.
Scott Williams, Ph.D.
Lauren Wimsey, D.V.M. (Joined April 1, 2018)
Sara Wobker, M.P.H., M.D.
Yang Yang, Ph.D.
Jing Zhang, Ph.D.
Qing Zhang, Ph.D.

Lecturer
Gayle C. McGhee

Instructor
Steven C. Holmes, B.S., M.H.S.
April E. Kemper, M.S., M.H.S.
Tracie L. Massey, P.A.
Andre Phelan, P.A

Clinical Faculty (Medical Examiners)
Michelle Aurelius, M.D.
Sandra C. Bishop-Freeman, Ph.D.
Justin O. Brower, Ph.D.
Nabila Haikal, M.D.
Julie Hull, M.D. (Joined June 1, 2018)
Kimberly Janssen, M.D. (Joined June 1, 2018)
Craig Nelson, M.D.
Deborah L. Radisch, M.D.
Lauren Scott, M.D.
Susan E. Venuti, M.D.
Ruth E. Winecker, Ph.D.

Locum Tenens Faculty
Sue Ann Berend, Ph.D. (Separated September 30, 2017)
Grace Lee, MD (Separated October 18, 2017) (Joined February 1, 2018)

Faculty Emeritus

C. Robert Bagnell, Jr., Ph.D.
Stuart A. Bentley, M.D.
John D. Butts, M.D.
John F. Chapman, Dr.P.H.
Myra L. Collins, M.D., Ph.D.
Marila Cordeiro-Stone, Ph.D.
Robert E. Cross, Ph.D.
Frederic G. Dalldorf, M.D.
Cora-Jean S. Edgell, Ph.D.
James D. Folds, Ph.D.
Donald T. Forman, Ph.D.
Joe W. Grisham, M.D.
J. Ed Hall, Ph.D.
Catherine A. Hammett-Stabler, Ph.D.
John E. Hammond, Ph.D.
Susan T. Lord, Ph.D.
Nadia N. Malouf, M.D.
William W. McLendon, M.D.
Nancy H. Nye
James R. Pick, D.V.M.
Marjorie S. Read, Ph.D.
Kinuko I. Suzuki, M.D.

Jointly Appointed Faculty

Diane Armao, M.D. (Radiology)
Gregory Bianchi, M.D. (Urology) (Separated June 30, 2018)
Claire M. Doerschuk, M.D. (Medicine)
Ronald J. Falk, M.D. (Medicine)
Paul Googe, MD (Dermatology)
Ajay Gulati, M.D. (Pediatrics)
Nigel S. Key, M.D., Ch.B. (Medicine)
Nigel Mackman, Ph.D. (Medicine)
Valerie A. Murrah, D.M.D., M.S. (Dentistry)
Timothy C. Nichols, M.D. (Medicine)
Charles M. Perou, Ph.D. (Genetics)
Jonathan Schisler, Ph.D. (Pharmacology)
Darrel W. Stafford, Ph.D. (Biology)
James A. Swenberg, D.V.M., Ph.D. (Environmental Sciences and Engineering)
Melissa Troester, Ph.D., M.P.H. (Epidemiology)
Young E. Whang, M.D., Ph.D. (Medicine)

Adjunct Faculty

Araba N. Afenyi-Annan, M.D., M.P.H.
Edward Bahnson, Ph.D. UNC-CH Surgery
Albert Baldwin, Ph.D. (UNC- Biology) (Joined October 1, 2017)
Peter M. Banks, M.D. (Carolinas Medical Center, Charlotte)

Jared G. Block, M.D. (Carolinas Medical Center, Charlotte)
Mark E. Brecher, M.D. (Laboratory Corporation of America)
Paul Chastain., Ph.D. (University of Illinois)
Bal Dhungel, M.D. (Kamuzi Hospital, Malawi)
David Eberhard, M.D. Ph.D. (Genomic Health)
M. David Goodman, M.D.
Delores J. Grant, Ph.D. (North Carolina Central University)
Aaron Haitman, M.D. (Carolina Pathology Group, Charlotte) (Joined October 1, 2017)
W. Carl Jacobs, M.D. (Carolinas Medical Center, Charlotte)
Harvey Michael Jones, M.D.
Wendell D. Jones, Ph.D. (Expression Analysis/Quintiles)
Michael Kamionek, M.D. (Carolinas Pathology Group)
William Kaufmann, Ph.D. (Joined July 1, 2017)
Daniel Kenan, M.D., Ph.D. (Arkansas)
Joe N. Kornegay, D.V.M., Ph.D. (Texas A&M University)
Myla Lai-Goldman, M.D. (GeneCentric Diagnostics, Inc.)
Thomas G. Lightfoot, M.D. (American Red Cross Blood Services)
Rugh Lininger, M.D., M.P.H.
Chad A. Livasy, M.D. (Carolinas Pathology Group)
Roger L. Lundblad, Ph.D.
Emily Maambo, M.D. (Carolinas Pathology Group, Charlotte)
Christopher McKinney, M.D. (New Hanover Regional Medical Center)
Keith V. Nance, M.D. (Rex Hospital)
Judith Nielson, D.V.M. (Joined April 1, 2018)
Ann Oaks, M.D. (Highpoint Regional Health System)
Thomas M. O'Connell, Ph.D. (LipoScience) (Separated January 28, 2018)
William R. Oliver, M.D. (East Carolina University)
Nirali Patel, M.D. (Medical Director, Q² Solutions, Morrisville, NC (Joined July 1, 2017)
Richard S. Paules, Ph.D. (NIEHS) (Separated June 30, 2018)
Avani Pendse, Ph.D. (Joined July 1, 2017)
Sharon Presnell, Ph.D. (Organovo Inc.) (Separated December 31, 2017)
Ashley G. Rivenbark, Ph.D. (Oxford Science Editing, American Society for Investigative Pathology)
Tara C. Rubinas, M.D. (Laboratory Corporation of America) (Separated December 31, 2017)
W. Eugene Sanders, M.D., MBA (FDA/CDRH)
Gary J. Smith, Ph.D. (Roswell Park Cancer Institute)
Nobuyuki Takahashi, M.D., Ph.D. (Tohuku University, Sendai, Japan)
Richard Tidwell, Ph.D (Joined July 1, 2017)
Tamiwe Tomoka, M.B.B.S. (Joined October 1, 2017)
Ruth F. Walters, M.D. (Laboratory Corporation of America)
Carol J. Weida, M.D. (Carolinas Medical Center, Charlotte)
Mark Weiss, MD (New Hanover Regional Medical Center) (Separated September 30, 2017)

Clinical Fellows

Christine Bookhout, M.D. (Surgical Pathology)
Alexandra Arreola, Ph.D. (Cytogenetics)
Steven Ellsworth, M.D. (Hematopathology)
Francois Gougeon, M.D. (Nephropathology & Gynecology/Oncology)
Julie Hull, M.D. (Forensic Pathology)

Natasha Strande, Ph.D. (Clinical Molecular Genetics)
Alexei Mikhailov, M.D. (Nephropathology)
Nathan D. Montgomery, M.D., Ph.D. (Molecular Genetic Pathology)
Lindsey Matthews, M.D., M.P.H. (Cytopathology)
Kara Levinson, Ph.D. (Clinical Microbiology)
Eric Cochran, M.D. (Cytopathology)
Avani Pendse, MD, Ph.D. (Surgical Pathology)
Alan M. Sanfilippo, Ph.D. (Clinical Immunology)
Alexis Peedin, MD (Transfusion Medicine)
Andrea Lightle, MD (Nephropathology)

Co-Chief Residents
Claire Edgerly, M.D. (PGY IV)
Jonathan Hollyfield, M.D. (PGY IV)
Hugh Stoddard, M.D. (PGY IV)

Residents
Renee L. Betancourt, M.D. (PGY 2)
Cori A. Breslauer, M.D. (PGY 2)
Leah Commander, M.D. (PGY 1)
Cody J. Craige, M.D. (PGY 1)
Claire H. Edgerly, M.D. (PGY 4)
Jennifer Crimmins, M.D. (PGY 1)
Adil H. Gasim, M.D. (PGY3)
Jonathan M. Hollyfield, M.D. (PGY 4)
Julie A. Hull, M.D. (PGY 4)
Stephen M. Johnson, M.D. (PGY 2)
Sixto M. Leal, M.D., Ph.D. (PGY 3)
Tian W. Li, M.D. (PGY 3)
Irina Perjar, M.D. (PGY 3)
Cara D. Randall, M.D. (PGY 2)
Hugh T. Stoddard, M.D. (PGY 4)
Dustin Syverston, M.D. (PGY 1)
Jessica P. Vanleer, M.D. (PGY 3)

Research Associates
Yukako Kayashima, M.D., Ph.D.
Natalia Machanova, Ph.D. (Separated December 7, 2017)
Georgia Radicioni, Ph.D. (Joined February 5, 2018)
Reinhardt- Boris Reidel, Ph.D. (Joined February 12, 2018)

Postdoctoral Research Fellows
Marco Alba Garibay, M.D., Ph.D – Dr. J. Charles Jennette (Joined January 1, 2018)
Chitali Basole, Ph.D. – Dr. Nagarajan
Stephanie Bilinovich, Ph.D. – Dr. David Williams (Separated September 30, 2017)
Milton Carpenter, Ph.D. – Dr. Mehmet Kesimer
Richa Gupta, Ph.D. – Dr. Mehmet Kesimer
Kuo- An Liao, Ph.D – Dr. Christopher Mack (Joined January 1, 2018)

Wei Tang, Ph.D. – Dr. Monte Willis (Separated April 15, 2018)
Anastasia Zlatanou, Ph.D. – Dr. Vaziri

Graduate Students
Sabri Abdelwahab – Dr. Mehmet Kesimer
James Byrnes – Dr. Alisa Wolberg
Johnny Castillo – Dr. Albert Baldwin
Matthew Combs – Dr. Joan Taylor
Rachel Dee – Dr. Joan Taylor
Nicole Fleming – Dr. Jiandong Liu
Ashley Fuller – Dr. Melissa Troester
Michael Henderson – Dr. Nigel Key
Sravya Kattula – Dr. Alisa Wolberg
Jean Marie Mwiza – Dr. Monte Willis
Bethany D. McInturff – Dr. Mehmet Kesimer
Zachary Opheim – Dr. Joan Taylor
Krystal Orlando – Dr. Bernard Weissman
Abigail Shelton – Dr. C. Ryan Miller
Erin Smithberger – Dr. C. Ryan Miller
Katherine G. Stember – Dr. Ronald Falk
Haley R. Vaseghi – Dr. Li Qian
Bethany Wagner – Dr. Scott Williams
Qiang Zhu – Dr. Joan Taylor

FACULTY ACTIVITIES

Over the past year, Department of Pathology and Laboratory Medicine (DPLM) faculty and trainees have an excellent record of clinical service, teaching, research and scholarship that has advanced the practice of pathology and laboratory medicine, and the knowledge of diseases and disease mechanisms.

SILVIO ANTONIAK, Ph.D.

The main focus of Dr. Antoniak's research is to investigate the role of PARs in viral infections. In collaboration with Dr. Rauch in Berlin (Germany) and Dr. N. Mackman (UNC) they showed that activation of PAR-2 reduces innate immune responses in viral myocarditis. To support this project he successfully submitted a NIH/RO1 grant proposal. The grant will start July 1st 2018.
IN addition to his interest in virus infections, he is working on the role of PARs in chemotherapy-induced heart failure. He found that PAR-1 activation leads to the development of heart failure in mice receiving the anti-cancer drug doxorubicin. Inhibition or PAR1 by vorapxar improved the heart function in doxorubicin-treated mice. This study is supported by a TraCs grant. He is in the process to prepare a completive NIH/RO1 grant proposal for the October 2018 deadline. Furthermore, He is working with Dr. N. Mackman (UNC) on the role of PAR-1 dependent signaling in influenza A infection. Their focus lays on the biased PAR1 signaling in virus infections.

PABLO ARIEL, Ph.D.

Dr. Ariel's mission is to provide outstanding support to other researchers at UNC for light microscopy, electron microscopy, and image analysis. To accomplish this, he teaches researchers how to use their systems efficiently, maintain the systems in optimal working conditions, investigate new systems and

upgrades to maintain the lab on the cutting edge, and support the professional development of his team, that works side-by-side with him to accomplish these goals.
His main goals for the lab in the coming year are:

- Improve financial stability of the lab by taking advantage of their rate revision, using newly implemented productivity tools (iLab), as well as by continuing to increase usage.
- Publish a comprehensive user guide for the light-sheet system.
- Offer a multi-day workshop for image analysis (in collaboration with Michelle Itano, from the UNC Neuroscience Core).
- Determine whether a spinning disk confocal would be a good addition to the instruments available at UNC imaging core facilities, determine whether MSL would be the best core for it, and if so, write a proposal to fund it.
- Add a section to our website with recommendations for enhancing rigor and reproducibility of research using microscopy.

JAMES TODD AUMAN, Ph.D.

Dr. Auman's research efforts are focused on two main areas. First, he investigates expression patterns in human tumors to determine if there are expression-based tumor subtypes. He uses RNA sequencing data from the TCGA project in various cancer types to do this analysis. In addition, he examines the correlation of expression patterns for specific genes or groups of genes with clinical parameters and other genomic data in an effort to elucidate potential molecular tumor subtypes. The end goal of this research effort is to identify tumor subtypes that provide prognostic or diagnostic information that impact treatment options. His other research effort is focused on investigating the role of pharmacogenomic DNA variants on response to chemotherapeutic agents in cancer patients. Working with the UNCSeq clinical trial, they are profiling over 60 DNA variants with known importance to the response to chemotherapeutics. The goal of this effort is to be able to use the knowledge of a cancer patient's pharmacogenomic variant profile to help guide chemotherapy options in an effort to individualize the patient's therapy to be more efficacious while limiting unwarranted toxicities.
He is currently in collaboration with Federico Innocenti, Michael Lee and Tope Keku to investigate the role of the microbiome and specific bacteria in the clinical response to chemotherapy in metastatic colorectal cancer patients. They are assaying for bacterial species with known implication in colorectal cancer genesis in a clinical trial cohort to determine associations with outcomes. In addition, He plans to collaborate with other UNC researchers to investigate the utility of sequencing plasma for cell free cancer DNA variants, with the goal of being able to use this data to evaluate cancer recurrence and tumor heterogeneity. The process of profiling of cfDNA is progressing and he is actively collaborating with other Lineberger researchers to advance this area of research.

VICTORIA K. BAXTER, D.V.M., Ph.D., DACLAM

Dr. Baxter's time is divided primarily between clinical care, teaching, and independent research efforts. Clinical care includes providing veterinary care for research animals, managing the animal health surveillance program and Diagnostic Lab here at UNC, and performing related administrative duties as part of DCM, including serving on the IACUC and IBC. Clinical service goals for the coming year include taking over supervisory responsibilities for DCM staff working in the ABSL3 labs. Teaching efforts currently include mentoring lab animal medicine residents, primarily regarding their ACLAM eligibility research projects, and also serving as a lecturer and lab instructor for lab animal medicine resident and UNC graduate student courses. Teaching goals for the upcoming year include playing a significant role in mentoring the new incoming resident and continuing to help with current residents' research projects. Her independent research focuses on understanding the immunopathogenesis of and host immune response to viral infections of the central nervous system, particularly chikungunya virus. This past year she submitted a K01 SERCA application, which received a fundable score,

and hired a full-time laboratory research technician; her goals for the next year include gaining funds so that she may fully launch her research program.

JESSICA K. BOOKER, Ph.D.

Dr. Booker's primary responsibility is in clinical service, providing direction and oversight in the Clinical Molecular Genetics Laboratory, as the scientific director. Dr. Booker reviews all clinical testing and works to optimize the quality and efficiency of operations within the laboratory. Dr. Booker's area of research is focused on the development and validation of molecular methods for expansion and improvement of clinical testing. Particular areas of interest are inherited diseases as well as somatic mutations that arise in cancer and provide potential therapeutic targets. Dr. Booker is involved in one research effort employing whole exome sequencing, NC NEXUS, which is North Carolina Newborn Exome Sequencing for Universal Screening. Plans for the coming year include continuing efforts to create a solid infrastructure to support the significant increase in next generation sequencing in the clinical arena. Dr. Booker has been the training director of the ABMGG Clinical Molecular Genetics Fellowship. As of July 1, 2017, the individual Clinical Molecular Genetics and Clinical Cytogenetics fellowships are a combined specialty called Laboratory Genetics and Genomics. Drs. Booker, Kaiser Rogers, and Farber have succeeded in gaining accreditation of the new program and the first fellow started July 1.

CHRISTINE BOOKHOUT, M.D.

Dr. Bookhout is working with Seth Crockett in Gastroenterology on clinical/translational research, where she has completed a study on traditional serrated adenomas with an abstract currently being submitted, with plans for a larger study on sessile serrated polyps in the coming year. She has agreed to work with Julian Rosenman in Radiation Oncology on a radiomics project with pathologic correlation in esophageal cancer, which has the potential for some funding support. She also is planning to be involved in research with John Baron in Gastroenterology regarding the immune response to colon cancers and polyps. Additionally, she has plans to write and publish a case report on gastric anisakis in the coming year. Dr. Bookhout is a co-author on two additional papers currently seeking publication ("Androgen receptor expressing hepatocellular carcinoma in a girl with turner syndrome and virilization due to hilus cell hyperplasia" with Julie Blatt and Sang Lee, and "Concordant, Non-Atypical Intraductal Papillomas of the Breast at Core Biopsy Do Not Require Surgical Excision: A 10-year Multi-Institution Study and Review of the Literature" with Lars Grimm and Thomas Lawton).

THOMAS W. BOULDIN, M.D.

For the coming year, Dr. Bouldin will continue to be heavily involved in all aspects of the diagnostic neuropathology services at UNC Hospitals. These services include surgical neuropathology, autopsy neuropathology, nerve biopsy service, and ophthalmic pathology. He will also continue to be the web master for the DPLM web site.

CLAUDIA M. BRADY, M.H.S.

The majority of Claudia Brady's current daily duties and responsibilities include dissection and description of surgical pathology specimens and teaching pathology residents the same. In addition to this, she provides gross room orientations and safety training each July for the incoming new residents and gross conferences throughout the year for all levels of trainees. Throughout the year, she reviews the gross template manual to ensure accurate information is being documented in the patient's pathology report according to CAP guidelines.
Currently she is a member of the "AP Patient Safety and Risk Assessment Project" which goes through step by step analysis of each part of surgical pathology from specimen receipt to histology slide sign out. This

committee is analyzing each process and procedure to ensure that the integrity of every specimen is maintained throughout the lab.
This past year, she worked with Surgical Pathology sign out faculty to re-design the residents' surgical pathology rotation daily responsibilities and expectations. The result allows for a more streamlined approach to the daily case load by selecting a subset of cases to be responsible for from grossing to sign out. It gives the residents defined goals and expectations each day by balancing their time in the gross room and at the microscope.

BENJAMIN C. CALHOUN, M.D., Ph.D

The top priority is the continued development of a benign breast disease research program with Melissa Troester, Sarah Nyante and Katie Hoadley. Applications for a U2C Breast Precancer Genome Atlas grant (multi-PI, Calhoun PI for Biospecimen Unit), an NC TraCS Translational Team Science Award (TTSA) (PI-Nyante, Co-I Calhoun) and a Lineberger Development Award (PI-Calhoun) were submitted in January. An R01 (PI-Nyante, Co-I Calhoun) for the June 2018 deadline is in preparation. Another multi-PI (Troester and Calhoun co-PIs) R01 is in preparation for the June or October 2018 deadline. Additional collaborations with Dr. Troester include reviewing the slides for recurrences in the Carolina Breast Cancer Study and serving on the thesis committee of her MD/PhD Student who is analyzing the relationship between quantitative estrogen receptor expression and survival in the CBCS. Other projects underway or in development include: a medical student summer research project on equivocal HER2 and FISH testing (co-mentors Anders and Calhoun) and a study correlating breast MRI abnormalities with histologic findings (Amy Lilly Pathology PGY-1, Calhoun, Ollila, Kuzmiak). A case study with Leah Commander (Pathology PGY-2) was published (co-authors Ollila, O'Connor, Hertel). A manuscript based on the poster presented at the USCAP 2018 Annual Meeting (breast cancer risk associated with papillomas diagnosed on core biopsy) is under review at a journal. Other involvement in research includes clinical trial support for a breast SPORE development project (HARMONY trial, PI-Lisa Carey) as well as other LCCC trials for which Carey Anders is the PI.

FRANK C. CHURCH, Ph.D.

The basic science research area of Frank Church, PhD, is concerned with proteases and their inhibitors in human biology and in various disease processes, in hemostasis-thrombosis and recently, in Parkinson's disease. For more than 25 years they have performed structure to activity studies with heparin-binding serpins (serine protease inhibitors) antithrombin, heparin cofactor II, protein C inhibitor, and plasminogen activator inhibitor-1 (PAI-1). They are trying to document the role of neuro-inflammation to up-regulate PAI-1 in Parkinson's. The educational science research area involves developing/assessing both qualitative and quantitative measures of student learning in undergraduate biology and in medical school courses by advancing the paradigm that Active/Engaged Learning (using conversation, cooperation, collaboration, and collegiality) will bolster a student's motivation to matriculate to and successfully navigate through medical school.

BRIAN C. COOLEY, Ph.D.

Dr. Cooley's research has focused on investigating the initiation and propagation of thrombosis in large arteries and veins, to determine common and differing features for these clinically disparate pathologies. Recent studies have also expanded into evaluation of hemostatic clotting. A major experimental approach uses a custom-designed intravital fluorescence microscope system. Recent findings have identified unique thrombotic responses dependent upon the induction mechanism of the thrombus – free radical injury to the vessel, mechanical vessel injuries, and intralumenal collagen exposure to blood flow – and the modulation of thrombosis by the relative degree of injury. Another active area of research is the study of vein graft disease, looking at the development of stenosis-inducing neointimal overgrowth (often called negative vascular

remodeling) that develops in nearly half of patients undergoing vein grafting for coronary bypass and lower limb claudication. Recent work has identified an endothelial-to-mesenchymal transition process for the development of vein graft neointima, mediated by a TGFbeta-Smad2/3-Slug signaling pathway. Future studies will explore this phenomenon and look at flow-mediated modulation of the remodeling response, to identify new approaches for preventing stenosis-associated vein graft failure.

STEVEN COTTEN, Ph.D.

Dr. Cotten continues his clinical activities as Director of automated chemistry and blood gas testing at McLendon Laboratory. He serves as Laboratory Medical Director at Carolina Pointe II, UNC Campus Health Services, and two NCSU Campus Health Laboratories. He recently completed an evaluation of the Siemens Atellica Chemistry platform and made recommendations to UNC Health System leadership on the global adoption of the new platform across the UNC Health System. Dr. Cotten completed three critical validation studies for CAP accreditation for the 2018 inspection: Body Fluid Chemistry Validation, Serum Chemistry Reference Interval Verification, and CSF IgG and Albumin normal range studies.

Future goals for 2019 include a multisite Atellica chemistry instrument validation at McLendon Labs, Hillsboro, CPII, CPMOP, Chatham, and Siler City. Additionally Dr. Cotten plans to grow McLendon labs Reference Lab services for affiliate hospitals in the state by reducing unnecessary sendout testing. Dr. Cotten will continue his work in the field of neonatal drug testing and reference interval investigation for free light chains in both serum and CSF.

GEORGETTE A. DENT, M.D.

Dr. Dent is collaborating with the School of Medicine Offices of Medical Education and the School of Veterinary Medicine at North Carolina State University to study the impact of social networking on the career and personal development of professional students. She is also working with the UNC CH Department of Psychology and Neurosciences to study anxiety in medical students.

LESLIE G. DODD, M.D.

Because of heavy service duty, committee work and other scholarly commitments, Dr. Dodd's "research" is largely confined to collaborations with others on clinical findings. At this point, she is heavily committed to CAP and is writing lots of their Educational/SAM materials. She enjoys being a mentor to others and sharing work with junior faculty who need publications to advance. Her goals for the coming year remain the same: to try and keep up with all the commitments she has made for professional societies and to help others publish their work.

ROSANN A. FARBER, Ph.D.

Plans for the coming year (from application for Phased Retirement, effective 7/1/18, as agreed with Chairs of Pathology/Laboratory Medicine and Genetics):

Serve as Director of the ABMGG clinical postdoctoral training program in Laboratory Genetics and Genomics, as long as Dr. Farber remains board-certified (at least through 2019), and train a successor prior to stepping down. Serve as a Member or Chair of faculty promotion committees, as needed. Serve on up to 3 faculty mentoring committees. Give 2 to 4 lectures per year in PATH graduate courses and courses for fellows and residents.

Oversee the appointment and promotion process for tenured and tenure-track primary faculty members in the Department of Genetics. Draft solicitation letter for reviewers, insure that dossiers are complete (with the HR administrator), and draft Chair's nomination letters. Serve on Mentoring Committees and participate in annual

performance review meetings of junior tenure-track faculty with the Chair. Train her potential successor(s) in all aspects of these roles.

GEORGE FEDORIW, M.D.

Dr. Fedoriw serves as the Director of Hematopathology and Special Hematology Laboratories. His research is primarily focused on classification and biology of B-cell lymphoproliferative disorders, particularly in the setting of HIV infection. His studies hope to clarify aspects of lymphoma biology and B-cell activation to ultimately improve patient diagnosis and clinical outcome. Dr. Fedoriw has developed a close collaboration with investigators in the UNC Center for AIDS Research and is working to characterize the distribution of lymphoma subtypes in Malawi. He also actively provides research support for collaborators in the Lineberger Comprehensive Cancer Center and the School of Pharmacy.

CRAIG A. FLETCHER, D.V.M., Ph.D.

As Director of Division of Comparative Medicine and Assistant Dean for Animal Research Resources, Associate Vice Chancellor for Research, Dr. Fletcher provides oversight of animal care for the research animals at UNC. DCM staff currently consists of approximately 175 employees. DCM operates 26 laboratory animal facilities on campus and in nearby off-campus locations. In addition, he provides oversight of animal facility design and renovation, research programmatic planning, and animal research operations management. Federal regulations, as well as AAALAC requirements for accreditation, require adequate veterinary care for all research animals. DCM completed a successful AAALAC visit in 2017 and the University was accredited until 2020. Dr. Fletcher is also a member of Institutional Animal Care and Use Committee, Institutional Biosafety Committee, Facilities Planning committee, and the University Safety and Security Committee.

Dr. Fletcher's teaching duties include training graduate students and residents in the laboratory animal medicine program. UNC also has an NIH-funded, ACLAM- certified residency training program in laboratory animal medicine. In addition, UNC is part of a joint ACLAM- certified residency training program between Duke, NCSU, Glaxo Smith Kline and NIEHS.

Translational Research Building gives UNC an opportunity to be best in class animal research capabilities. The building will cost $148M and advanced planning has continued with construction starting 4th quarter 2019. Consolidation and relocation of satellite and old facilities – typically with institution UNC size have several dozen satellites, but we have continued to consolidate the facilities to a few good quality satellites which is advantageous to program; plans and strategy to close old research buildings FOBRL, Wilson annex, relocating ABSL3 and Bingham and supporting infrastructure with these facilities until the new TRB is constructed; state of art equipment; investment in capital equipment, caging, leads to efficiency high quality animal care and science.

WILLIAM K. FUNKHOUSER, M.D., Ph.D.

Dr. Funkhouser completed a 5 year follow-up project on inter-Pathologist diagnostic agreement (IPDA) using a web-based survey tool to present digital images of non-small cell lung carcinoma (NSCLC) to a national sample of 22 practicing community and expert lung Pathologists. The key findings are that addition of a standard set of mucin and immunohistochemical stains to H&E alone improves IPDA, that recent WHO re-classifications of NSCLC have incrementally improved IPDA, and that regular exposure of Pathologists to NSCLC cases improves IPDA. This manuscript has been accepted for publication by the Archives of Pathology and Laboratory Medicine.

Dr. Funkhouser has completed his expert panel involvement with the CAP committee that generated published guidelines for molecular testing of colorectal carcinomas.

Dr. Funkhouser has completed his CAP Molecular Oncology Committee involvement after a 4 year term.

Dr. Funkhouser continues his collaborative work with Dr. Weissman's lab on mouse models of lung adenocarcinoma.

PETER H. GILLIGAN, Ph.D.

Peter Gilligan is participating in three working groups that are engaged in guideline development. One working group has submitted a manuscript. The second working group has a manuscript in the final stages of preparation before it will be sent out for review by various professional societies and the Centers for Disease Control prior to submission for publication. Target date for publication will be in January 2019. The third working group has not begun their work but that work should begin during the summer. A manuscript which is the outgrowth of the C. difficile preventable harm working group is in revisions after a positive review by the Journal of Clinical Microbiology. Publication is likely in summer of 2018.

VIRGINIA L. GODFREY, D.V.M., Ph.D.

Dr. Godfrey continues to provide collaborative pathology evaluations for colleagues in the Medical School faculty, particularly members of the Department of Genetics and Department of Pathology. Many of these collaborations are initiated by diagnostic necropsies of sick animals referred to the DLAM clinical services. Recent and continuing projects include morphologic evaluations of: 1). pig models of atherosclerosis (Nichols & Kibbe), 2). dog models of hemophilia (Nichols), and 3) mouse models cancer (Pecot, Damania, Yeh) and 4) mouse models of neurodegenerative disease. She assists in characterization of new mouse models through the interactions with the National Gnotobiotic Rodent Resource (B Sartor), the Mutant Mouse Regional Resource Center (MMRRC) at UNC (Magnuson), and the Collaborative Cross (Pardo Manuel de Villena). In particular, she will continue to investigate the miRNA-mediated mouse pathologies described in **G**. These efforts have led to an invitation to present her findings at the 2019 Annual Meeting of the American College of Veterinary Pathologists.

KEVIN G. GREENE, M.D.

Dr. Greene is part of a team of researchers that is re-submitting a Specialized Programs of Research Excellence (SPORE) grant application to study pancreatic cancer. If approved, he would serve as the Director of the Tissue Procurement, Pathology, and Genomics Core. Dr. Greene is collaborating with colleagues in the Molecular Pathology and Genetics Laboratory to study multiple aspects of gastric carcinoma. One aim of these studies is to develop a classification system that is based on molecular subtyping. Dr. Greene is collaborating with a colleague in the Department of Cell Biology and Physiology to define the role of CD73 in liver injury and neoplasia. Their first R01 grant submission has been approved for a five-year funding cycle.

MARGARET L. GULLEY, M.D.

Dr. Margaret L. Gulley studies the molecular basis of virus-related tumors and develops novel laboratory tests to better manage patients affected by cancer or at risk for cancer. Substantial progress towards these goals was made in the past year. Genomic technology was applied to quantify tumor markers including oncogenic viral genomes in tissue and in serial plasma specimens of patients, to validate performance of novel assays to classify disease and to monitor tumor burden during therapy, to find and track emerging tumor subclones, and to better interpret germline vs somatic alterations in DNA. They showed that the novel assays inform clinical status and add value beyond current clinical practice.

Teaming with Pathologist colleagues and with TraCS and Lineberger Comprehensive Cancer Center leaders, Dr. Gulley developed infrastructure to assist campus investigators to access fresh blood or derivatives thereof, and she helped translate basic science discoveries into practical lab tests adopted for routine clinical implementation in McLendon Clinical Laboratories. In the coming year, she will continue team science, provide clinical services, and train the next generation of pathology and laboratory medicine professionals.

SUSAN C. HADLER, M.D., M.S.

Susan Hadler, M.D., M.S.'s efforts in the Medical School are centered around teaching and curriculum. She is involved in teaching 1st, 2nd and 4th year medical students in multiple courses, as well as Pathology and Toxicology graduate students and Physical Therapy graduate students. She serves on a number of medical school curriculum related committees as well as the Medical School Student Progress Committee. Her efforts in the Dental School are also centered on teaching and curriculum; she teaches 1st year dental students in multiple courses. She also serves on the Dental School's Curriculum committee.

TRACY M. HEENAN, D.V.M.

Since 1994 under the direction of Tracy Heenan, the Office of Animal Care and Use (OACU) has provided excellent service to animal research community, ensuring humane animal care and use, facilitating the application review process, providing exemplary training of research personnel, and conducting fair and thorough investigations of animal welfare concerns and noncompliance while still working to establish rapport with researchers and fostering animal research. The necessity of providing fair and thorough customer service is one of OACU's guiding principles. The OACU serves an essential role in educating and advising faculty, students, research personnel, IACUC, Division of Laboratory Animal Medicine (DLAM) personnel, and Department of Environment Health and Safety (EHS) representatives regarding proper animal care and use policies and practices. The Director will continue to serve as an integral link between the IACUC and the Office of the Vice Chancellor for Research (VCR), DLAM, EHS, and the University Employee Occupational Health Clinic and will work to enhance all levels of communication between these groups.

JOHANN D. HERTEL, M.D.

Dr. Hertel is currently focusing on breast cancer research. Currently Dr. Hertel has clinicopathologic studies involving metaplastic carcinoma and translational research investigating HER2/Neu testing and outcomes in patients with equivocal results by immunohistochemistry, FISH or both.

STEVEN C. HOLMES, B.S., M.H.S.

Steven Holmes' area of expertise is in surgical pathology and gross anatomy. With this knowledge he is able to fulfill his role as an instructor to residents, medical students, prospective applicants and Pathologists' Assistant students. His instruction includes but is not limited to identifying and proper orientation of specimens as well as proper conduct and safety training in the laboratory. These skills are needed for handling simple biopsies up to complex surgical resections. Due to the high volume of specimens, his training also includes proper time management without adversely affecting patient care. In the upcoming year, he envisions an even more hands on role with the departmental staff regarding staff instruction through laboratory bench work, conference planning and via meetings. He also plans to take a more active role in the frozen section room and learn the connection amongst the other labs with surgical pathology. Throughout the year, the growth, maturation, and improved skill level of residents in the surgical pathology laboratory is a reflection of my success as a clinical instructor. He has accomplished his goals at becoming a more effective/leader in the gross room. In addition, he has improved on his efficiency in the frozen section laboratory. During the upcoming year, he will increase his duties within the remote laboratory at the Hillsborough location. These duties include, but aren't limited to accessioning of specimens and prompt/efficient handling of specimens and slide preparation for remote diagnoses by the pathologists.

JONATHON W. HOMEISTER, M.D., Ph.D.

The research of Jonathon Homeister, M.D., Ph.D. has two major goals. The first is to utilize leukocyte lineage-specific transgenic gene expression and leukocyte lineage-specific gene targeting in murine experimental models to investigate α(1,3)-fucosyltransferase (FUT) gene function in the development of atherosclerotic cardiovascular disease. They are using these mice and other mice made deficient in FUT-IV and FUT-VII in all tissues to define a role for the selectin adhesion molecules and their fucosylated ligands in the development and progression of atherosclerosis. These mouse strains will be used to continue their studies that define the selectin-dependent contribution of several leukocyte lineages to the atherosclerotic disease process, as well as to homeostasis of the circulating counts of granulocytes and monocytes. The second goal is to determine the mechanisms whereby the FUTs regulate hemostasis and thrombosis. These studies are to elucidate the mechanisms whereby fucosylation of selectin ligands and/or other blood molecules alters coagulation and thrombosis. These studies also utilize the mouse strains described above to modulate generalized and leukocyte lineage-specific FUT expression.

PEIQI HU, M.D.

Dr. Hu's research aims at understanding molecular mechanisms of immune mediated kidney diseases with emphasis on antineutrophil cytoplasmic autoantibody (ANCA) induced glomerulonephritis and vasculitis (ANCA disease). He and his collaborators recently created a reproducible mouse model of ANCA-induced pulmonary granulomatosis that closely mimics human Granulomatosis with Polyangiitis (GPA). By using this model, they are elucidating the pathogenesis of ANCA-granulomatosis and analyzing relative importance of various mediator systems and potential therapeutic interventions. His research approaches include testing the disease induction in mice with selective deficiency in complement (e.g. C5, C4, C5a, Factor B) or complement regulatory components (Factor H and Factor I KO), and selective deficiency in Fcγ receptors and bradykinin receptors; and with pharmacologic blockade of the mediator systems. Dr. Hu also studies on pathogenic anti-MPO epitope specificity by epitope excision and mass-spec-based epitope mapping for identifying specific epitopes that are targeted by pathogenic anti-MPO antibodies; and gene expression in innate inflammatory cells that modulate murine MPO-ANCA GN to identify candidate genes responsible for the disease susceptibility.

J. CHARLES JENNETTE, M.D.

Dr. Jennette's research is focused on elucidating the clinical and pathologic features, pathogenesis and etiology of immune mediated vascular inflammation, especially vasculitis and glomerulonephritis induced by anti-neutrophil cytoplasmic autoantibodies (ANCA). The current major research in his laboratory uses mouse models of inflammatory vascular disease caused by ANCA to validate concepts that can be translated into therapeutic and prognostic advances for patients with ANCA disease.

KATHLEEN A. KAISER-ROGERS, Ph.D.

Dr. Kathleen Kaiser-Rogers continues to characterize the chromosome rearrangements of some of the more interesting patients referred to the UNC Hospitals Cytogenetics Laboratory using both traditional and molecular cytogenetic techniques, including fluorescence in situ hybridization (FISH) and chromosome microarray analysis (CMA). Several of their more interesting cytogenetics projects were reported at the 2018 American College of Medical Genetics and Genomics (ACMG) meeting, while others have been published (see CV). The Cytogenetics Laboratory performs chromosome microarray analysis to characterize Angelman syndrome deletions for a study directed by Dr. Heather Hazlett in the Department of Psychiatry. Additionally the laboratory routinely cultures and harvests cells for the Fetal Whole Exome study conducted by Dr. Neeta Vora, and performs sample culturing, freezing and/or mailing for a variety of other researchers who need these services. The UNC Hospitals Cytogenetic Laboratory also continues to participate in two cancer cooperative groups, the Alliance/Cancer and Leukemia Group B (CALGB) and the Children's Oncology group (COG).

Some of the goals for the Cytogenetics Laboratory during the upcoming year include relocation of their liquid nitrogen freezers into a new facility and validation of both an AML1(RUNX1) break apart FISH assay, and a TEL(ETV6)/AML1(RUNX1) FISH dual fusion FISH assay. Additionally, the Cytogenetics Laboratory will integrate a new genetic counselor into the laboratory, an essential position that they have been without for two and a half years given the current nationwide shortage. Dr. Kaiser-Rogers will continue to work with Dr. Jessica Booker and Dr. Rosann Farber to 1) integrate their previously separate American Board of Medical Genetics and Genomics (ABMGG) Cytogenetic and Molecular training programs into a single Laboratory Genetics and Genomics (LGG) Fellowship training program, and 2) to transition accreditation of their LGG Fellowship training program from the ABMGG to the Accreditation Council for Graduate Medical Education (ACGME).

MASAO KAKOKI, M.D., Ph.D.

Dr. Kakoki has 27 years of experience as a physician-scientist in nephrology and cardiovascular medicine, of which the last 17 years have been devoted to molecular biology with initial emphasis on understanding the molecular mechanisms that are responsible for cardiovascular and renal diseases.

To study the role of the gene of interest, he has studied genetically altered mice under the supervision of Dr. Oliver Smithies who unfortunately passed away last year. The sets of mice having 5 graded mRNA levels of transforming growth factor beta1 (TGFbeta1), endothelin-1 and engulfment and cell motility protein 1 (Elmo1), all of which have been suggested to be involved in the development of diabetic complications, were generated by the method replacing the 3' untranslated regions (3' UTR). He is currently studying the phenotype of diabetic cardiomyopathy in mice having 5 graded levels of Elmo1 (manuscript was submitted) and the phenotype of aortic aneurysms in mice having 5 graded levels of TGFbeta1, and also collaborating with Dr. Ben A. Bahr, the 2017 Gardner Award recipient, in studying Alzheimer's disease.

DAVID G. KAUFMAN, M.D., Ph.D.

Dr. Kaufman is working on a translational research project to determine the efficacy of chemotherapy in women undergoing drug therapy for breast cancer based on DNA damage in circulating cancer cells recovered from the blood of treated patients. He has developed a method to quantify significantly the DNA damage in extended DNA fibers using as few as 5 cells. With his collaborators he also shown that he can recover circulating tumor cells from mice bearing transplanted human breast cancers and that he can detect excess DNA damage in these cells if the mice were treated with chemotherapeutic drugs. As originally developed these methods were very time consuming, but he has automated the three steps of the analysis yielding a much reduced analysis time. Concurrently he is trying to develop a micro-fluidic technique to make these measurements in continuous flow mode that would be suitable for use in a clinical pathology lab at much lower cost and with much shorter turn-around-time. This latter work is being done in collaboration with Dr. Steven Soper from the Department of Chemistry at the University of Kansas (previously in the Department of Biomedical Engineering, UNC). Recent progress has shown it is possible to separate tumor cell subtypes from heterogeneous cancers and each subtype can be evaluated separately. This work initially was supported by an NC TraCS grant. Subsequently a P41 Center Grant was funded (5 years at $850,000 per year; David G. Kaufman is a PI) for developing micro-fluidic and nano-fluidic technology that can be translated into clinical practice. This project is being pursued as part of this new grant. In September 2017 an NIH R33 grant proposal was submitted to develop this technology as a means of rapidly determining whether chemotherapy for advanced breast cancer is effective in individual patients. Also in September 2017, a pilot grant application was submitted to the Endometrial SPORE at M.D. Anderson Cancer Center (Houston) to evaluate this assay for assessing the efficacy of chemotherapy in patients with advanced endometrial cancer. Unfortunately, neither of these grants were funded.

APRIL E. KEMPER, M.H.S.

Ms. Kemper's goal for the upcoming year is to continue to provide the department with consistent quality work in the gross room. Part of her work will continue to include resident and medical student instruction and supervision.

MEHMET KESIMER, Ph.D.

A multicenter nationwide big scale clinical/translational grants SPIROMICS II was recently funded, and funds for Dr. Kesimer's project/core will be received soon. Also, a collaborative multi-projects/cores PPG from the Department of Defense were favorably reviewed and they are waiting for official approval and receive the funds in the near future. Dr. Kesimer is in the process of submitting an R01 in response to RFA "ancillary studies to clinical trials" in August. He will continue to look for external funds to extend his research on new ideas especially in the area of extracellular vesicles and their role in lungs innate defense and remodeling and role of mucins in CF, COPD and asthma pathogenesis. This year his lab published seminal papers in very high impact journals and received multiple press coverages and interviews. They have two important potentially high-impact papers in the revision and will be published by the end of the 2018.

NICHOLE L. KORPI-STEINER, Ph.D.

Dr. Korpi-Steiner's research is focused on clinical chemistry laboratory test performance characteristics, quality assurance and test utilization practices. She continues to partner with the Division of Pulmonary and Critical Care Medicine and industry to conduct clinical trials. Dr. Korpi-Steiner serves as the principle investigator in the evaluation of intra-operative whole blood activated clotting time test performance by use of a new (pre-FDA approval) point of care device in critical patients. Dr. Korpi-Steiner also serves as co-investigator in the Vitamin D to Improve Outcomes by Leveraging Early Treatment (VIOLET) phase 3 clinical trial.

In 2017-2018, Dr. Korpi-Steiner led a multi-center study to establish serum free light chain reference intervals using 4 instrument platforms. This is a novel study with impact on the classification of patient results and clinical management of patients diagnosed with plasma cell dyscrasias. This study was conducted in collaboration with colleagues in the Division of Hematology and Oncology, Lineberger Comprehensive Cancer Center at UNC, as well as Laboratory Medicine colleagues at the Ohio State University and Dartmouth Hitchcock Medical Center. Their manuscript describing these study findings has been submitted to the *Clinical Biochemistry* journal.

Dr. Korpi-Steiner's translational research goals for the upcoming year include characterization of population-based urinary opioid metabolite-to-parent drug ratio nomograms through the evaluation of pharmacogenetic profiles and patient clinical history. Preliminary study findings demonstrate value in utilization of these nomograms as decision support tools in the interpretation of complex opioid result profiles for pain management during an opioid epidemic. She is also collaborating with UNC Nursing Leadership in the initiation of a study to evaluate and validate analytical and clinical performance characteristics of point of care gastric pH testing for verification of correct nasogastric tube placement. This is an urgent quality improvement initiative because incorrect nasogastric tube placement has been identified by national organizations as a serious risk to patient safety.

FENG LI, Ph.D.

Dr. Li is a research assistant professor and her current research focuses on hypertension especially pregnancy related hypertension, preeclampsia. She published a paper in ***Hypertension*** reporting that female mice over-expressing ET-1 develop preeclampsia-like symptoms during the third wk of pregnancy (https://www.ncbi.nlm.nih.gov/pubmed/?term=Li+F+and+Kakoki+M). Now, she is finishing the manuscript "Vitamin B12 benefits hypoxia-reperfusion induced kidney injury" and plans to submit to JASN at the end of

August. She is also finishing another paper "Nicotinamide decreases blood pressure in mice with impaired nitric oxide synthase". She will be studying the role of endothelin-1 on trophoblast cell differentiation and consequential effects on trophoblast cell invasion, and whether nicotinamide affects trophoblast cells differentiation and/or invasion. She will be also studying the role of Vitamin B12 on acute kidney injury.

JIANDONG LIU, Ph.D.

The heart is a muscle, and as such, much of Dr. Liu's past research effort into studying cardiac development and regeneration has been focused on cardiomyocyte. However, the majority of cardiac cells are non-myocytes including endothelial cells, fibroblasts, and immune cells. Instead of being merely bystanders of myocyte function, these non-myocytes have been increasingly recognized as pivotal regulators of cardiac development and homeostasis through signaling interactions. Moving forward, his research activities aim to address: 1) roles of non-myocytes in cardiac development and regeneration; 2) mechanisms of non-myocyte – myocyte communications; 3) roles of these communications in cardiac development and regeneration. Such holistic approaches will undoubtedly yield significant mechanistic understanding of dynamic non-myocyte – myocyte interactions in healthy and diseased hearts that is required for improved predictive and therapeutic action.

CHARLES T. LONG, D.V.M.

Dr. Long's research and clinical duties within the Department of Pathology and Laboratory Medicine focus on collaborating and assisting researchers with their large animal surgical models. Since his start of employment in September, 2017 a greater percentage of his clinical time has been dedicated to working with Dr. Tom Egan on a lung transplant model in swine. An NIH grant has been submitted by Dr. Egan to obtain additional funding for this project. He has also collaborated on a rabbit model of carotid artery aneurysm with Dr. Deanna Sasaki-Adams which involves creation of an aneurysm and subsequent follow-up imaging of rabbit subjects. He continues to provide continuous clinical support to the research colony of hemophiliac dogs and pigs under Dr. Timothy Nichols' various research protocols.

In October, 2018 he will be presenting a workshop series at the American Association of Laboratory Animal Science on anesthetic monitoring and troubleshooting in laboratory animals. This will be his fourth time presenting on the topic of veterinary anesthesia in laboratory animals at national AALAS meetings.

A co-authorship manuscript in collaboration with colleagues at North Carolina State University College of Veterinary Medicine has been submitted and awaiting review by the editorial board of Veterinary Dermatology titled, "Bartonella henselae in a dog with ear tip vasculitis." He is also undergoing the five year re-certification process with the American Board of Toxicology to maintain current diplomate status.

CHRISTOPHER P. MACK, Ph.D.

The overall goal of the Mack lab is to identify the signaling pathways and transcription mechanisms that regulate smooth muscle cell (SMC) differentiation. Their current studies are focused on identifying the signaling pathways upstream and downstream of RhoA that regulate SMC transcription with a particular focus on the role of this pathway in the nucleus. Using genome wide data sets on chromatin structure, histone modification, and transcription factor binding, the Mack lab is also characterizing the epigenetic mechanisms that regulate SMC-specific gene expression and is attempting to identify the specific chromatin modifying enzymes and chromatin readers that mediate these effects. In collaboration with the Taylor lab, a major goal is to identify human genetic polymorphisms that regulate the expression of Graf3, a novel SMC-specific, Rho-specific GAP that we have shown to be critical for blood pressure homeostasis.

NOBUYO N. MAEDA, Ph.D.

To develop a deep understanding of the genetic factors underlying atherosclerotic plaque development at different vascular sites of apoE-deficient mice, Dr. Maeda's lab has carried out quantitative trait loci (QTL)

mapping and has detected several loci determining the plaque size in the aortic arch. The QTL is not a problem-free approach in refining the QTL intervals due mainly to epistatic interactions of multiple genes influencing complex phenotypes such as atherosclerosis. To overcome this, they developed a novel approach employing a set of circular crosses, namely a comparison of QTL loci in three F2 populations from C57BL/6-*Apoe-/-* X 129S6-*Apoe-/-*, DBA/2J-*Apoe-/-* X 129S6-*Apoe-/-*, and DBA/2J-*Apoe-/-* X C57BL/6-*Apoe-/-* crosses. With this method, they have identified several chromosomal regions harboring risk loci, including QTLs *Aath4* on chr2 and *Aath5* on chr10 where DBA alleles enhance and protects from plaque development, respectively, compared to the alleles shared by 129S6 and C57BL/6J. The *Stab2* gene, a candidate for the Chr10 QTL, codes for stabillin 2 (STAB2) that is expressed in sinusoidal endothelial cells of the liver and functions as a scavenger receptor for multiple large molecules. It is also a unique receptor for the clearance of hyaluronans (HA). Their experiments showed that STAB2 protein in DBA/2J binds HA normally but has reduced ability to endocytosis (<50% normal), despite that there are no amino acid differences in the cytoplasmic domain compared to the protein in 129S6 mice. Furthermore, they found an endogenous retroviral element is present in the proximal promoter region of the *Stab2* allele of the DBA/2J, interfering with its expression in sinusoidal endothelial cells where it is normally expressed. The levels of mRNA in the liver sinusoidal endothelial cells is about 30% normal. Reduced *Stab2* transcripts and its abnormal protein function together cause 30 times higher plasma levels of HA in DBA/2J mice than in 129S6 mice. They are currently investigating the mechanisms whereby altered HA clearance could affect atherosclerotic plaque development.
She has begun to study how vitamin B12 prevents diabetes-induced myocardial dysfunction with the help of Dr. Kakoki, Research Associate Professor. Their work has strong clinical implications, and she is in the process of learning how best to begin translating our findings in mice to humans. Additionally, she has helped Dr. Feng Li, Research Assistant Professor, to publish her findings that genetically increased endothelin-1 expression in mothers cause preeclampsia - pregnancy associated hypertension, and has guided her for her first R01 application on this topic to investigate mechanisms of preeclampsia

TRACIE L. MASSEY, B.S., PA.

Tracie Massey is primarily responsible for triaging and banking specimens for the Tissue Procurement Facility. She has increased the number of specimens banked from about 20% to 60%-80%. Her goal is to have 95%-90% of the consented cases banked. Tracie has become the clinical instructor of the Frozen Section Room. She has standardized the work flow and implemented the lean concept. She is now the sole instructure responsible for training all first year residents, as well as assisting/ training 2^{nd} – 4^{th} year residents and fellows, in the frozen section room. Starting 2014, Tracie covered 3 months (6 rotations) per year of frozen section bench coverage alone with no resident to allow the residents to cover other areas of their program requirements. In July 2016, this increased to more than 6 months of the year. Tracie has now taken on the responsibility for thr QA portion of the frozen section room. This assures all the billing is correct for all of the frozen sections cases, entering the TAT in the database and entering any exemptions for cases going over 20 minutes and entering the Intra-operative versus Final Diagnosis in both Beaker and the data base. In the past, the frozen section room has been deficient in the TAT are for the CAP inspection. Since Tracie has taken over, the frozen section is 100% compliant in all areas. Tracie covers the frozen section bench to allow the resident on service to be trained for renal biopsies, for the RISE exam, and for the residents to take vacation.

STEPHANIE P. MATHEWS, M.D.

The majority of Dr. Mathews' work is in the Division of Hematopathology and entails comprehensive interpretation of hematopoietic and lymphoid tissue, incorporating morphologic, immunophenotypic, flow cytometric, cytogenetic, and molecular data. She also provides interpretation of serum and urine electrophoresis and immunofixation studies and serves as Director of the high volume Analytical

Hematology Laboratory within McLendon Clinical Laboratories. In addition to having teaching responsibilities with pathology residents and the Hematopathology fellow during daily sign out activities, Dr. Mathews' participates in didactic lecture series for the residency and fellowship programs, has taken on the role of Hematopathology fellowship Director and Clinical Competency Committee member for the core residency program, and more recently become the residency Hematopathology rotation director. She is involved in medical student education as a small group lab instructor, previously during the MS2 Hematology/Oncology block and now as part of the MS1 hematology TEC curriculum. In keeping with her focus on clinical work and education, she serves on the American Society of Clinical Pathology PRISE committee and on the Society for Hematopathology Education Committee and RISE/FISHE sub-committee. She is also editor and author of online Hematopathology learning modules for NEJM/AACC's Knowledge Plus. Her research is primarily case-based is also involved in several clinical studies. In the past, she collaborated with Dr. Kashuba in UNC's School of Pharmacy on a project evaluating drug transporters in mucosal tissue and their implications for drug disposition in HIV prevention. In summary, Dr. Mathews' focus is primarily clinical with an emphasis on education and clinically valuable research projects.

SUSAN J. MAYGARDEN, M.D.

Dr. Maygarden continues to participate in collaborative research related to screening for lung cancer with Dr. Louise Henderson and Dr. Patricia Rivera. Clinically, she worked on a clinical cytopathology project on reproducibility of salivary gland cytologic diagnoses using the Milan System. And she mentored a senior resident (Dr. Jessica Vanleer) to complete an investigation of the billing of breast pathology specimens, showing that these specimens are relatively undervalued in RVUs for the amount of work required to adequately examine them. This work was summarized in an abstract submitted to the 2018 USCAP annual meeting, and this abstract won the 2018 International Society of Breast Pathology clinical trainee award. Goals for next year are to submit this study for publication, and to identify another topic in order to mentor another resident interested in surgical pathology in a project suitable for submission to the 2019 USCAP meeting.

GAYLE C. McGHEE

Dr. McGhee has continued to work closely with autopsy personnel to maintain and gain additional teaching material for the department needs. She continued to share ideas on equipment and the latest technology that is being used in the field. Changes in autopsy volume continue to change so it is important that the autopsy personnel and Dr. McGhee work more effectively together. The autopsy room arrangement of space remains to be a challenge in respect to meeting teaching their class time schedules with the autopsy workflow and their lab time overlapping in use of the autopsy suite. There are only so many washing/work areas for the gross specimens to be prepared for the classes. This has been accomplished by autopsy personnel and teaching communicating on the daily activism. All gross specimens that are saved for teaching as well as specimens teaching personnel collect have to be cataloged, inventoried, filed appropriately, preserved and accessible by log system or computer search. Maintaining how many, what they are, when needed and when to wash for availability for class take good management. Then to replace specimens back in formalin and stored is time consuming. The scanning of virtual microscopy is now a vital part in their teaching. She continues to scan slides and collect more interesting slide cases for use in teaching. They have made their virtual images available to all by placing in a spreadsheet with diagnosis and important information as to retrieval of the virtual images. The volume has increased this year with more scanning for research projects using myself to scan for them.

C. RYAN MILLER, M.D., Ph.D.

Dr. Miller's current activities are focused on translational research involving comparative genomics and proteomics analyses of gliomas from both humans and genetically-engineered mice (GEM). The main goals of

this work are 1) to define the impact of cellular origin on the genomics of malignant glioma progression; 2) to define the impact of cellular origin and oncogenic mutations on the kinomes of malignant gliomas; 3) to define the impact of aging on the genomics and proteomics of malignant glioma progression, 4) to define the transcription factor repertoire that mediates oncogenic mutation-induced de-differentiation of astrocytes into glioblastoma stem cells (GSC); 5) to define the role of PIK3CA mutations in gliomagenesis and targeted drug sensitivity, and 6) to determine molecular signatures of human GBM after targeted drug therapies in order to develop molecular diagnostics for personalized therapy

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MELISSA B. MILLER, Ph.D.

Melissa Miller, PhD's major interests reside in the use of molecular technology to improve clinical infectious disease testing and, further, to use these technologies to explore the epidemiology of viral infections and antimicrobial resistance in bacterial infections. She is employing and comparing a variety of molecular technologies, including microarrays, sequencing and mass spectrometry, in the clinical diagnosis and epidemiology of infectious diseases. During the next year, Dr. Miller will be focusing on the clinical implementation of sequencing-based microbiome analysis for clinical trials and investigating the role of next generation sequencing in the clinical lab for the diagnosis of infectious diseases. Dr. Miller has maintained an interest in the clinical and economic outcomes associated with the implementation of molecular infectious disease diagnostics.

NATHAN MONTGOMERY, M.D., Ph.D.

Dr. Nathan Montgomery's primary clinical and research interests center on the underlying biology, including molecular features, of hematolymphoid malignancies. A major recent focus has included efforts to apply next generation sequencing methods to define and characterize clonal populations in B-cell lineage neoplasms. Once these clones are defined, they can be sensitively monitored after therapy, as Dr. Montgomery and his collaborators have recently accomplished in patients with multiple myeloma.

The ability to define small clonal populations also has potential application prior to development of lymphoma. In the coming year, Dr. Montgomery plans to use the same sequence-based tools to identify emerging clonal populations in virally-driven lymphoproliferative disorders. The work planned for the coming year will focus on immunoglobulin sequencing in a cohort of patients from sub-Saharan Africa with HIV-associated multicentric Castleman disease. This lymphoproliferative disorder is driven by Human Herpesvirus-8 infection and can progress to aggressive B-cell lymphomas in some cases, providing an opportunity to study early events in lymphomagenesis.

STEPHANIE A. MONTGOMERY, Ph.D., D.V.M

Much of Dr. Montgomery's time is spent consulting and providing collaborative pathology support on animal models and pre-clinical studies. She offers investigators a sophisticated understanding of how the models of experimental disease that they are studying recapitulate natural disease by providing a description of the types, progression, and severity of histopathologic changes, allowing researchers to accept or refute various aspects of their animal models. As areas of animal pathology-related interest arise, she has become involved in investigations of how current tools and practices in place impact research studies being conducted on campus. This past year, she led a study with the UNC Animal Studies Core to determine the effect that *Corynebacterium bovis* has on xenotransplant tumor take rate and growth in various immunocompromised mouse strains. This project was funded 2017-18 through a 1 year ACLAM Foundation grant in which she served as PI and the results are currently being compiled into a manuscript. In an effort to support NIH's focus on Rigor and Reproducibility, Dr. Montgomery wanted to investigate whether using the technical expertise of Core personnel at our institution reduces preanalytical variables in animal clinical laboratory testing, as such data would be a resource for both UNC Cores and UNC PIs addressing

Rigor & Reproducibility in grants. She received an award from NC TRACS to carry out these studies in the coming year in conjunction with the UNC Animal Studies Core.
As the Director of the Animal Histopathology & Laboratory Medicine Core, they continue to develop immunohistochemistry and immunofluorescence assays for animal tissues that provide investigators with sophisticated tissue analysis that replicates the diagnostic tests performed in a clinical setting. Last year they expanded the clinical laboratory services to include a Complete Blood Count (CBC) with 5-part differential and clinical chemistry testing with a rigorous quality control program to more closely mimic the clinical diagnostic setting in a pre-clinical research environment. This past year, rather than her running the testing, she trained a technician in the Core on these techniques. This transition has gone well and service is doing very well. Currently, the core is expanding the histopathology services to try to meet the needs of the Marsico Lung Institute.

VINCENT J. MOYLAN, JR., M.S., P.A. (ASCP)

Dr. Moylan's main role in the department is to serve as instructor for the pathology residents when they rotate onto the autopsy service. He is also involved in several research projects that are affiliated with the UNC Cancer Center. The first being the LCCC Tumor Donation Program. This is a rapid autopsy program headed up by Drs. Lisa Carey and Leigh Thorne. This research program involves breast cancer patients that have previously consented to autopsy upon their death. The second project is a second rapid autopsy program similar to the above mentioned cancer study, except the study participants have metastatic melanoma. The program is headed up by Dr. Stergios Moschos. In addition, Dr. Moylan will also be involved in a new research study that is just in the beginning stages and involves Alzheimer's disease participants. Also, he continues to work closely with Dr. Nickeleit and the Nephropathology department handling all of the medical kidney specimens, and assisting the surgical PA's by processing and photographing select explant cases (cardiac, hepatic, lungs). He looks forward to his continuing work with Drs. Hadler and Reisner and other medical student teaching projects as they become available.

SHANMUGAM NAGARAJAN, Ph.D.

Dr. Nagarajan's laboratory is working on three areas of research centers around chronic inflammatory disease such as atherosclerosis.
Project 1 & 2: Delineate the role for IgG-Fcgamma receptor (FcγR) in the initiation and progression of autoimmune disease-induced atherosclerosis.
Project 3: Determine chlamydia genital infection mediated early onset of atherosclerosis (in collaboration with faculty at UNC, Chapel Hill).
In Project 1, his laboratory's research is focused on understanding immunological mechanism(s) contributing to the initiation and progression of atherosclerosis. He is particularly interested in determining the mechanism(s) by which autoantibodies contributes to the vascular lesions. His previous expertise on Fcgamma receptor and its role in chronic inflammatory diseases lead to develop the research program on autoantibodies and their role in the progression of atherosclerosis. Specifically, in the NIH funded project they are addressing the role of Fcgamma receptors in the progression of diet-induced atherosclerosis. As studies have shown association between autoimmune disease such as lupus and atherosclerosis, in ongoing studies they are exploring whether Fcgamma receptors contribute to the progression of lupus or rheumatoid-induced atherosclerosis.

VOLKER R. NICKELEIT, M.D.

The research activities of V. Nickeleit, MD focus on different aspects of renal allograft pathology. 1) Adjunct assays (in particular electron microscopy and C4d staining) for the diagnosis of cellular and antibody mediated rejection in kidney transplants are under investigation with additional focus on C4d in glomerular basement membrane remodeling. V. Nickeleit is the chair (together with P. Randhawa from

Pittsburgh) of the "Banff-working group" on T-cell mediated renal allograft rejection aiming at (re)defining features of cell mediated rejection in the modern era of enhanced antibody/DSA testing. 2) A major research effort addresses polyomavirus infections in kidney allograft recipients. V. Nickeleit as the chair of the "Banff-working group" on polyomavirus nephropathy spearheaded a multicenter effort to define a classification system of polyomavirus nephropathy (JASN 29 (2): 680-693, 2018). A new and exciting line of investigation focuses on non-invasive diagnostic strategies to establish a diagnosis of "polyomavirus nephropathy" without an (invasive) biopsy (in close cooperation with H. K. Singh, MD). In pilot analyses negative staining electron microscopy on voided urine samples and the detection of three-dimensional polyomavirus clusters, termed "Haufen", has proven to be a robust diagnostic method with negative and positive predictive values of greater than 90%. Prospective studies are currently conducted in order to validate the initial findings. These efforts are in part funded by extra-mural support from Astellas Pharmaceuticals. In addition, a mouse animal model of "polyomavirus nephropathy" is being characterized. Dr Nickeleit and his team succeeded in mimicking polyomavirus induced tubular injury typical for human disease in a mouse model; they could also identify urinary "Haufen" in diseased mice supporting observations made in humans. Further studies including gene expression profiling in mouse PVN and human PVN are currently conducted. More recently polyoma-BK-virus has also been associated with oncogenesis. V. Nickeleit and his team could for the first time define molecular events governing malignant transformation in BK-Virus infected organs. Further efforts are under way to characterize the role of BK-virus in neoplastic growth (in collaboration with investigators at MGH in Boston.

SIOBHAN M. O'CONNOR, M.D.

Dr. O'Connor is working with gynecologic faculty on collaborative projects including "Enhancing cervical cancer pathology reading through external quality control: a collaboration between Kenyatta National Hospital and the University of North Carolina", "Biomarkers of High Grade Cervical Dysplasia," and "Diagnostic Endometrial Sampling After Ablation Therapy". She is collaborating with a breast clinician on the AURORA US project, which assesses metastatic breast carcinoma and includes rapid autopsy cases. In addition, she is on the dissertation committee for a PhD student in Pathology who is evaluating epigenetic consequences of SMARCA4/A2 (SWI/SNF Complex ATPases) re-expression in Small Cell Carcinoma of the Ovary, Hypercalcemic Type (SCCOHT). She is also a co-mentor with Chuck Perou for a PhD student in Translational Pathology who is studying molecular signatures in DCIS. Siobhan was co-author on two abstracts presented in poster form at USCAP -- the manuscript for one has been published. She has submitted an IRB application for a multi-institutional study with Rohit Bhargava at UPMC evaluating the use of the Magee equations in ER positive, chemotherapy treated breast carcinoma. She will also be corroborating with Kristalyn Gallagher in a mult-institutional project assessing surgeon-directed inking of breast resection margins. Siobhan will continue her collaboration with the breast and gynecologic clinicians. In addition, she plans to collaborate with Drs. Calhoun and Hertel on several publications regarding the new AJCC staging for breast cancers and new HER2 protocol guidelines.

YARA A. PARK, M.D.

Dr. Park's research focuses on thrombotic thrombocytopenic purpura (TTP), specifically the causes and exacerbating factors. Currently, she is investigating possible biomarkers in the initial presentation of TTP as well as in exacerbations during treatment. The Transfusion Medicine group is actively involved in two nationwide TTP research groups.

ANDREA PENTON, Ph.D.

Andrea L. Penton, PhD, is Associate Director of the UNC Hospitals cytogenetics laboratory. She is also Clinical Assistant Professor in Pathology and Laboratory Medicine. She is board certified in Clinical Cytogenetics by the American Board of Medical Genetics and Genomics, and uses cytogenetic and microarray technologies to diagnose constitutional, prenatal and oncology patient samples. She is planning to review an increased number and variety of oncology samples In addition, she is involved in teaching, laboratory quality control and literature review. Her interests are in genetic mechanisms and aneuploidy correction during human development and she is currently writing a paper about patients with evidence of correction. She is planning to submit this paper this year and to also write a companion paper. In addition, as a new faculty member, she is planning to continue to familiarize herself with the clinical laboratory procedures, reporting criteria and methods. Finally, she will be presenting an abstract at the American Cytogenetics Conference, is teaching the "Pathology Electives for the Students" course as well as participating in other activities related to fellows and residents such as the Molecular Genetic Pathology Annual Program Evaluation Committee.

ANDRE PHELAN, P.A.

Andre Phelan's primary activities include clinical instruction of gross pathology to the UNC pathology residents first through fourth year. Duties also include gross dissection and dictation of pertinent finds on surgical pathology specimens, assisting in tintra-opertive consultations through frozen section procedures, collecting samples for tissue procurement foundation, presenting gross conferences to pathology residents and performing ancillary duties such as pecimen photography and radiograpy.

LI QIAN, Ph.D.

The goal of Dr. Qian's lab's research is to understand the molecular basis of direct cardiac reprogramming and apply this knowledge to improve efficiency and clinical applicability of cellular reprogramming in heart disease. She has pioneered the system in which direct cardiac reprogramming could be rigorously studied and implemented, and demonstrated that endogenous cardiac fibroblasts can be reprogrammed into cardiomyocyte-like cells in their native environment. Her lab continues their recent work on direct cardiac reprogramming by delving into the molecular mechanisms that drive this fascinating process. Their plan for the coming year is to continue exploring the mechanisms of cardiac reprogramming and extend our research to the human cell, to secure more funding, and publish additional 2-3 research articles.

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DEBORAH RADISCH, M.D., M.P.H.

Dr. Radisch's job responsibilities encompass oversight of the state-wide Medical Examiner System, supervision of the Central Office in Raleigh, and maintaining her clinical practice of forensic pathology.
The challenges for the upcoming year include: continuing to stabilize a system that is taxed by the opioid crisis; working with a new supervisor and other new staff at the Department and Division level to explain the deficiencies and needs of the system; and exploring new ways to perform Central Office functions more efficiently. This will be accomplished in the face of planning for her retirement in approximately 2 years, creating a smooth transition for the office and the system.

JAY S. RAVAL, M.D.

Dr. Raval has been active this semester. Clinical service time on UNC TMS (Transfusion Medicine Services) in therapeutic apheresis, HPC laboratory, blood banking, and transfusion medicine has been going well. Despite clinical volumes increasing, consulting medical teams are continually pleased with the level of service provided. His research interests continue to involve multiple areas with clinical questions requiring answers. Learners from all stages in training, as well as faculty members from various departments, are involved in many projects, as they are multi-disciplinary in nature. Small

research grants to fund Dr. Raval's projects have been very helpful, as has the UNC DPLM support of these activities. New collaborations with THOR (The Hemostasis and Oxygenation) Network, ACE (American Council on ECP), and BEST (Biomedical Excellence for Safer Transfusion) Collaborative are exciting and will help place UNC in an excellent position for long-term research with these groups. Education of learners from all levels of training (medical student to faculty) has gone well, with increasing requests for lectures and time spent with faculty on clinical service. Dr. Raval and UNC TMS have many projects and initiatives in progress, and the next year looks to be an active one.

ALLISON ROGALA, D.V.M.

As a laboratory animal veterinarian at UNC, Dr. Rogala's primary focus is to facilitate research using animal models while assuring compliance of regulations that govern such endeavors and maintaining the highest level of animal care such that investigators can attain quality research outcomes. While her primary responsibility is the veterinary care of animals and assurance of regulatory compliance pertaining to their use, her training in comparative medicine uniquely positions her for numerous opportunities to collaborate with investigators. Since joining the department as a faculty veterinarian, she has continued established relationships in which she continue to apply her expertise in rodent gastrointestinal physiology and pathology.

Her personal research interest focuses on understanding the role of environmental factors on phenotypic variation of animal models of human disease. A better understanding of these factors can enable laboratory animal veterinarians to develop better methods of controlling variables in the housing environment to decrease experimental variability and increase reproducibility, thus reducing the number of necessary animals and increasing the translatability of findings. As a result, she published a first author paper and was contributor to a second on this topic.

Her second clinical research focus relates to the veterinary management of reptiles, amphibians, and fish used in research. Together with a veterinary resident whom she serves as a research mentor, she is currently conducting studies to determine the optimal euthanasia methods for various larval amphibian species.

MARIAN ROLLINS-RAVAL, M.D., Ph.D.

Over the past six months, Dr. Rollins-Raval has been attending on service in Hematopathology and Coagulation. As the Special Coagulation Director, she continues to work on a multidisciplinary team, including Hematology and Pharmacy, to evaluate a new protocol in EPIC for screening and monitoring Heparin allergies in relationship to heparin-induced thrombocytopenia (HIT). In addition to teaching while on Hematopathology Service, she also teaches a formal Coagulation Sign-Out to be experienced by DPLM residents during the Hematopathology rotation, fellows in Hematopathology and Transfusion Medicine throughout the whole year, both adult and pediatric Hematology/Oncology fellows when on service with her. She has also hosted several elective rotations with Hematology/Oncology fellows in Coagulation. She has been guiding Dr. Chad Siniard as he begins his sign out in Special Coagulation at UNC. She is actively pursuing several projects (primarily in Coagulation) in the areas of ADAMTS13, HIT and Factor VIII testing.

TERESA DANIELLE SAMULSKI, M.D.

Dr. Samulski's main contributions include staffing the Surgical Pathology service in ENT, Pulmonary, and Gynecologic surgical pathology, as well as the cytopathology and frozen section services. Dr. Samulski also has taken an active role in teaching the pathology segment of the Pulmonary course for 1st year medical students, with the goal of being the sole pathology contributor for this course by 2020. She received excellent reviews from both students and co-directors for her contributions to this course and is committed to her expanding role in medical student education. She will also contribute to the residency didactic curriculum as part of her teaching goals for the coming year, in addition to continual one-on-one teaching and supervision of residents and fellows in the delivery of patient care. She will also expand her

current publication record in thyroid cytopathology, medical education, and patient safety, as she builds relationships with current multidisciplinary leaders in such fields here at UNC.

EIZABURO SASATOMI, M.D., Ph.D.

Extremely well differentiated intrahpatic cholangiocarcinomas (CCA) such as cholangiocellular carcinoma and CCA with a predominant "ductal plate malformation" pattern mimic benign biliary structures (e.g., reactive bile ductules and malformed bile ducts). Dr. Sasatomi is planning a study regarding the histological features that can be of help in differentiating well differentiated/extremely well differentiated intrahepatic CCAs from benign biliary structures/lesions.

Dr. Sasatomi is planning a study regarding the histogenesis of intraductal tubulopapillary neoplasms (ITPN), which are newly recognized biliary neoplasm and were adopted by the WHO classification revised in 2010.

LORI R. SCANGA, M.D., Ph.D.

Dr. Scanga has the following active research projects in the areas of cytology and surgical pathology, and supervises six research projects with trainees. **New Project:** Dr. Scanga joined a project in August 2017 to study placentas from preterm birth in an HIV-exposed Zambian cohort of women and their infants, as a research mentor of Kartik Venkatesh (Maternal Fetal Medicine Fellow). Dr. Scanga will be reviewing the histology of these placentas, in collaboration with Drs. Ken Fortier and Ben Chi. The H&E stained sections are being prepared for review. **Project:** Negative predictive value of renal cytology specimens, faculty advisor of former trainee Christine Bookhout. This research was presented as a poster presentation at the 65th ASC Annual Scientific Meeting (Nov., 2017). The goal for 2018 is to write a manuscript. **Project:** Consultation in gynecologic pathology at an academic pathology department: concordance in diagnosis, quality measures, and effect on patient management, faculty advisor of former trainee Avani Pendse. This project has an active IRB and is in the status of data collection, with a goal to submit an abstract to USCAP in 2019. **Completed Project:** The cytologic interpretation of Papanicolaou smears when HPV reflex testing is concomitantly requested, faculty advisor of former trainee Avani Pendse. This research was presented as a poster at the 2016 ASC Annual Scientific Meeting, and the manuscript was recently published in AJCP. **Project:** PREFER Trial: Preserving Fertility Choice in Early Cervical Cancer, faculty advisor of former trainee Avani Pendse and in collaboration with Dr. Boggess. The first trial patient underwent surgery on 5/23/2016. Dr. Scanga is coordinating the pathology methods and specimens for this clinical trial, which is in the process of data collection. **Project:** Case report of a previously unreported co-occurrence of BRAF and EGFR mutations in micropapillary lung carcinoma, faculty advisor of Claire Edgerly (PGY 5) and in collaboration with Dr. Nirali Patel. This research was presented as a poster at College of American Pathologists The Pathologists' Meeting 2017, October 2017. The goal for 2018 is to publish the manuscript. **Project:** First case report of an inhibin producing ovarian fibrothecoma in a patient with Down syndrome, faculty advisor of Renee Betancourt (PGY 3) and in collaboration with Dr. Paola Gehrig (Gynecologic Oncology). Their goal is to submit this case report to the 2019 College of American Pathologists annual meeting, followed by publication. **Project:** MDSC Clinical Trial: Myeloid-Derived Suppressor Cells in Head and Neck Cancer (MDSC clinical trial), in collaboration with Dr. Zdanski, Dr. Shores, and Dr. Serody. This research is currently in the stage of data review and manuscript preparation, with a goal for subsequent publication. **Project:** New Mexico HPV Pap registry (NMHPVPR) P16 adjucation study pathologist. The manuscript has been submitted to Lancet Oncology for review for publication.

JOHN L. SCHMITZ, Ph.D.

Dr. Schmitz is collaborating with Transplant Pharmacy and clinical transplant staff on a study of the impact of HLA Eplet vs HLA antigen mismatch load on development of de novo HLA antibodies in a renal transplant cohort. This study will assess an alternate approach to assess alloantigen load (eplet) for the ability to assess risk of de novo antibody prevalence and the impact on patient outcomes (graft survival and rejection incidence). An abstract was accepted for presentation at the American Transplant Congress in June 2018. In the upcoming year, Dr. Schmitz plans to continue analysis of transplant outcome data in the renal transplant cohort to assess in more detail, the impact of eplet mismatch load on the incidence and kinetics of post-transplant HLA antibody production to generate data that will guide the timing and frequency of post-transplant HLA antibody testing in the Clinical Histocompatibility Laboratory. It is hypothesized that this data will provide evidence for a less frequent testing algorithm and reduce costs associated with this testing. Dr. Schmitz will also be assessing the performance of automated ANCA (PR3, MPO) and Glomerular basement membrane antibody tests on the Phadia ImmunoCap System.

LAUREN C. SCOTT, M.D.

Dr. Scott's focus is on education of residents from both UNC and Duke, medical students, and the forensic pathology fellow. She will continue to be the director of the PATY416 medical student rotation in forensic pathology.

STEVEN T. SHIPLEY, D.V.M.

Dr. Shipley's primary mission is divided between administration, clinical service, teaching and research. His clinical service plans/goals for the coming year include increasing efficiency in delivery of clinical veterinary care (particularly to off-campus locations) through coordination and consolidation of duties with veterinary faculty and residents. Placement of faculty veterinarian at FOBRL will greatly enhance these efforts. His teaching goals include continuing to be actively involved in day to day mentoring and ongoing didactic instruction of LAM residents at UNC as well as RTLAMTP Didactic lectures. He is currently researching feasibility of merging UNC residency training program with RTLAMTP (comprised of Duke University, NCSU, and NIEHS) to form a single program under his direction. His research goals include ongoing data analysis, presenting data at regional/national meetings and producing publications for funded research – experiments completed August 2016. He has been collaborating and performing experiments with Dr. Tom Egan (Professor, Surgery) on a swine lung transplant project since December 2017– initial results have been promising and there are plans for an R01 application submission in the next 6 months to further this work. They are actively collaborating with several PIs for surgical model development in rabbits (carotid aneurysm) and swine (CSF flow and glaucoma. He will continue to actively reach out to UNC faculty for collaborative research opportunities in his areas of strength/interest – large animal models, infectious disease, and immunology.

HARSHARAN K. SINGH, M.D.

Dr. Singh's clinical responsibilities have been devoted to renal pathology which has also been a major focus of her research. As Associate Director in the Division of Nephropathology, Dr. Singh assists the Director with oversight of all clerical and laboratory staff in the clinical and research laboratories, management of the nephropathology histology and immunohistochemistry laboratory, laboratory quality control issues, and the development of new diagnostic assays. As Director of Electron Microscopy services, she overseas quality control issues as related to EM and maintains oversight of all technical staff in this area. Approximately 75% of Dr Singh's time is devoted to clinical and teaching responsibilities in Nephropathology with the remaining time devoted to clinical / translational research in renal pathology with a focus in transplantation and teaching in the medical and dental schools as well as

in the Pathology graduate program. Dr. Singh is a translational physician-scientist whose practice and clinical research interests are in polyomavirus infection in the setting of renal and other solid organ transplantation. She is also interested in the application of electron microscopy and ultrastructural pathology in the setting of renal transplantation. A number of projects in both human subjects and in animal models are underway in the area of Polyomavirus Nephropathy including: 1) multicenter study with Children's Hospitals of Philadelphia and Cincinnati involving children post-bone marrow transplantation and evaluating Polyomavirus infections and the application of the urine PV-Haufen test to diagnose Polyomavirus Nephropathy in this subset of patients. 2) Dr. Singh is chairing the Banff working group for Electron Microscopy to evaluate glomerular basement membrane double contours, including Cg1A lesions and the presence of severe peritubular capillary basement membrane multi-lamination as features of chronic rejection and to develop and validate a standardized, reproducible diagnostic approach The potential reversibility or progression of these lesions also remains undetermined and will be studied. 3) Proof of concept studies in an animal model of PVN are ongoing [developed at UNC]. 4) Finalizing data for publication of a 5 year prospective study funded by Astellas Pharma evaluating patients with PVN with protocol biopsy data at time of PVN resolution; 5) Development of a non-EM based assay for the identification of urinary PV-Haufen to diagnose PVN is underway.

RANCE CHADWICK SINIARD, M.D.

Dr. Siniard's current research activities consist of working and/or assisting on multiple ongoing projects to be presented at upcoming meetings, including ASFA, AABB, and ASH, including a Hgb A decrement calculator in maintenance RCE for stroke prophylaxis. As Medical Director of the Blood Donor Center with interests in Patient Blood Management, Dr. Siniard plans to focus research efforts surrounding pathogen-inactivated platelets once they become available.

Current plans and goals for the coming year include the implementation of pathogen-inactivated platelets in their Blood Donor Center, which is expected in June of 2018. In addition, the expansion of the donor center in order to double the number of platelet units collected, and provide UNC Hospital with 100% of their platelet needs, is within Dr. Siniard's five year plan. Dr. Siniard also plans to implement a point-of-ordering clinical decision support module into the EPIC EMR in order to reduce outside-of-guideline ordering of red blood cells, platelets and plasma. On the Special Coagulation service, with the assistance of Dr. Rollins-Raval, Dr. Siniard plans to begin interpreting ADAMTS13 results with accompanying PLASMIC scores, which will then become a revenue-generating activity for the Department.

SCOTT V. SMITH, M.D.

Dr. Smith is the Director of the Surgical Pathology Fellowship Program, Director of Resident Training in Surgical Pathology, and Director of Pediatric Pathology for UNC Hospitals. Dr. Smith's clinical activities are focused in surgical pathology with broad emphasis in pediatric, ENT, cardiac, pulmonary, gastrointestinal, pancreaticobiliary, endocrine, and vascular pathology. An integral part of these endeavors is the instruction of pathology residents and fellows to facilitate their professional development. Dr. Smith has conducted an extensive review of their training program and he has instituted substantial revisions of the content and design of their Surgical Pathology rotations in 2017-18 to improve postgraduate education in Surgical Pathology. Dr. Smith is the Director of Surgical Pathology Fellowship Program, overseeing all aspects of recruitment and development of these Fellows as they complete their capstone year of training. Dr. Smith works in collaborative research with Dr. Julie Blatt and Dr. Ian Davis in Pediatric Hematology Oncology.

JOAN M. TAYLOR

Over the past 5 years, Dr. Taylor's research interests have expanded into the studies of muscular dystrophy and hypertension. Their most exciting new project involves the role of the Rho-GAP ArhGAP42 in human

hypertension. They demonstrated that ARHGAP42, is highly and selectively expressed in vascular smooth muscle in mice and humans and lowers BP by inhibiting RhoA-dependent contractility in this cell-type. The increase in blood pressure observed in their novel ArhGAP42-deficient mouse model indicated that ArhGAP42 is required for the maintenance of normal blood pressure and provided a potential mechanism for the blood pressure associated locus within the ArhGAP42 gene that was recently identified by Genome Wide Association Studies. They collaborated with a number of clinical teams at UNC to identify the causal SNP and to ascertain whether the ArhGAP42 genetic variant associated with high blood pressure modulates expression of ArhGAP42 and alters patient risk for end-organ failure. Their genotype analysis of a well-characterized cohort of untreated borderline hypertensive patients confirmed that the minor ARHGAP42 allele was associated with higher ArhGAP42 expression and reduced blood pressure and suggested that the low frequency of this allele in African Americans may contribute to the increased hypertension susceptibility of this group. They also identified the causal SNP and determined the transcriptional mechanisms by which this eQTL functions to regulate ArhGAP42 levels. These results add significant insight into the genetic mechanisms that control blood pressure and should have important implications in regard to hypertension risk and individualized antihypertensive therapies. These studies have led to publications in Nature Communications, Journal of Clinical Investigation, and World Journal of Hypertension and invitations to speak at several National and International meetings. They have also made important inroads in uncovering an epistatic role for the related Rho-GAP ArhGAP26 in the pathogenesis of Duchenne's muscular dystrophy. Collectively, these new directions have led to new awards from the Muscular Dystrophy Association and NIH-NHLBI (multi-PI RO1) that will garner 2.36M in direct funding when combined. They have also obtained funding from the American Heart Association and additional NIH funding over the past 5 years to support their program. Taylor lab expenditures over the past 5 years totaled 2.49M in direct (extramural) funds that were used to support their work in musculoskeletal and cardiovascular disease.

LEIGH B. THORNE, M.D.

Dr. Thorne's research activities continue with the Tissue Procurement Facility, most specifically focusing on the quality assurance of research tissues collected. She also collaborates on two rapid autopsy programs (breast and melanoma).

Dr Thorne's clinical duties continue in molecular genetic pathology and the autopsy service, as well as oversight of muscle pathology. With new hospitals coming into the UNC Healthcare umbrella, the UNCH Autopsy Service provides a more centralized system for the performance of autopsies among the different hospitals. She also continues as the Medical Director over Decedent Care staff. A goal in the upcoming year is to evaluate their autopsy service statistics to identify ways in which they can improve their overall autopsy rate and improve their service.

DIMITRI G. TREMBATH, M.D., Ph.D.

Dr. Trembath maintains a busy clinical service, signing out general surgical pathology, covering the GI Smalls and GI Large benches. Dr. Trembath, in conjunction with Dr. Tom Bouldin, is responsible for covering the surgical neuropathology service. These duties include teaching residents, covering frozen sections for both services and signing out the in-house and outside cases assigned to that bench. In conjunction with Dr. Bouldin, Dr. Trembath is also responsible for covering the ophthalmologic pathology service.

In terms of research, Dr. Trembath is involved in several collaborative efforts. With Dr. Stergios Moschos of Hematology-Oncology, Dr. Trembath is analyzing melanoma brain metastasis to discover genes involved in the metastatic process as well as genes important for prognosis and response to therapy. Dr. Trembath is also involved in a similar effort researching breast cancer brain metastases with Dr. Carey Anders. With Dr. Hae Won Shin of the UNC Neurology department, Dr. Trembath is collaborating in validating new MRI modalities for identifying seizure foci and with Dr. Shehzad Sheik of the UNC Department of Medicine, Dr. Trembath is helping in analyses to look at microRNAs

involved in the pathogenesis of inflammatory bowel disease. Most recently, with the arrival of Dr. Simon Khagi, UNC's new neuro-oncologist, Dr. Trembath has become involved in a project examining changes in microsatellite markers in brain tumors before and after treatment.
In terms of administration, Dr. Trembath is Director of the Division of Neuropathology and has just enabled the Division of Neuropathology, as well as the Division of Neuro-Oncology, to take part in the CAPTIVE trial which will enroll patients with recurrent glioblastoma/gliosarcoma for treatment with adenovirus and PD-L1 inhibitors. Dr. Trembath will also continue to implement Amion, the online scheduling system, which has moved the Department of Surgical Pathology's schedules to a web-based format with user interfaces available via browsers or phone apps.
Dr. Trembath added over 207 individual cases to the gastrointestinal study sets he has developed for resident use in 2017-2018. Dr. Trembath also added over 130 individual cases to the neuropathology study sets for resident use during the same time period. These study sets are in constant use by residents to help them during their rotations on the GI and neuropathology benches, as well as helping them prepare for the in-service exam and the ABP exam.
For the upcoming year, July 2018-June 2019, Dr. Trembath intends to continue with the clinical and research activities described above; new responsibilities will include assuming directorship of the immunohistochemistry/special procedures lab in surgical pathology.

CYRUS VAZIRI, Ph.D.

Dr. Vaziri's current research is focused on understanding molecular mechanisms of genome maintenance as pertains to cancer etiology and cancer therapy. His major goals are to publish results of ongoing research projects in high quality journals in order to maintain existing grants and to provide additional funding opportunities. Another goal is to broaden the scope of their research by identifying new avenues for future research and initiating new projects that will provide vehicles for extramural funding. To this end, trans-disciplinary studies are ongoing with several colleagues at UNC including Dr. Ken Pearce (School of Pharmacy), Dr. Buddy Weissman (Pathology), Dr. Ben Major (LCCC), Dr. Channing Der (LCCC), Dr. Yuri Fedoriw (Pathology). A collaborative drug discovery project with School of Pharmacy colleagues has already resulted in a funded R01. A collaborative R01 application with Dr. Scott Williams was also funded. They hope that additional trans-disciplinary collaborations will procure reserarch funding.

KAREN E. WECK, M.D.

The goals of the research of Dr. Karen Weck are to translate novel molecular genomic tests for clinical diagnostic and prognostic testing and to investigate the clinical utility of novel molecular genetic testing. Major areas include somatic mutation testing in a variety of tumor types to identify response or resistance to specific pathway inhibitors and support of broad-scale next-generation human exome sequencing efforts to identify mutations in genetic diseases and cancer. Dr. Weck is Co- Investigator on several NIH-funded exome sequencing projects for diagnosis of inherited genetic diseases: a NHGRI U01 grant called North Carolina Genomic Evaluation by Next-generation Exome Sequencing (NCGENES-2, PIs: J, Berg and B. Powell), Newborn Exome Sequencing in Universal Screening (NEXUS, PI: C. Powell) and Fetal Exome Sequencing for identification of genetic causes of fetal demise (PI: N. Vora). Dr. Weck has implemented development of UNC-designed clinical NGS panels for detection of primary ciliary dyskinesia and for inherited forms of kidney disease. The goals of Dr. Weck's research in the next year are to continue efforts to utilize next generation sequencing for clinical care at UNC in the areas of cancer and genetic diseases.

ERIC T. WEIMER, Ph.D.

Dr. Weimer is currently focused on the implementation of the first set of Molecular Immunology laboratory tests including SCID, HLH, Hyper IgM, Hyper IgE, and ALPS. These tests have been successfully validated and are currently having the procedures reviewed, a mock CAP inspection is being performed, and are expected to go-live July 15th. Additionally, Dr. Weimer is evaluating several NGS kits for HLA typing for a clinical validation and manuscript preparation. In the final stages is an agreement between Dr. Weimer and Omixon, Inc for the joint development of a rapid, high-resolution HLA genotyping assay using nanopore technology. Clinically, the Immunology laboratory is validating a new QuantiFERON assay and the HLA laboratory is evaluating virtual crossmatch reports and new flow cytometric crossmatch equipment to allow the Flow Cytometry laboratory to use their cytometer to increase efficiency. The Flow Cytometry laboratory is finishing a validating of lyophilized reagents which will enable more efficiency processing and fewer opportunities for manual errors.

BERNARD E. WEISSMAN, Ph.D.

Dr. Weissman's laboratory research currently focuses on the role of mutations of SWI/SNF complex components in the development of pediatric and adult tumors and on the role of activation of the KEAP1/NRF2 signaling pathway in the progression of human squamous cell carcinomas. During the next year, he plans to submit new funding applications for new work of the epigenetics of chordomas as well as a new P01 application on understanding the initiation and progression of "SWI/SNFomas" and developing novel strategies to treat them.

JULIA W. WHITAKER, M.S., D.V.M.

Dr. Whitaker continues to provide veterinary clinical care for the research animals on campus and she is Associate Director of Research Administration in DCM. She continues to pursue research on the effect of caging environment on mouse reproduction and behavior. She mentored a laboratory animal resident in 2016 in a project in collaboration with Dr. Moy using new caging technology to study enrichment and aggression in mice, which resulted in an article published in 2018 and in the resident receiving requests to speak at international conferences. She is mentoring another laboratory animal resident this year in a project using zebrafish and examining the effect of enrichment items and disease status on zebrafish reproductive efficiency and behavior in collaboration with a veterinarian at IDEXX. Her interest and specialty training in aquatic animal medicine will continue to be used to support the aquatic research species on campus. She will continue to be involved in teaching and training of laboratory animal residents in the Research Triangle area through the Research Triangle Laboratory Animal Training Program seminar, and through individual teaching of the UNC laboratory animal residents.

DAVID C. WILLIAMS, M.D., Ph.D.

David Williams maintains both an NIH funded research laboratory and clinical service responsibilities in hematopathology. His laboratory has been funded to study the dynamic interaction between methylcytosine binding domain proteins and DNA. Over the past six months, he gave lectures and taught in both the medical school and graduate school and has been actively involved in the American Society of Investigative Pathologists. Importantly, he is a primary investigator on a multi-PI grant that just received an excellent score (4th percentile) to study the role of the NuRD chromatin remodeling complex in fetal hemoglobin regulation. Over the next 6 months he will focus on completing experiments for an additional manuscript, resubmitting 1-2 grant applications, and collecting preliminary data for a collaborative project he is developing with the Vaziri laboratory. He will submit a revised competitive renewal in July that will build on his recent publications showing how DNA methylation modulates the dynamic behavior of methyl-cytosine binding domain proteins on DNA. David maintains an active collaboration with Brian Strahl and Stephen Frye to characterize bivalent readers of chromatin and is a

co-investigator on an R01 with Stephen Frye. David expanded his role in the hematopathology service, signing out hemoglobin HPLC assays in addition to signing bone marrow and lymph node biopsies. He and Yuri are pursuing new research projects looking at DNA methylation in lymphoma. Finally, David now gives four lectures in the PATH 713, a lecture in the dental school, and continues to teach multiple small groups sessions for the medical school curriculum.

SCOTT E. WILLIAMS, Ph.D.

Broadly, Dr. Williams's lab is interested in how stratified epithelia are built and maintained, in the context of development and cancer. They study a broad array of epithelial tissues including the skin epidermis, oral epithelia (collaborations involve Antonio Amelio, UNC Dentistry), and neuronal epithelia (collaborations involve Timothy Gershon, UNC Neurology). They study how cell polarity is established in these tissues, how it regulates cell-cell adhesions and asymmetric cell divisions, and how it becomes altered in squamous cell carcinomas. Other research interests include the genetic basis of epithelial-derived cleft lip and palate syndromes and identification and characterization of stem cells of the oral epithelia

MONTE S. WILLIS, M.D., Ph.D.

Dr. Willis is the Department of Pathology & Laboratory Medicine Vice Chair of Academic Affairs, Director of the NC State University Student Health Services, Director of the UNC Campus Health Services Laboratory, Director of the NC State Student Health Services Laboratory, Director of UNC Hospitals sweat testing laboratory, and Assistant Director of the UNC Hospitals core (clinical chemistry) laboratories. He is also an independent Principal Investigator in the McAllister Heart Institute directing a translational research program investigating the role of ubiquitin ligases (MuRF1, MuRF2, MuRF3) in metabolism, autophagy, and protein synthesis [Project 1: MuRF1 regulation of nuclear transcription factors (PPARalpha and Thyroid Receptoralpha) in stretch mediated cardiac hypertrophy and atrophy; Project 2: MuRF2 and MuRF3 regulation of PPAR isoforms in diabetic cardiomyopathy by non-canonical ubiquitination in vivo; Project 3: Role of MuRF1 in calpain-1 mediated heart failure in vivo]. His laboratory also investigates the role of protein misfolding, autophagy, and proteotoxicity in the pathophysiology of heart failure [Project 4: The role of the human Bag3+ mutation (P209L) in mediating cardiac-specific heart failure; Project 5: Interactions between human cardiac myosin binding protein-C (cMyBP-C) truncation mutations and muscle-specific ubiquitin ligases in heart failure]. The dynamic and interactive mentoring of post-doctoral fellows, graduate students, clinical residents, and visiting scientists are the creative focus of Dr. Willis' research and discovery program. In the coming year, collaborative efforts with industry and international collaborators via the Leducq Network of Excellence collaborative.

SARA E. WOBKER, M.D., MPH

Dr. Wobker's clinical service is focused on the diagnosis of genitourinary cancer and general cytopathology. Her research involves the clinical and translational study of GU malignancies, with a focus on the molecular characterization of rare histologic variants of urothelial carcinoma. Ongoing collaborations with members of the Department of Urology and Division of Medical Oncology are focused on the prospective validation of prostate cancer biomarkers and the study of urothelial carcinoma following prostate radiation, in addition to collaborations with the Department of Epidemiology investigating the molecular profiling of prostate and bladder cancer in a North Carolina registry-based patient cohort.

ALISA S. WOLBERG, Ph.D.

The major goals of Alisa Wolberg, PhD are to examine cellular, biochemical, and biophysical mechanisms that contribute to hemostasis and thrombosis. Dr. Wolberg's group has made substantial

progress towards these goals. They have used in vitro and in vivo models of thrombosis and thrombolysis to examine how plasma hypercoagulability and vessel injury promote thrombus formation. Their studies suggest pathogenic roles for cell-derived microvesicles in thrombosis and cancer, correlate vascular injury with thrombus formation and stability, and have revealed newly-recognized pathways that regulate arterial and venous thrombosis. They have recently revealed a newly-recognized role for transglutaminase factor XIII in determining venous thrombus composition and size, and characterized the operant biochemical mechanisms. They have also demonstrated mechanisms associating red blood cell number and function with thrombosis in mice. Their findings expose previously-unrecognized pathophysiologic mechanisms in arterial and venous thrombosis, and suggest novel approaches to reduce thrombosis risk. Future plans are to delineate the role of red blood cells and transglutaminase activity in determining venous thrombus size and stability, define mechanisms contributing to pulmonary embolism, elucidate the relationship between fibrinolytic activity and cancer pathogenesis, investigate mechanisms associating oral contraceptives with venous thrombosis, and develop novel molecules to inhibit factor XIII function as a potential therapeutic.

JOHN T. WOOSLEY, M.D., Ph.D.

Dr. Woosley's primary research effort is in GI and Liver pathology. Over the last 20 years he has been a co-investigator on a continuum of research projects with Robert Sandler, MD. The general thrust of these projects has involved the defining of environmental risk factors for adenomatous polyps and colorectal cancer and the identification of biomarkers as guides to more effective screening and prevention. The biology of colorectal cancer provides unique opportunities for etiologic research. Because colorectal cancer arises from an ordered series of pathologic precursor lesions, it is important to determine where potential environmental risk factors operate in the cancer sequence. Dr. Woosley also has a very active collaboration with Richard Semelka, M.D., Department of Radiology that has resulted in multiple publications that have expanded the radiopathologic knowledge base. Dr. Woosley is very actively involved in collaborative research projects with Dr. Evan Dellon and Dr. Robert Sandler, Division of Digestive Diseases, Department of Internal Medicine, UNC School of medicine. The collaboration with Dr. Dellon focuses on the basic pathophysiology of Eosinophilic esophagitis. The collaboration with Dr. Sandler focuses on the basic pathophysiology of microscopic colitis. Dr. Woosley is the pathologist on a GVHD study using a mouse model, Primary Investigator – John Serody, MD.

HONG XIAO, M.D.

Dr. Xiao's research efforts are focused on elucidating the pathogenic mechanism of immune mediated vascular damage with emphasis on antineutrophil cytoplasmic autoantibody (ANCA) induced glomerulonephritis and small vessel vasculitis (ANCA disease). In collaboration with Dr. Hu and Dr. Jennette, she developed a pulmonary granulomatosis animal model mimicking GPA in patients. Her current approaches consist of 1) Using this animal model to dissect the mechanism of anti-MPO induced extravascular inflammation and tissue injury such as pulmonary granulomatosis. 2) Investigating the involvement of receptors on neutrophil such as Fcγ receptors, complement receptors and bradykinin receptors in pathogenesis of ANCA disease and testing therapeutic interventions with inhibitors in ANCA disease model. 3) Identifying specific epitopes that are targeted by pathogenic anti-MPO IgG. 4) In collaboration with the National Gnotobiotic Rodent Resource Center at UNC to compare anti-MPO IgG induced GN in WT versus germ free gnotobiotic 129S6 and C57BL/6J mice and evaluate the effects of microbiome on disease phenotype.

YANG YANG, Ph.D.

Dr. Yang will be working on two plans/goals: 1) Developing a NIH R21 grant base on the NC TraCS pilot grant data. 2) Working on mechanism of RNF168 promote cancer cell to tolerant multiple stress, and wrapping up the paper in the end of this year.

MAIMOONA B. ZARIWALA, Ph.D.

Dr. Zariwala's research activities involves studying genetic underpinning of Primary ciliary Dyskinesia. This includes: (**a**) to decipher possible genetic causes of Primary Ciliary Dyskinesia, and idiopathic bronchiectasis; (**b**) continue to provide leadership, oversight and guidance to the lab, answer genetics related questions and provide research results to their 10-site consortium and UNC colleagues patients; (**c**) identify possible large indels in pertinent cases; (**d**) possibly identify novel candidate genes (**e**) continue to provide ongoing support for variant interpretations to the Molecular Pathology & Genetics Lab and for the Vertex Pharmaceuticals, Inc. clinical trial and outside Physicians seeking assistance. She has made significant progress towards her proposed activities. Over 240 unrelated cases of Primary Ciliary Dyskinesia have been tested for the panel of 30 disease associated genes and current data suggests that ~55-60% cases harbor biallelic mutations. They identified large indels on one allele in several families that were lacking 2nd hit, and in one case on both alleles in two families thus helped with solving these cases. It is pertinent to mention that large indels are usually not identified by the sequence-based assays. This year, she was able to define the breakpoints for the three different large deletions and developed a simple and quick PCR based screening method. She has completed whole exome sequencing of additional 100 samples this year in collaboration with Yale Center for Mendelian Genetics and has identified mutations in known genes in several cases and additional analysis is ongoing. Further analysis in collaboration with Dr. Ostrowski's lab is ongoing for the two families harboring *SPAG1* mutations and in a family harboring *CCDC114* mutations, but patients' phenotype does not fit the ciliary phenotype. She worked with Molecular Pathology and Genetics Lab on patients with Cri du Chat and unexplained respiratory issues to decipher the possible variants in *DNAH5* gene in the remaining copy of chromosomal 5. The manuscript is completed is under review currently. In addition, she has identified pathogenic variants in genes associated with primary immunodeficiencies. This has helped with the diagnosis and possible treatment options for patients that were previously thought to have possible primary ciliary dyskinesia. She continues to provide guidance, leadership and oversight to the research lab, and provide consultation on variant interpretation for the clinical trial. The research activities in the Primary Ciliary Dyskinesia genetics laboratory continues to represents significant steps forward in the studies of this genetically heterogeneous disorders in humans.

QING ZHANG, Ph.D.

Dr. Zhang's research focuses on understanding how hypoxia signaling/prolyl hydroxylase pathways contribute to breast cancer and renal cell carcinoma. His ultimate goal is to develop selective strategies to target key signaling pathway in hypoxia signaling involved in cancer.

His plan for the coming year is to publish at least 2-3 peer-reviewed research articles. His lab has published a few papers during the past year, including one in Science. He successfully secured his first RO1 grant, R21 and ACS research scholar grants. He plans to submit at least two more RO1s next year. He will also be actively participating in the department and Lineberger Cancer Center seminar/symposium events and will contine to serve on committees for graduate students. He will also direct the Pathology 725 class.

TEACHING MISSION

MEDICAL STUDENTS: The TEC 1 integrated curriculum spans the first three semesters of undergraduate medical education and is taught in a completely integrated format. The curriculum integrates preclinical science (such as biochemistry, histology, cell biology, physiology and genetics) previously taught in the first year with the pathophysiology/pathology previously taught in the second year. The curriculum remains organ-system based with the blocks being taught in a similar order. The initial block (Principles of Medicine, POM) and the second block (Immunology-Host Defense) serve a somewhat introductory role. An introductory lecture of 100 minutes on mechanisms of pathology was given by Dr. Homeister and one two-hour small group session covering the histopathology of cellular response to injury (including a short take-home quiz) was included in the POM block. An overview lecture on mechanisms of immunopathology were included in the Immunology block. In addition an introductory lecture on neoplasia has been integrated into the Hematology (3rd) block. The teaching of systemic pathology in the subsequent organ system blocks is organized similar to the prior curriculum. Because of the shorter available time, more use is being made of "free-standing" teaching modules for use independently by students. The use of virtual microscopy in several of the blocks (POM, Immunology, Pulmonary, Renal) continues to be provided by working with Leica-Biosystems.

Dr. Reisner aided in preparation of teaching material with the assistance of Ms. McGhee and they have concentrated on making virtual microscopy slides easily available as part of the syllabi. As "Coil" Director for Pathology, Dr. Homeister works closely with the surgical pathology faculty who are responsible for teaching in each system block and also with faculty from other Departments (such as Cell Biology) to help in the provision of virtual microscopy for histology. Laboratories continue to be staffed predominantly by both M.D. faculty and residents. The examination format has been somewhat modified to better fit the integrated TEC 1 examination paradigm and NBME-style examination questions. Many small group sessions include a short quiz done in lab to help reinforce major points in the lecture and laboratory.

DENTAL STUDENTS: First Year Dental School Teaching: Pathology 127: Dr. Homeister (new Course Director) continued the revised (in 2017) format in which each session utilizes a prerecorded introduction followed by a brief-individually based on-line quiz. Dr. Homeister was available during the time devoted to individual student review and for an additional 15 minutes to provide guidance and answer questions. Following the quiz either histology review sessions or in some short case-based sessions were provided followed by group quizzes. Several of the sessions did maintain the prior lecture-based format for comparison. In addition a single joint general/dental pathology session was done in collaboration with Dr. Padilla. Student comments regarding the new format were extremely positive and represented a significant improvement.

GRADUATE STUDENTS: Major goals of the Graduate Program in Pathobiology and Translational Science are to provide opportunities for students to (1) acquire knowledge and advance their understanding of the origins and pathogenesis of human disease, and the consequences of pathology on human physiology, (2) develop basic methodological skills, state-of-the-art investigative techniques, and advanced experimental approaches to enable them to elucidate mechanisms of human disease, (3) harness their laboratory skills in experimental pathology to generate new scientific knowledge related to mechanisms of disease and human pathology.

Jonathon W. Homeister, M.D., Ph.D., is the Director of Graduate Studies, and Cyrus Vaziri, Ph.D., is Associate Director. The 2017-2018 Executive Committee included Past Director, Bill Coleman, Ph.D.; Qualifying Exam Representative, Qing Zhang, PhD.; Education Representative, Alisa Wolberg, Ph.D.;

Member-at-Large, Mehmet Kesimer, Ph.D.; and Student Representatives, Nicole Fleming and Ashley Fuller. Program faculty Drs. Mack and Wolberg served as BBSP first year group leaders. Dr. Vaziri served on the BBSP Pathogenesis Admissions Committee, and Drs. C.R. Miller, Coleman, D. Williams, and Zhang served on the BBSP NCGC Admissions Committee. Drs. Zhang (Chair), Liu, Vaziri, S. Montgomery, and D. Williams comprised the Preliminary Examination Committee.

Graduate student teaching occurs in numerous settings including the classroom, seminar room, and laboratory. Formal classroom teaching of graduate students included a yearlong sequence of lectures (713 [Homeister], 715 [Coleman and Homeister]) on Mechanisms of Disease and corresponding laboratory courses (714L [Godfrey], 716L [S. Montgomery]) learn gross pathology and employing virtual microscopy to learn the histopathology of disease. Other required courses for our graduate students include one focused on critical reading of scientific literature (801 [Vaziri]) and one on translational research (723 [Homeister and Coleman]). Elective courses for graduate students include two on cancer pathobiology (725 [Zhang] and 792 [Coleman]), one on cardiovascular biology (766 [Mack]), and one on cardiovascular pathology (767 [Homeister]).

The graduate program Director, Jonathon W. Homeister, M.D., Ph.D., and Associate Director, Cyrus Vaziri, Ph.D., have held these positions since August of 2012. The remainder of the 2017-2018 Executive Committee included Past Director, Bill Coleman, Ph.D.; Qualifying Exam Representative, Qing Zhang, PhD.; Education Representative, Alisa Wolberg, Ph.D.; Member-at-Large, Mehmet Kesimer, Ph.D.; and Student Representatives, Nicole Fleming and Ashley Fuller. Program faculty Drs. Mack and Wolberg served as BBSP first year group leaders. Dr. Vaziri served on the BBSP Pathogenesis Admissions Committee, and Drs. C.R. Miller, Coleman, D. Williams, and Zhang served on the BBSP NCGC Admissions Committee. Drs. Zhang (Chair), Liu, Vaziri, S. Montgomery, and D. Williams comprised the Preliminary Examination Committee.

The graduate student body individually and collectively accumulated a number of significant accomplishments during the past year. Two students successfully completed the Ph.D. program (Katherine Stember and Ashley Fuller). With these graduates, the Pathobiology and Translational Science graduate program has produced 193 total graduates and 143 Ph.D. graduates since 1954. Katherine is currently completing and internship at the Office of Science, Technology, and Innovation in Raleigh at the Department of Commerce. Ashley is attending veterinary school at the University of Pennsylvania.

The Biological and Biomedical Sciences Program recruited another excellent class of graduate students, many of whom were interested in the Pathobiology and Translational Science graduate program. During Summer 2017, Fall 2017, and Spring 2018, fourteen faculty members associated with the Pathobiology and Translational Science graduate program hosted 26 laboratory rotation experiences for twenty individual students. This is five more laboratory rotations than the previous year. Seven students matriculated into the program from the BBSP in June of 2018. Christian Agosto-Burgos and Carolina Herrera will both work with Dr. Ronald Falk, Taylor Dismuke will work with Dr. Timothy Gershon, Cherise Glodowski will work with Dr. Charles Perou, Alina Hamilton will work with Dr. Melissa Troester, Benjamin Keepers will work with Dr. Li Qian, and Angana Mukherjee will work with Dr. Albert Baldwin. As of July 1, 2018, the Pathobiology and Translational Science graduate program had a total of 23 students.

In 2017-2018, graduate students from the program contributed authorship to a number of peer-reviewed journals as well as numerous published abstracts, many with a graduate student as first author, and several with multiple graduate students as co-authors. In addition, many graduate students were recognized for their research excellence with various awards, a subset of which include: At the 2017 Pathobiology and

Translational Science Annual Research Symposium, Rachel Dee and Katherine Stember received awards for outstanding presentations by a graduate student. Bethany Batson received the Trainee's Choice Award from her colleagues. Haley Vaseghi received the 2018 Katherine Pryzwansky Young Investigator Award from the program. Ashley Fuller was inducted into the Royster Society of Fellows at UNC, and Katherine Stember was inducted into the Frank Porter Graham Honor Society. Katherine also received an Horizon Award from the Graduate Education Advancement Board.

Research support for students in Pathobiology and Translational Science was provided by a number of sources other than mentor's grants. Several students received support from NIH training grants. Zachary Opheim and Haley Vaseghi were both supported by the Integrative Vascular Biology NIH Training Program, and Katie Stember was supported by the North Carolina Kidney Foundation NIH Training Grant. Nicole Fleming, Sravya Kattula, and Qing Zhu were all supported by Predoctoral Fellowships from the American Heart Association. Sravya also received an NIH Ruth L. Kirschstein Research Award (F31). Jamie Byrnes received a Dissertation Completion Fellowship, and Ashley Fuller received a Ross and Charlotte Johnson Family Dissertation Completion Fellowship, both from the Graduate School. Jean Marie Mwiza was supported by an Initiative to Maximize Student Development (IMSD) grant from the Medical School's Office of Graduate Education. In addition, three students were supported by funds from the Department of Pathology and Laboratory Medicine. During 2017-2018, James Byrnes and Bethany Wagner received support as Robert H. Wagner Scholars in Pathobiology and Translational Science. Abigail Shelton was supported by the Bill Sykes Scholarship.

The involvement of Pathobiology and Translational Science students and faculty in the Certificate Program in Translational Medicine remains strong. Six Pathobiology and Translational Science Ph.D. students including Sabri Abdelwahab, Bethany Batson, James Byrnes, Nicole Fleming, Sravya Kattula, and Katie Stember were fellows participating in the Program in Translational Medicine. The involvement of Pathobiology and Translational Science students in the Certificate Program in Cardiovascular Science remains strong as well. This year seven of the program's PhD students, Rachel Dee, Nicole Fleming, Qiang Zhu, Zachery Opheim, Haley Vaseghi, Matthew Combs, and Jean Marie Mwiza were fellows in the program.

During the last year, the spring Graduate Student Seminar Series, which began in 2001, continued to showcase the excellent research of the graduate trainees, and expanded to the fall semester. The Fall 2017 series hosted post-doctoral fellows and junior research track faculty. The Spring 2018 Seminar Series featured presentations by 11 Pathobiology and Translational Science Ph.D. students. Beyond the Tuesday seminar series, graduate students from the program participated in numerous other research symposia on campus. Graduate students were also featured in a Pathology Grand Rounds session in Spring 2018. Nicole Fleming (from Dr. Liu's laboratory) gave a presentation entitled "Characterizing the Role of Ring1b in Second Heart Field Development," and Haley Vaseghi (from Dr. Qian's laboratory) gave a presentation entitled "The Role of Mitochondria in Direct Cardiac Reprogramming." These seminar series provides valuable opportunities for students, faculty, and staff to learn more about graduate student research ongoing in the department. The student-led Marc J. Mass, Ph.D., Memorial Distinguished Lecture Committee hosted Judith Campisi, Ph.D., from the Buck Institute for Research on Aging on Wednesday, May 23, 2018, for a talk entitled "Cancer and aging: Rival demons?"

In the summer of 2017, the graduate students selected Dr. Scott Williams the 2017 recipient of the Joe W. Grisham Award for Excellence in Graduate Student Teaching. The award was presented to Dr. Williams in September 2017 at the evening reception after the Annual Research Symposium, held at the Jennette's

Home. In other activities, the graduate students have continued to have regular outings and events for informal discussions related to the graduate program and their research, as well as fun social interaction.

RESIDENCY TRAINING PROGRAM IN PATHOLOGY

YARA PARK, M.D., DIRECTOR
SUSAN MAYGARDEN, M.D., ASSOCIATE DIRECTOR

The Department of Pathology & Laboratory Medicine currently sponsors a residency training program in Anatomic Pathology (AP) and Clinical Pathology (CP). Our program is fully accredited by the American Council on Graduate Medical Education (ACGME); a complete description of our program, curriculum and current trainees is available on the departmental web site:
https://www.med.unc.edu/pathology/residency/.

The educational goals and philosophy of the residency program are:
1. Provide a flexible, broad-based training program for physicians that includes training in anatomic, clinical, and experimental pathology.
2. Encourage trainees to participate in research.
3. Provide an educational experience sufficient to ensure that all residents develop skill levels expected of a new practitioner in the six ACGME-defined competencies (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism and systems-based practice).

The program offers a four-year combined AP and CP residency with ample opportunities for research and post-residency fellowship training in a wide range of subspecialty areas in Pathology. The first three years of our program are focused on core training in AP and CP. The curriculum is organized to blend AP and CP core rotations within each of the first three years of training. The fourth year of training permits the trainee great flexibility – there are 5 months of elective rotations in AP, CP, or pathology research, so that the resident can concentrate on his/her particular interests. Overall there are 7.5 months of elective rotations interspersed throughout the four-year training program. All residents in the training program are provided with an individual study carrel, microscope, and computer fully loaded with appropriate software, connected to the internet and fully supported by the UNC Hospitals' ISD staff. Residents have access to a major medical library. The electronic medical record (EPIC) and laboratory information system (Beaker) permit electronic reporting of cases and full search capabilities.

The residency program completed its ACGME Self-Study in 2017. The process went incredibly well and had involvement of faculty, residents, and leaders in the department. A SWOT analysis and Action Plan were completed and many parts have already been completed.

There was one change in leadership of the program this year: Dr. Yara Park replaced Dr. Susan Maygarden as the program director on January 1, 2018. Dr. Maygarden remained as the associate program director. Other changes include the development of an Informatics Rotation, improved learning spaces for the residents, and revamping of the Clinical Chemistry curriculum.

For the academic year July 1, 2017 through June 30, 2018, we had a total of 16 residents (15 AP/CP residents plus 1 single tract resident (1 AP-only). There were 3 graduating residents who completed the program on June 30, 2018. All have gone on to fellowship programs: 1 to hematopathology at UNC, 1 to cytopathology at University of California Irvine, and 1 to hematopathology at University of Colorado. A majority of our residents presented research at a local or national meeting his year.

The program successfully matched 4 residents in March 2018 to form the incoming 2018 class. The clinical faculty reviewed approximately 360 applications to our program, invited 69 applicants to interview, conducted 68 interviews, ranked 58, and matched 4.

The program was especially fortunate to have matched 4 well-qualified applicants because nationally it was a very difficult match for pathology. Only 36.1% of the PGY1 pathology positions were filled by US seniors (2017 was 35.9%).

SUBSPECIALTY CLINICAL FELLOWSHIP TRAINING PROGRAMS

CLINICAL CHEMISTRY FELLOWSHIP 2017-2018
(http://www.med.unc.edu/pathology/residency/fellowships/clinical-chemistry-fellowship)

NICOLE KORPI-STEINER, Ph.D., DIRECTOR

Heather Stieglitz, Ph.D., FELLOW 2017-2019
Begun in 1972, this postdoctoral training program has a rich history of producing leaders within the field of Clinical Chemistry. Following two-years of comprehensive training in both the analytical and clinical aspects of clinical chemistry, fellows are prepared to enter laboratory medicine in clinical service, educational, or research roles. In 2016, the UNC Clinical Chemistry Fellowship Program was inspected by the Commission on Accreditation in Clinical Chemistry (ComACC) and received successful reaccreditation through 2021.

Dr. Heather Stieglitz completed her first year of training in the UNC Clinical Chemistry fellowship program including active engagement in scholarly activities. Dr. Stieglitz is the recipient of the Paul E. Strandjord Young Investigator Award by the Academy of Clinical Laboratory Physicians and Scientists (ACLPS) and received a 2018 American Association for Clinical Chemistry (AACC) Academy Distinguished Abstract Award for her novel research titled, *Biotin interference in 21 immunoassays performed on the Vitros 5600*. Dr. Stieglitz published 2 case reports in peer-reviewed journals and has a research manuscript in preparation.

CLINICAL MICROBIOLOGY FELLOWSHIP 2017-2018
(https://www.med.unc.edu/pathology/residency/fellowships/clinical-microbiology)

PETER H. GILLIGAN, Ph.D. AND MELISSA B. MILLER Ph.D., CO-DIRECTORS

The Department of Pathology and Laboratory Medicine and UNC Hospitals sponsors the Clinical Microbiology Training Fellowship, which is a two-year training program accredited by the sub-Committee on Post-doctoral Education Programs of the American Society for Microbiology (ASM) Clinical and Public Health Microbiology Committee. The Clinical Microbiology Fellowship is co-directed by Peter H. Gilligan, PhD and Melissa B. Miller PhD. The major objective of this program is to train individuals to direct clinical and public-health-microbiology laboratories. The fellows' training includes five areas: (i)

technical training to become proficient at performing and interpreting the laboratory procedures offered in the clinical microbiology laboratory; (ii) administrative training in the various aspects of laboratory management and administration, including budgeting, personnel, quality control, protocol preparation, safety regulations, and CLIA and OSHA requirements; (iii) clinical training enabling the trainee to interface effectively with infectious disease and other pertinent clinicians; (iv) research in clinical microbiology; and (v) public health training at the NC State Laboratory of Public Health (SLPH).

Kara Levinson PhD, MPH joined the program in July 2016 and successfully completed her fellowship in June 2018. During her fellowship, Dr. Levinson played a vital role in the UNC Health Care System. Some of her activities include: validating blood culture instruments at both UNC and Hillsborough Hospitals, assessing new diagnostic algorithms for the molecular detection of *Clostridium difficile* infection, and investigating new media for the detection of non-tuberculosis mycobacteria from respiratory specimens. Dr. Levinson was also awarded NC TraCS funding to design a molecular test to detect a novel resistance gene (*mcr-1* conferring colistin resistance) and to determine local prevalence of this gene in patient isolates and hospital sewage. She was an active participant in the training of infectious disease fellows and pharmacy residents by presenting numerous presentations and performing daily clinical consultations. She also participated in teaching three case-based sessions for third year medical students and two lectures in the School of Public Health. In 2017, Dr. Levinson received the ASM Infectious Diseases Fellows Travel Award for the annual Microbe meeting where she gave a presentation entitled: Evaluation of RGM Medium for the Isolation of Non-tuberculous Mycobacteria in Patients with Bronchiectasis and Cystic Fibrosis. In 2018, Dr. Levinson was elected to the ASM Board of Directors as the Early Career representative.

In July 2017, Sheila Johnson PhD joined the program. Dr. Johnson is a Major in the US Army, and her two years of fellowship training is fully supported by the Army. Dr. Johnson has worked with Hospital Epidemiology and the NC SLPH to identify multidrug-resistant organisms (MDRO) and submit them for genotypic testing. This work has been integral to the discovery of an MDRO outbreak in our institution. She has also validated an improved molecular test for the detection of multiple respiratory pathogens. This test offers results in ~1h and has been shown to positively impact patient outcomes including decreased antimicrobial use and length of stay.

MOLECULAR GENETIC PATHOLOGY FELLOWSHIP
http://www.med.unc.edu/pathology/residency/fellowships/mgp

MARGARET L. GULLEY, M.D., DIRECTOR

Jonathan Galeotti, M.D., FELLOW, 2018-2019

The University of North Carolina Hospitals offers a one year fellowship in molecular genetic pathology. The fellow gains a working knowledge of molecular procedures including in situ hybridization/FISH, DNA/cDNA amplification, sequencing (next gen, pyro- and Sanger sequencing), epigenetics, and array technologies including gene expression profiling and SNP chips. These procedures are applied in a wide spectrum of clinical settings including oncology, heritable disease/predisposition, infectious disease, HLA-typing, identity, and pharmacogenetics. The fellow learns to analyze and interpret molecular data from clinical cases and to compose concise, informative reports incorporating correlative clinical, histologic, immunophenotypic, and genetic findings. The fellow learns to design and carry out research aimed at understanding the molecular basis of disease and **t**ranslating those discoveries into improved laboratory tests. Ethical issues, quality assurance, and lab administration are discussed as they relate to clinical practice. Also consider applying for our combined 2-year Molecular and Surgical Pathology Fellowship Program. Mentoring is available from board-certified faculty in Molecular Genetics,

Cytogenetics, Microbiology, Immunology, Hematopathology and Surgical/Cytopathology/Histology. UNC Hospitals has the longest track record of board certifications among all ACGME-accredited molecular genetic pathology training programs nationwide. More information is found at, http://www.med.unc.edu/pathology/residency/fellowships/mgp

CLINICAL MOLECULAR GENETICS FELLOWSHIP
http://www.med.unc.edu/pathology/residency/fellowships/clinical-molecular-genetics-fellowship

JESSICA K. BOOKER, Ph.D., DIRECTOR

Natasha Strande, Ph.D., FELLOW, 2016-2019
Alexandra Arreola, Ph.D., FELLOW, 2017-2018

The Department of Pathology and Laboratory Medicine and UNC Hospitals sponsors a Clinical Molecular Genetics fellowship, which is a one- or two-year training program in laboratory aspects of clinical molecular genetics. The program is accredited by the American Board of Medical Genetics and Genomics. The Molecular Diagnostic Laboratory at UNC Hospitals provides experience with tests including cystic fibrosis, fragile X mental retardation, hemochromatosis, factor V Leiden and prothrombin, α1-antitrypsin deficiency, MCAD deficiency, connexin 26 and 30 mutations, Prader-Willi and Angelman syndromes, primary ciliary dynskinesia, BK viral loads, hereditary cancers, acquired mutations in cancer, chromosomal breakpoints in leukemias, pharmacogenetics, and monitoring of bone marrow transplants with polymorphic microsatellite markers. State-of-the-art technologies and instrumentation are used in all of these tests. The clinical aspects of the training program are complemented by a strong research foundation. The Clinical Molecular Genetics Fellowship is directed by Jessica Booker, Ph.D. There were two fellows in the training program in 2017-2018; there will be one fellow in 2018-2019.

As of July 1, 2017 the American Board of Medical Genetics and Genomics has implemented a new Laboratory Genetics and Genomics specialty which takes the place of the individual Clinical Molecular Genetics and Clinical Cytogenetics Fellowships (see below). (https://www.med.unc.edu/pathology/residency/fellowships/laboratory-genetics-genomics).

LABORATORY GENETICS AND GENOMICS FELLOWSHIP
https://www.med.unc.edu/pathology/residency/fellowships/laboratory-genetics-genomics/

ROSANN FARBER, Ph.D, DIRCTOR; JESSICA BOOKER, Ph.D AND KATHLEEN KAISER-ROGERS, Ph.D, CO-TRAINING DIRECTORS

The McLendon Clinical Laboratories of UNC Hospitals offers training in Laboratory Genetics and Genomics (LGG), which leads to eligibility for certification by the American Board of Medical Genetics and Genomics (ABMGG). This integrated training occurs in the Clinical Cytogenetics and Molecular Diagnostics laboratories. The training period is three years.

The Molecular Diagnostic Laboratory at UNC provides experience with tests for inherited disorders, including cystic fibrosis, fragile X, Prader Willi and Angelman syndromes, hemochromatosis, α1-antitrypsin deficiency, MCAD-deficiency, hearing loss (connexin 26 and 30), primary ciliary dyskinesia, and hereditary cancer predispositions (Lynch syndrome and *BRCA1/2* mutations); somatic aberrations in cancer (chromosomal breakpoints in leukemias, T– and B–cell clonality assays,

MSI, *MGMT* and *MLH1* promoter methylation, quantitative *NPM1* testing, solid tumor and myeloid panels by massively parallel sequencing for diagnosis, prognosis and predicted drug response; and monitoring of bone marrow transplants with polymorphic microsatellite markers. State-of-the-art technologies and instrumentation are used in all of these tests.

The UNC Cytogenetics Laboratory is a high-volume laboratory that processes over 4700 prenatal, postnatal and cancer specimens annually, including chorionic villus, amniocentesis, products of conception, peripheral blood, bone marrow, tumor, and tissue biopsies. Fellows are trained in a variety of techniques including tissue culture, chromosome banding and analysis, FISH and chromosome microarray analysis. We continue to add new technologies to the lab to keep up with the rapidly growing field of cytogenetics.

In addition to gaining experience in the fields of cytogenetics and molecular genetics, all fellows are instructed on how to validate and establish new testing, as well as how to establish, review, and maintain standard operating procedure manuals and quality control practices as required by the regulatory and licensing agencies (CLIA, CAP, etc.).

CYTOPATHOLOGY FELLOWSHIP 2017-2018

https://www.med.unc.edu/pathology/residency/fellowships/cytopathology

SIOBHAN O'CONNOR, M.D., DIRECTOR

The Cytopathology Fellowship Program admits two trainees per year. The program has a highly competitive admissions policy and consistently attracts very well qualified candidates. All trainees in recent history have passed their qualifying examination (Cytopathology Board); we have a 100% pass rate. Trainees have a variety of learning experiences including cytopathology rotations, two months of elective time, and one required month of surgical pathology and conference review. This curriculum exceeds Board requirements for trainee engagement, progression to independent practice, and interdisciplinary learning.

The Cytopathology program has transitioned its evaluation process to comply with the "NAS" requirements stipulated by the ACGME. The program has cytopathology-specific milestones the PEC will be using to evaluate trainee' progress. The program has expanded the evaluation process to include more "360" evaluators in different departments (Radiology, Interventional Pulmonology, Gastroenterology). A fairly new addition to the curriculum is an option for trainees to attend an off-site comprehensive cytopathology course. To date, all fellows have reported this was an extremely positive experience. The curriculum has also added short rotations in the prep lab and the screening lab for fellows. Graduates of the training program have all entered practice and have taken positions in academic, industry and community settings.

FORENSIC PATHOLOGY FELLOWSHIP

https://www.med.unc.edu/pathology/residency/fellowships/forensic-pathology

DEBORAH L. RADISCH, M.D., MPH, DIRECTOR

The North Carolina Office of the Chief Medical Examiner (OCME) in conjunction with the Department of Pathology and Laboratory Medicine and UNC Hospitals, offers a one-year fellowship in forensic pathology. The program is accredited by the Accreditation Council for Graduate Medical Education (ACGME) and is under the direction of the Chief Medical Examiner of the State of North Carolina. The

trainee in forensic pathology performs approximately 250 forensic autopsies during the course of the one-year fellowship. Consultations in subspecialty areas, including neuropathology, pediatric pathology, forensic odontology, and forensic radiology are available within the Department of Pathology and Laboratory Medicine and the School of Dentistry. Ancillary laboratory studies, including post-mortem toxicology, clinical chemistry, microbiology, and special histology are provided by the in-house toxicology laboratory and WakeMed Pathology Laboratories. Forensic anthropology, crime lab technology, and other training experiences are also provided at designated sites, including North Carolina State University and the NC Crime Lab. The forensic pathology fellowship is directed by Deborah L. Radisch, MD, MPH. One fellow is currently undertaking the training program (2018-2019).

HEMATOPATHOLOGY FELLOWSHIP 2017-2018
https://www.med.unc.edu/pathology/residency/fellowships/hematopathology

STEPHANIE MATHEWS, M.D., DIRECTOR

The Department of Pathology and Laboratory Medicine (McLendon Clinical Laboratories) and the UNC Hospital sponsors a broadly based, one-year training program in Hematopathology. The program is directed by full-time Hematopathologists and is fully accredited by the ACGME. The program has been highly successful in attracting high-quality applicants with a broad range of backgrounds, interests, and career goals. The Fellowship is organized in such a way as to provide appropriate training in all areas of hematopathology, while also providing flexibility to address personal needs, interests, and objectives of the individual fellows. Trainees gain experience in the management and medical supervision of a high volume hematology laboratory, the evaluation of peripheral blood smears, bone marrow, and lymph node biopsies, coagulation testing, and hemoglobinopathy diagnosis. The Hematopathology Fellows have been very active in scholarly activities with resultant journal publications. The fellowship was able to recruit Jonathan Galeotti, from Duke University. He was an asset to the work in this division, and functioned seamlessly within the team.

NEPHROPATHOLOGY FELLOWSHIP 2017-2018
https://www.med.unc.edu/pathology/residency/fellowships/nephropathology-fellowship

VOLKER NICKELEIT, M.D., DIRECTOR
The Department of Pathology and Laboratory Medicine sponsors a one- to two-year fellowship in renal pathology in the UNC Division of Nephropathology. Up to two fellows (from the US or foreign nationals) are accepted into the program. The fellows are directly involved in the evaluation of approximately 2000 renal biopsies/nephrectomies (both native and transplant cases) examined annually. All fellows are integrative members of the nephropathology team and receive intensive training. They prepare cases for sign out by the faculty using all standard techniques (light microscopy, immunofluorescence microscopy, immunohistochemistry, and electron microscopy). The fellows' responsibilities include the organization of clinico-pathologic and biopsy review conferences for medical faculty and housestaff, and teaching renal pathology to medical students, residents, and fellows. Teaching conferences and continuous education series offered by the nephrology and transplant divisions at UNC provide additional ample learning opportunities. Although emphasis is placed on the development of diagnostic skills, fellows are expected to carry out clinico-pathological and/or basic research projects and to present their data at national meetings, such as the ASN or USCAP (funding provided by the UNC Division of Nephropathology). Research projects focus on the pathogenesis of glomerulonephritides, allograft rejection, and polyomavirus infections. All state-of-the-art facilities (including gene sequencing) are available. Appropriate research studies are financially supported by the division. Clinico-pathological studies are facilitated by the

Glomerular Disease Collaborative Network, which is a well-established network of over 200 nephrologists participating in clinical data collection. The division of nephropathology and the fellowship training program is directed by V. Nickeleit, M.D. (www.uncnephropathology.org).

SURGICAL PATHOLOGY FELLOWSHIP / INSTRUCTORSHIP

https://www.med.unc.edu/pathology/residency/fellowships/surgical-pathology-fellowship

SCOTT V. SMITH MD, PROFESSOR, SURGICAL PATHOLOGY FELLOWSHIP DIRECTOR

Rebeca Alvarez MD, Fellow/ Clinical Instructor (2017-18)
Bjorn Batdorf MD, Fellow / Clinical Instructor (2017-18)

Program Description: The UNC School of Medicine Department of Pathology and Laboratory Medicine offers a one-year Fellowship/Clinical Faculty Instructorship in Surgical Pathology. The training year is intended for board-eligible or board-certified anatomic pathologists who want progressive responsibility and to develop excellent diagnostic skills in Surgical Pathology in an academic practice environment. UNC Surgical Pathology case volume is approximately 37,000 cases per year and represents a broad spectrum of pathology case types. Service responsibilities include light microscopic evaluation, use of appropriate ancillary studies, diagnosis and case reporting, with the support and tutelage of the Surgical Pathology faculty. In addition, there is some experience with review of outside cases and case presentation at multidisciplinary conferences. Gross examination of all specimens is performed by highly qualified pathology assistants.

There is progressive responsibility and autonomy for the Fellows throughout the training year. During the early months of the Fellowship, the Fellow's service work is supervised and diagnoses are finalized by faculty. Fellows are credentialed by the Hospital to allow independent sign-out of cases, and Fellows are appointed as Clinical Faculty Instructors. Fellows begin to diagnose and sign out cases independently during September of the fellowship year, with support from faculty. In addition to service responsibilities, opportunities are available for didactic and slide-based teaching of medical students and residents. Two months of elective time are provided during the Fellowship, to allow for rotations in pathology subspecialty areas, scholarly projects, writing, meeting presentations, job interviews, etc. Program Requirements: Applicants must possess an MD degree, be board-eligible / board-certified in Anatomic Pathology, and be eligible for medical licensure in North Carolina.

TRANSFUSION MEDICINE FELLOWSHIP

YARA A. PARK, M.D., DIRECTOR

The Department of Pathology and Laboratory Medicine and McLendon Clinical Laboratories of UNC Hospitals sponsor a comprehensive one-year fellowship program in Blood Banking/Transfusion Medicine that is fully accredited by the Accreditation Council of Graduate Medical Education (ACGME). The training program provides didactic and practical training in advanced immunohematology, therapeutic and donor apheresis, blood component donation, testing, preparation and storage, clinical coagulation, histocompatibility, hematopoietic progenitor cell collections and processing, and clinical support for an academic tertiary care hospital. Supported clinical programs include transplant programs in marrow/stem cells, liver, heart, lung and kidney; a Level I trauma program; and a neonatal intensive care unit. The 2017-2018 fellow, Dr. Briana Gibson, went on to a hematopathology fellowship at the University of Utah upon

the completion of her fellowship in June 2018. While the fellow at UNC, Dr. Gibson completed a number of projects focusing on therapeutic apheresis.

PATHOLOGY AND LABORATORY MEDICINE GRAND ROUNDS – 2017-2018

https://www.med.unc.edu/pathology/coming-events/pathology-laboratory-medicine-grand-rounds

GRAND ROUNDS ORGANIZING COMMITTEE: WILLIAM COLEMAN, M.D., Ph.D., Chair. Members: JOHN SCHMITZ, Ph.D. and DIMITRI TREMBATH, M.D., Ph.D.

The Department of Pathology and Laboratory Medicine Grand Rounds seminar series continued to be well attended during the academic year 2017-2018. This weekly series provided a venue to disseminate clinically relevant translational and clinical research to promote the interaction and collaboration between the Department of Pathology and Laboratory Medicine faculty, residents, postdoctoral fellows, graduate students, and clinical fellows, and other members of the UNC academic community at-large. This is also the venue where we feature faculty academic accomplishments that serves as part of promotion and post-tenure reviews, and as a forum for announcements and discussion of items of interest and importance to faculty and trainees.

William Coleman (Chair), John Schmitz, and Dimitri (Yuri) Trembath comprised the Grand Rounds Committee for this academic year. The 2017-2018 Grand Rounds included talks intended to highlight and encourage the clinical and research collaborations of the Department of Pathology and Laboratory Medicine faculty. Some Grand Rounds (with CME credits) were delivered by two individuals paired by clinical and laboratory interests. Some pairs had ongoing collaborations, and others had complementary expertise and perspectives on related topics. The committee strived to assure a range of experimental, clinical, and surgical pathology, and included scientific reviews of pertinent areas in clinical medicine, translational research, and/or basic science.

The following list of 2017-2018 presenters, their affiliations and topics demonstrate that both internal and external speakers are sought.

Category 1 CME credit is offered for seminar participation. The format provides an opportunity for the speakers to have their presentation formally evaluated, as required of all CME activities. Written comments and questions concerning the quality of the presentations are requested. Prior to each Grand Rounds seminar, refreshments are provided. This encourages a collegial atmosphere, and it also provides an opportunity for the attendees to visit and discuss science and medicine.

FALL	**SPEAKER/AFFILIATION**
9/14/2017	Nilu Goonetilleke LLBHons, BScHons, Ph.D. Assistant Professor, UNC Hive Cure Center Investigator Primary: M&I Secondary: Medicine University of North Carolina at Chapel Hill *"Employing $CD8^+$ T cells to Cure HIV"*
9/21/2017	Jay S. Raval, MD Director, Therapeutic Apheresis Associate Director, Hematopoietic Progenitor Cell Laboratory

University of North Carolina at Chapel Hill
"Massive Transfusion: Say What?!?!?"

10/5/2017 Eric Hsi, MD
Professor of Pathology, Cleveland Clinic Lerner College of Medicine
Chair, Department of Laboratory Medicine, Cleveland Clinic
"Diffuse Aggressive Large B-cell Lymphomas in 2017"

10/12/2017 Brian C. Cooley, PhD
Associate Professor UNC Pathology
Core Director, Animal Surgery core Laboratory
McAllister Heart Institute
"In Vivo Experiments in Hemostasis and Thrombosis: What We've Learned and Where We're Going"

10/19/2017 David Williams, MD, PhD
Associate Professor, Department of Pathology
University of North Carolina at Chapel Hill
"Dancing on the DNA Tightrope—MBD Proteins at the Intersection of DNA Methylation and Chromatin Remodeling"

10/26/2017 Eric Weimer, PhD
Assistant Professor, Department of Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"Precision Immunology: The Evolutionary Process"

11/16/2017 Li Qian, PhD
Assistant Professor, Department of Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"Programming and Reprogramming: What Does it Take to Make a Cardiomyocyte?"

11/30/2017 Jiandong Liu, PhD
Assistant Professor, Department of Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"Molecular Regulation of Cardiac Morphogenesis and Homeostasis"

12/7/2017 Peggy Gulley, PhD
Professor, Department of Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"UNC Plasma Mutation Panel: a Blood-Based Genomic Assay to Monitor Tumor Burden and to Explore Mechanisms of Drug Resistance"

12/14/2017 Ryan Miller, MD, PhD
Associate Professor, Department of Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"Diffuse Gliomas: Omics, Omics, Omics"

SPRING	SPEAKER/AFFILIATION
1/25/2018	Katherine A. Hoadley, Ph.D. Cancer Center Genetics University of North Carolina at Chapel Hill "*Integrative Genomic Classification of Testicular Germ Cell Tumors*"
2/1/2018	Alisa S. Wolberg, Ph.D. Professor, Pathology and Laboratory Medicine University of North Carolina at Chapel Hill *"Fibrinogen, Factor XIII, and Red Blood Cells in Thrombosis"*
2/8/2018	David M. Margolis, M.D. Professor of Medicine, Director of the HIV Cure Center University of North Carolina at Chapel Hill *"Basic and Translational Research towards an HIV Cure"*
2/15/2018	Peggy Cotter, Ph.D. Professor, Microbiology and Immunology University of North Carolina at Chapel Hill *"New Insight into Virulence Gene Regulation in Bordetella Pertussis May Inform Pertussis Vaccine Improvement"*
2/22/2018	David A. Gerber, MD Professor, Department of Surgery Division of Abdominal Transplant University of North Carolina at Chapel Hill *"Regenerative Medicine: Today's Science – Tomorrow's Patient"*
3/1/2018	Peter Gilligan, Ph.D. Professor, Microbiology-Immunology and Pathology-Laboratory Medicine University of North Carolina at Chapel Hill *"Three Lessons Learned from 40 Years as a Clinical Microbiologist"*
3/8/2018	Mehmet Kesimer, Ph.D. Associate Professor, Pathology and Laboratory Medicine University of North Carolina at Chapel Hill *"Airway Mucins as Prognostic/Diagnostic and Therapeutic Target"*
3/22/2018	Gary L. Johnson, Ph.D. Kenan Distinguished Professor, Department of Pharmacology University of North Carolina at Chapel Hill *"Assessing the Response and Adaptation of the Breast Cancer Kinome to Targeted Kinase Inhibition"*
3/29/2018	Bernard E. Weissman, Ph. D. Professor, Pathology and Laboratory Medicine University of North Carolina at Chapel Hill

"More Insights into Rare Human Malignancies- How Chromatin Remodeling Changes Can Drive Human Tumor Development"

4/12/2018 Qing Zhang, Ph.D.
Assistant Professor, Pathology and Laboratory Medicine
Lineberger Comprehensive Cancer Center
University of North Carolina at Chapel Hill
"Studying the Oxygen Sensing Pathway in Cancer"

4/19/2018 Steven Johnson, M.D., Resident Research Highlights
PGY-3, Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"The Clinical and Diagnostic Significance of "Pseudo-Double Hit" Lymphomas"

Jessica Peak Vanleer, M.D., Resident Research Highlights
PGY-4, Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"The Economics of an Academic Breast Pathology Service"

Heather Stieglitz, M.D., Resident Research Highlights
Clinical Chemistry Fellow, Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"Biotin Interference in Clinical Lab Immunoassays"

4/26/2018 Nicole Fleming, Graduate Student Research Highlights
Program In Pathobiology and Translational Science
Department of Pathology and Laboratory Medicine
The University of North Carolina at Chapel Hill
"Characterizing the role of Ring1b in Second Heart Field Development"

Haley Vaseghi, Graduate Student Research Highlights
Program In Pathobiology and Translational Science
Department of Pathology and Laboratory Medicine
The University of North Carolina at Chapel Hill
"The Role of Mitochondria in Direct Cardiac Reprogramming"

5/3/2018 Ritu Nayar, MD -Bouldin Lecture
Professor of Pathology, Northwestern University, Feinberg School of Medicine
Vice Chair for Education and Faculty Development, Department of Pathology
Director of Cytopathology Division, Northwestern Memorial Hospital
"From Bethesda to Paris at LAST: The Value of Standardized Reporting Systems"

5/17/2018 Nichole Korpi-Steiner, PhD, DABCC, FACB
Assistant Professor, Pathology and Laboratory Medicine
University of North Carolina at Chapel Hill
"Opioid Testing Highs, Lows and Ratios: Crossroads of Pain Management and Opioid Epidemic"

5/23/2018	Judith Campisi, PhD Professor, Biogerontology Buck Institute for Research on Aging *"Cancer and Aging: Rival Demons?"*
5/31/2018	Shelton Earp, MD Director, UNC Lineberger Comprehensive Cancer Center University of North Carolina at Chapel Hill *"MerTK: Physiologic and Pathophysiologic Roles"*
6/7/2018	Scott P. Commins, M.D. Ph.D. Associate Professor of Medicine Division of Rheumatology, Allergy, and Immunology University of North Carolina at Chapel Hill *"Late Night Anaphylaxis: An Evolving Story of Ticks, Red Meat, and Glycosylation with Global Implications"*
6/14/2018	Jennifer Martinez, Ph.D. Principal Investigator National Institute of Environmental Health Sciences *"Non-Canonical Autophagy Mediates Immunosuppression During Challenge"*

CLINICAL SERVICES: McLENDON CLINCAL LABORATORIES

HERBERT C. WHINNA, MD, Ph.D., DIRECTOR

McLendon Clinical Laboratories is the clinical arm of the DPLM, and provide laboratory medicine and pathology services to physicians in support of excellent patient care at UNC Hospitals. Each laboratory section maintains fiscal accountability for revenue generated and expense required to provide clinical test results. The revenue contribution from the laboratory has continued to grow, despite the difficult financial climate facing healthcare as a whole. The directors of each laboratory, working closely with the assistant administrative directors, develop short and long range plans to assure that the laboratories are supporting the testing needs of the hospital, while continuing to provide the medical staff with cutting edge technologies. The laboratory contributed $97.4 million to UNC Hospital's operating margin for FY18. McLendon Clinical Laboratories continued development of services as an Internal Reference Laboratory for the UNC Health Care System (see below), laboratory system-wide instrument standardization (addressed in Core section), and UNC FP/PN practice conversion from LabCorp (addressed in OutReach section). McLendon Clinical Laboratories no longer maintains a distinct section devoted to Laboratory Information Services as with implementation of Epic Beaker that functionality now lies in the Information Services Division of UNC Health Care. Dr. Whinna continues as the Physician Champion for Beaker and as an Epic Lead Informatics Physician for UNC Health Care.

UNC Health Care System Internal Reference Laboratory

The McLendon Clinical Laboratories internal reference testing program that was initiated in FY16 has matured into steady movement of testing among hospital laboratories within the UNCHCS as the McLendon Clinical Laboratories as the primary reference laboratory. The volumes have maintained constant through FY18. However, the volume of testing will continue to adjust as High Point Regional

Hospital and Hayworth Cancer Center transition to Wake Forest Baptist Medical Center on August 31, 2018. Two additional hospitals will begin sending laboratory tests in September as Wayne Memorial and Nash Healthcare migrate to EPIC. The Microbiology Laboratory introduced the new BD Kiestra automation system in late FY18. The automation provides an additional opportunity to expand reference testing services as consolidation of microbiology with Chatham Hospital Laboratory is evaluated.

SURGICAL PATHOLOGY DIVISION

WILLIAM K. FUNKHOUSER, M.D., Ph.D., DIRECTOR
KEVIN G. GREENE, M.D., DIRECTOR OF HISTOLOGY LABORATORY

UNC Surgical Pathology generates diagnoses on UNC Hospitals (UNCH) specimens, on specimens obtained from UNC Health Care affiliate hospitals, on specimens to be reviewed because of patient referral to UNCH, and on outside expert consultation specimens. In 2017, 36,700 cases were diagnosed, a 5% year-over-year increase.

Inside cases are grossed by Pathologists' Assistants (PAs) and residents on Surgical Pathology rotations. The department currently employs five PAs for gross room work and teaching, including one who rotates at the Hillsborough Hospital. The Department of Pathology and Laboratory Medicine now trains 16 AP/CP residents. Gross room training of these residents is performed by the gross room PAs. Junior and senior residents now gross a limited number of all cases assigned to their benches, based on their experience, under the guidance of the teaching PA. This affords residents at every level progressive assumption of responsibility, and provides them sufficient time to read about and report their cases.
Tissue cassettes containing patient specimens are fixed in formalin, then routed to the Histology Laboratory for processing, embedding, and slide preparation (cutting and staining). This Laboratory is well-led by Sheila Deloney, and is well-managed by Margaret (Peggy) Graham. Block volumes have increased along with case volumes, so UNCH will need to staff proportionate to demand for histology expertise to maintain an efficient, error-free service. A major change in record keeping occurred in April 2016, when laboratory personnel and pathologists began to use a new lab software program, Epic Beaker. This software should allow us to use barcoding to identify and track specimens from accessioning to grossing to histology to signout, and also to autom tically track block volume trends, case turn around times, and error rates.

Glass slides are routed to 8 Surgical Pathology benches (not including Dermpath or Neuropath) including Breast, Benign Ob/Gyn, Gyn Onc, GI/Liver biopsies (2), GI/Liver resections, GU/Bone/ST, and ENT/Thor/Vasc. Each bench is staffed by a solo faculty pathologist a faculty-resident pair, or a faculty-fellow pair. With Epic Beaker, retrieval of clinical and radiographic data can be done in a paperless fashion, and reports can be dictated using either voice recognition or outside transcriptionists. Junior and senior residents work regularly with, and model on the habits of, faculty pathologists to generate accurate diagnoses, thoroughly reported, in a timely fashion. Service cases supplement the educational mission: organ-specific lectures are presented by faculty, fellows, and residents in didactic and unknown formats. As well, fellows and senior residents rotate through a Conferences/Consults service, during which they staff one multi-disciplinary conference each day (5 per week, of 12 recurring multidisciplinary conferences), while concurrently reviewing and reporting at least 10 outside cases per day. Major goals of the residency training program are stepwise assumption of responsibilities to build confidence and competence, and regular feedback and mentoring to allow identification of preference of particular organ system pathology and future independent practice environment.
Overall, continuing increases in laboratory workload have been met by continuing increases in effort, ingenuity, and efficiency. It is hoped that the new electronic medical record software can be configured to

improve workflow efficiency at technical and professional levels. It is hoped that UNCH will choose to staff the Histology Laboratory proportionate to block volumes. The management and leadership skills of Dr. Whinna, the Director of the McLendon Clinical Laboratories, and of Dr. Jennette, Chair of the Department of Pathology and Laboratory Medicine, are perceived as critical to the improvements and successes described above.

CYTOPATHOLOGY DIVISION

LESLIE DODD, M.D., DIRECTOR

The Cytopathology Division has had continuous leadership since 2013. The laboratory supervisor position changed leadership in 2018. The overall laboratory service volume is increasing steadily. Most cytopathology laboratories are seeing declines or stabilization of the volume of Pap tests from previous years (following an overall national trend) due to changing screening paradigms. Our lab saw a 10% increase in 2016-2017 Pap test volumes and a stable volume for 2017-8. There has been a steady increase in fine needle aspiration cases. This includes a dramatic increase in the number of endoscopic bronchogenic ultrasound (EBUS) guided cases. The latter increase is due to the recent hire of two fellowship-trained pulmonologists with endoscopic expertise. This has led to an increased demand for on-site evaluation services for both the cytotechnologists and trainees (fellows), but offers additional learning material and potential opportunities for collaboration on scholarly projects.
Due to the overall increase in FNA volumes, the program has been filling their cytotechnologist open positions with individuals with prior experience in interpreting FNA. Overall, the cytotechnologists are spending more time with rapid on-site evaluations (ROSE) than conventional screening. The evolving role of the cytotechnologists was initially considered unwelcome, but the staff appears to have accepted that this is their fate. We have recently changed the Lab Supervisor. This individual appears enthusiastic about the division's mission.

The Cytopathology Fellowship training program remains very successful. The 2017-18 fellows both passed their ACGME Boards in Cytopathology. One fellow is training in another fellowship but expects to take a job in an academic practice at the end of the year.

The division has added two new faculty members in the past two years. Both are board certified and also participate in surgical pathology services. The Division of Cytopathology has also increased its academic presence through publications and presentations, both regionally and nationally. Dr. Maygarden was invited to speak at the North Carolina Society of Pathologists and Dr. Dodd gives a workshop at the American Society of Cytopathology each year. In 2016-2018 the Cytopathology faculty co-authored six abstracts with residents or fellows to present at national meetings. There were at least four manuscripts submitted and accepted for publication on cytopathology topics, authored by the faculty. The Division is also working on opportunities for junior faculty to publish and engage in other scholarly activities.

NEPHROPATHOLOGY DIVISION

VOLKER R. NICKELEIT, M.D., DIRECTOR

The UNC Division of Nephropathology in the Department of Pathology and Laboratory Medicine is one of few highly specialized centers in the U.S. that provides expert diagnostic evaluation of medical renal diseases and kidney transplant related disorders. Approximately 2000 renal specimens (native and transplant biopsies and nephrectomies) from over 200 nephrologists throughout the state, region, and

the world are analyzed annually. During the 2017 calendar year, the Division evaluated close to 500 cases from UNC Hospitals, and the remainder from outside institutions. Over 90% of specimens are routinely evaluated not only by light microscopy at multiple levels of section with different stains, but also by immunofluorescence microscopy utilizing a panel of antibodies, electron microscopy, and occasionally by immunohistochemistry. Thus, the actual number of procedures that are performed on renal specimens by far exceeds 6000 per year. The Division of Nephropathology is involved in clinical, translational, and basic research on renal diseases, especially glomerulonephritides and disorders seen in renal allografts. The research activities are supported by extramural grants and are facilitated by an extensive database and archival systems that include data from approximately 45,000 renal specimens, 15,000 serum samples, and 2,500 urine samples. Currently, two pathology post-doctoral fellows are being trained on how to manage, organize and run a nephropathology laboratory/service. The UNC nephropathology faculty are also heavily engaged in continuous education series enhancing the diagnostic skills of pathologists and nephrologists, such as special symposia organized at the Annual Kidney Week/ASN Meeting, the Columbia Presbyterian post graduate course on nephropathology in New York, the 'Nephropathologiekurs Volhard-Fahr' in Mannheim/Germany or the annual 'Transplant Workshop' in Basel/Switzerland. The 7th edition of 'Heptinstall's Pathology of the Kidney' published in 2014 had heavy editorial input from the UNC nephropathology division. Efforts are coordinated with activities of the Glomerular Disease Collaborative Network (GDCN). The GDCN has been in operation for over two decades and is a consortium of academic and community nephrologists; it has the goal to enhance knowledge of renal diseases and treatment strategies.

NEUROPATHOLOGY DIVISION

DIMITRI G. TREMBATH, M.D., Ph.D., DIRECTOR

The clinical diagnostic services in neuropathology at UNC Hospitals include diagnostic surgical neuropathology, autopsy neuropathology, ophthalmic pathology, and the interpretation of peripheral nerve biopsies. The volume and complexity of the neuropathology cases from the surgical service and autopsy service at UNC Hospitals provides a rich training experience in diagnostic neuropathology for the Department's 16 residents in anatomical and clinical pathology and two fellows in surgical pathology. Departmental faculty members regularly attend and are active participants in the neuropathology conferences at UNC Hospitals. These conferences include the weekly Neuro-oncology Conference, the monthly Neuropathology-Neuroradiology Conference, the Autopsy Service's weekly Brain Conference, as well as individual teaching conferences to members of the departments of Neurology, Neurosurgery, and Ophthalmology.

DECEDENT CARE AND AUTOPSY SERVICES

LEIGH B. THORNE, M.D., DIRECTOR

The UNCH Autopsy Service continues to provide valuable information to clinicians and families of patients. The service supports UNC Healthcare System affiliates and also provides autopsy services for other hospitals in the state. In 2017, a total of 127 autopsies were performed and 130 in the 2017-18 fiscal year. There were five faculty participating in the autopsy service in addition to the full time autopsy Pathologist's Assistant, a full-time autopsy technician/decedent care representative, and a part-time autopsy technician.

In addition to the clinical mission, Dr. Thorne, Tellis Alston (autopsy technician), Vincent Moylan, PA, and Claudia Brady, PA continue to participate in the breast and melanoma rapid autopsy programs, in collaboration with Dr. Lisa Carey (breast) and Dr. Stergios Moschos (melanoma). Four rapid autopsies were performed in the last fiscal year for the breast cancer program. We also facilitate research on an as needed basis and have worked with UNC investigators within the departments of Pathology, Cardiology, Surgery, Neurology, and Hematology/Oncology.

The mission of the Decedent Care program, which began in January 2012, is to improve not only the autopsy services provided to families of deceased patients but to improve the process from the time the patient passes to release of the body to the funeral home. The program is under the oversight of Dr. Leigh Thorne and Sheila Deloney, Assistant Administrative Director in Anatomic Pathology. Decedent Care is staffed by three individuals and a supervisor providing services to our clinicians and patient families seven days a week. In 2017-2018, Decedent Care processed 1202 deaths. DCS also assists in coordinating the autopsies performed at UNCH and screens all deaths to ensure appropriate deferral to the Orange County Medical Examiner.

Training and education of our pathology residents and other hospital staff continues through our weekly autopsy and neuropathology conferences. Additionally, in the spring of each year, a one month autopsy elective is available to UNC medical students in their fourth year.

HEMATOPATHOLOGY

YURI (GEORGE) FEDORIW, M.D., DIRECTOR

The volume and complexity of cases has continued to increase in the Division as the diagnostic services support growing clinical need. The primary Hematopathology service is responsible for all in-house peripheral blood, bone marrow, and tissue diagnostics, while the second service covers body fluid examination, referrals, and cases sent for expert consultation. The laboratory also provides hemoglobin evaluations for the work-up of hemoglobinopathies and thalassemias. We continue to work closely with the flow cytometry lab, and have added several new diagnostic panels. Incorporation of these data, along with cutting-edge testing from the Cytogenetic and Molecular Laboratories, provides a comprehensive diagnostic report for their patients. The Division of Hematopathology also supports a biopsy clinic in the North Carolina Cancer Hospital, which streamlines sample acquisition, processing, and communication with the clinical teams. Their faculty consists of five board-certified hematopathologists with a wide range of clinical, administrative, teaching, and research responsibilities

SPECIAL COAGULATION LABORATORY 2017-2018

MARIAN ROLLINS-RAVAL, M.D. MPH, DIRECTOR

The Special Coagulation Laboratory provides access to esoteric testing of hemostasis for both UNC and community physicians. We are actively pursuing validation of new tests, including chromogenic Factor VIII. The laboratory continues performing special studies testing for equipment and pharmaceutical companies generating additional revenue, as well as assisting colleagues with research projects. Faculty and staff also continue to regularly participate in the Friday Hematology Conference sponsored by the Division of Hematology & Oncology in the Department of Medicine where hematology and coagulation issues in patients seen by the Hem/Onc Consult Service are discussed.

MOLECULAR PATHOLOGY

MARGARET L. GULLEY, M.D., DIRECTOR OF PROGRAMS

The Molecular Genetics Laboratory performs assays on DNA and RNA to assist in diagnosis, monitoring, and treatment of infectious disease, cancer, and heritable conditions. A test menu and description of each clinical service is found on our website:

The laboratory's clinical and academic mission is to advance healthcare using modern molecular technologies. Newly implemented are the following tests: 1) Expanded '*Myeloid Mutation Panel'*, 2) Refined '*Kidney Heritable Mutation Panel',* 3) Expanded '*Primary Ciliary Dyskinesia Panel"* and 4) DNA fingerprinting for the myeloid cell fraction of blood or marrow in allogeneic transplant recipients. A new pilot service was implemented to provide residual blood specimens to UNC investigators for IRB-approved research. On the horizon are multiple new or refined genomic panels including *digital droplet PCR for rapid identification of BRAF mutation*, and a *Plasma Mutation Panel*. A pathologist's interpretation of findings is reported to each patient's medical record.

Test volume has increased in concert with growth of UNC Healthcare. Genetics training programs educate physicians, medical students, post-doctoral fellows, genetic counseling students, and clinical laboratory scientists. The fellowship training program in Molecular Genetic Pathology has the longest track record in the nation for board-certified physicians in this subspecialty. A month-long course in Molecular Diagnostics and Cytogenetics is targeted at pathology residents and fellows and also welcomes a range of medical professionals, aiming to train competent and confident practioners on use of molecular technologies in clinical research and patient care. Further information is found at: http://www.med.unc.edu/pathology/faculty/biosketch-of-dr-margaret-gulley

We rely on solid evidence demonstrating that each laboratory test adds value for disease classification or for improving patient outcome. We thank UNC Hospitals, the TraCS Institute, the University Cancer Research Fund, and the Department of Pathology and Laboratory Medicine for making available resources to validate and implement modern molecular tests. In many cases we provide services at a lower cost and with greater consultative support than if tests were done at outside laboratories. Learn more about assay design and implementation in a document entitled "Validating assays for use in clinical trials" at http://www.uncmedicalcenter.org/uncmc/professional-education-services/mclendon-clinical-laboratories/directory/molecular-pathology-and-genetics/

Major Equipment in the clinical Molecular Genetics Lab: Illumina MiSeq and NextSeq sequencers, Life Technologies Ion Torrent PGM sequencer, Roche LightCycler 2.0 and 480 real-time PCR instruments, Abbott m2000, Roche MagnaPure extractor and MagnaLyser, Qiagility and Perkin Elmer Robotic Pipettors; Promega Maxwell MDX and RSC, Qiagen EZ1, Qiacube, and QiaSymphony extractors; Qubit/Nanodrop/TapeStation/Bioanalyzer quantifiers, Applied Biosystems / ThermoFisher QuantStudio Dx, 9700, 9800, 7500, and 7900 PCR instruments; two ABI Veriti thermocyclers, Idaho Technologies LightScanner, three ABI 3130xl and two ABI 3500 capillary gel electrophoresis instruments, Biotage Pyromark MD pyrosequencer, Affymetrix array scanner, RoboSep cell separator, and UVP gel documentation system.

Faculty include: Margaret L. Gulley M.D., Karen Weck M.D., Nathan Montgomery M.D., Ph.D., Leigh Thorne M.D., Jason Merker M.D., Ph.D., and Jessica Booker Ph.D. Fellows are Jonathan Galeotti MD, Tasha Strande PhD, and Lori Ramkissoon PhD. Our excellent staff includes eight medical technologists,

three research scientists, our supervisor and administrative director, and our office support assistant.

CLINCIAL CYTOGENETICS

KATHLEEN A. KAISER-ROGERS, Ph.D., DIRECTOR
ANDREA PENTON, Ph.D., ASSOCIATE DIRECTOR

The Cytogenetics Laboratory continues to offer traditional karyotyping, chromosome microarray testing and a wide variety of FISH assays, most of which are designed to diagnose and monitor specific genetic abnormalities associated with various cancers. Three FISH assays, those for HER2, ALK, and ROS1, are considered companion diagnostics for drugs that target specific molecular features in breast and non-small cell lung tumors. Approximately 4700 samples were received and over 7000 tests were performed in the Cytogenetics Laboratory during the 2017-18 fiscal year. While our constitutional caseload decreased this year, we continue to see increases in our cancer caseload.

Several of our more interesting cytogenetics projects were reported at a variety of national meetings. Dr. Strande, our current Laboratory Genetics and Genomics Fellow, was invited to give an oral presentation involving the rare phenomenon of rod/ring mosaicism at the 2018 American Cytogenetics Conference Meeting. Dr. Strande also presented a poster at the 2018 ACMG meeting describing a patient with both a duplication and a point mutation in the DYNC2H1 gene and autosomal recessive short-rib polydactyly. Dr. Kaiser-Rogers was a coauthor on both of these presentations, as well as several posters including those describing 1), a patient with a Li Fraumeni-like hereditary cancer syndrome and a multigene deletion involving both the CDKN2A and MTAP genes; 2), a patient with a unique TSC1 gene deletion and "tuber-less" tuberous schlerosis; 3), several patients with pseudo-double hit lymphomas secondary to a 3;8 translocation and 4), a possible role for CRLF2 amplification secondary to multiple copies of an isodicentric Y chromosome in patients with myeloid malignancies. Both Drs. Kaiser-Rogers and Penton were coauthors on a poster reporting the rare occurrence of mosaicism for two cell lines, one with trisomy 13 and the other with trisomy 18, while Dr. Penton was a coauthor on a poster describing the characterization of 9q34 rearrangements in T-ALL. Dr. Penton presented a platform talk and poster at the 2017 Association for Molecular Pathology Meeting describing the use of microarrays to detect recombination mediated repair of genomic imbalances. She also presented a platform presentation about this work at the 2018 American Cytogenetics Conference Meeting. Several of the projects described above have also been published in the literature.

The Cytogenetics Laboratory continues to participate in the cancer cooperative groups (Alliance/CALGB and COG). Dr. Kaiser-Rogers serves as Co-training Director of the ABMGG Laboratory Genomics and Genetics Fellowship. She also serves as Vice Chair of the CAP/ACMG Cytogenetics Resource Committee and as the ACMG-CAP liaison for the ACMG Laboratory Quality Assurance Committee and the ACMG Cytogenetics Quality Assurance Subcommittee. Additionally, she continues to function as a member of the ACMG Salary Survey Work Group, which is responsible for overseeing the design, implementation, and interpretation of a biennial salary survey for medical geneticists boarded by the AMBGG. The 2017 Survey was conducted in the fall of 2017 and a report summarizing the results of this survey will be published on the ACMG Web Page in the fall of 2018. Both Dr. Penton and Dr. Kaiser-Rogers participate on the Molecular Genetic Pathology Annual Program Evaluation Committee.

TRANSFUSION MEDICINE DIVISION

YARA A. PARK, M.D., DIRECTOR

The Transfusion Medicine Service (TMS) had a steady workload and transfused approximately 39,000 products in the last year. We changed the ECMO blood preparation policy to eliminate the need to test the RBC units used for priming the ECMO circuit for sickle cell trait. This improved the workflow and allowed us to provide blood to the ECMO patients faster. Allograft, skin used for skin grafting, was transitioned for storage and distribution to the Operating Rooms to allow consistency with other tissues. In April 2017, the Rex Blood Bank database was added onto the UNC System Blood Bank Database. Therapeutic apheresis had a steady workflow this year. With CAR-T therapies increasing at UNC, the collection of the blood needed to produce CAR-T cells increased in the apheresis unit. In FY18, we also saw a 44% increase in extracorporeal photopheresis procedures, primarily for cutaneous T-cell lymphoma and bone marrow transplant graft versus host disease patients.
The Blood Donation Center (BDC) its most successful year of collections since the facility opened 21 years ago. Multiple donor drives were done including hospital volunteers and intramural sports clubs.

HEMATOPOIETIC PROGENITOR CELL (HPC) LABORATORY

YARA PARK, M.D., DIRECTOR

The Hematopoietic Progenitor Cell (HPC) Laboratory processed approximately 220 HPC products for transplant and transplanted over 180 patients during the past year. The HPC laboratory began as expansion and renovation project in the spring of 2018 with completion slated for fall 2018. This will increase the laboratory from three processing bays up to five as well as an increase in liquid nitrogen storage of products. A more robust oxygen monitoring system was added to all parts of the current laboratory and will also be part of the new laboratory once construction is complete. The HPC laboratory has been preparing for the introduction of the two FDA CAR-T cell products at UNC as the laboratory will have a role in the handling and distribution of the products.

CLINICAL MICROBIOLOGY

PETER H. GILLIGAN, Ph.D., DIRECTOR

The Clinical Microbiology and Immunology laboratories continue to support the mission of UNC Health Care by performing cutting edge laboratory testing, while also supporting the training mission of the UNC School of Medicine, the school of Clinical Laboratory Science and the Molecular Diagnostic Science program. In FY18, the CMI labs began the validation of our total lab automation equipment-the BD Kiestra system, validated and implemented new clinical testing in multiple lab areas, trained CLS and MDS students, post-doctoral fellows and Pathology residents. The labs also experienced a 9% increase in volume from FY17 to FY18, without any additional staffing. Here are some of the endeavors that were undertaken in each of the laboratory areas.

This year, the Microbiology laboratory began training, validation and implementation of total laboratory automation with the BD Kiestra system. Training of all the technologists to read cultures electronically instead of manually had been a time consuming endeavor. All techs also had to be trained on operation of the instrument as well as trouble shooting techniques. Validation of urine and blood cultures required the lab to perform 569 side by side urine cultures and 161 side by side blood cultures, which consumed both

time and resources. The lab is now in the process of validating pathogen screening cultures on the instrument, which will be implemented in FY19. These validations are time consuming and labor intensive and were done with no additional staffing resources.

In addition to the validation work for TLA, the laboratory also completed a validation of AFB MALDI-TOF identification from culture growth and from growth in MGIT bottles. Supervisors and staff also performed a CAP self-inspection to prepare for the upcoming 2018 CAP inspection. All of this work was done while the laboratory experienced a 9% growth in testing volume from the previous year.

In addition to these accomplishments, the lab has trained 2 post-doctoral fellows, multiple pathology residents, medical students and Clinical Laboratory Science students. We offer daily consultative and education services for three different infectious disease consult services.

MOLECULAR MICROBIOLOGY

MELISSA MILLER, Ph.D., DIRECTOR

A major initiative in the Molecular Microbiology section is the assessment of the impact of implementation of new molecular tests. Outcome measures include test utilization, hospital costs and patient outcomes (length of stay, mortality, appropriate therapy, etc.). Implementation of a molecular gastrointestinal pathogen panel was found to reduce the time to positive result by 32h, reduce total number of tests ordered on patients (38% reduction, thereby saving money), increase detection rate (2.4% vs. 13.6%) and identify more outbreaks (both within the hospital and in the community, which allowed for more rapid intervention). We are also expanding the pathogens tested in our rapid blood culture identification test to include staphylococci which should allow patients to receive targeted, more effective therapy quickly and more rapidly identify potential contaminants so that treatment is not continued unnecessarily. This should translate to more effective patient care, reduced antimicrobial exposure, and enhance the efforts of the antimicrobial stewardship team and the Code Sepsis initiative. We have previously published the success of this approach at UNC for enterococci and streptococci where a drastic decrease in time to appropriate antibiotic was measured. (3 hours vs. 3 days for VRE, 4h vs. 12h overall).

Several new tests were developed and/or evaluated in FY18. (1) A Zika virus PCR was developed as part of UNCMC's readiness plan. (2) Two rapid respiratory viral panels were evaluated to replace our current batch-based test. The panel meeting desired performance characteristics will be implemented, which will greatly improve provider satisfaction and has the potential to lower costs due to less testing, shorter length of stay and less time on isolation. (3) We validated and implemented a new rapid PCR for influenza and RSV with improved sensitivity, both at UNCMC and Hillsborough Campus. (4) Molecular screening for rifampin resistance in tuberculosis was added to our diagnostic services. (5) A new assay for quantitative BK virus detection was validated and implemented, replacing the one performed by Molecular Genetics. (6) Direct bacterial sequencing of explanted heart valves was validated to improve the diagnostic yield for culture-negative bacterial endocarditis, particularly of importance in the current opioid epidemic.

The laboratory also supported a diagnostic clinical trial for a new respiratory virus panel and the post-market evaluation of a lower respiratory bacterial panel. We are also collaborating with the UNC Microbiome Core Facility to transition their technology to the clinical laboratory for future clinical trial support. Participation

In these studies allows us early access to new diagnostic tests, which keeps us at the forefront of the field.

CLINICAL IMMUNOLOGY LABORATORY

JOHN L. SCHMITZ, Ph.D., DIRECTOR
ERIC T. WEIMER, Ph.D., ASSOCAITE DIRECTOR

The Clinical Immunology Laboratory (CIL) has successfully absorbed a 30% volume increase from FY17 to FY18 with no additional staffing. During the past year, the CIL enhanced clinical services with 2 changes. First, the laboratory has implemented The Quantiferon TB Gold Plus Test. The change was made in response to termination of the manufacturing of the Quantiferon TB Gold In tube test. A successful validation was performed and the new test implemented in August 2018. Second, the laboratory took over performance of Vitamin D testing from the Special Chemistry Laboratory. The change was made to accommodate the large test request volume by switching from Mass Spectrometry to the Diasorin Liaison XL random access platform. The laboratory also completed an evaluation of automated IFA slide reading systems and has selected a system from INOVA that will be installed in the fall 2018. This implementation will offer significant workflow improvements in IFA based testing (ANA, dsDNA, ANCA). The Immunology Laboratory continues to have a significant teaching role. Both the Immunology and Microbiology Fellows, Pathology Residents, CLS students and Allergy/Immunology Clinical Fellows rotate in the laboratory. The laboratory also continues support of research activities including a study of ordering practices and seroprevalence of tick-borne pathogens (Ehrlichia, Rickettsi, Borrelia and Anaplasma) as well as facilitating development and clinical evaluation of a novel supplemental HIV-1/2 test from Avioq.

TRANSPLANT LABORATORIES (FLOW CYTOMETRY and HISTOCOMPATIBILITY)

JOHN L. SCHMITZ, Ph.D., DIRECTOR,
ERIC T. WEIMER, Ph.D., ASSOCAITE DIRECTOR

During the past year the Histocompatibility Laboratory implemented several process improvements aimed at increasing quality, efficiency and reducing costs. The following enhancements to Histotrac, the HLA Laboratory Information System, and EPIC/Beaker have been made: (1) a virtual crossmatch report that automatically incorporates recipient and donor HLA typing results as well as recipient HLA antibody data has been created to automate this previously manual process resulting in decreased time and clerical error risk; (2) Post-transplant donor specific antibody reports in EPIC have been modified to improve clarity of these complex results; (3) A new high resolution HLA typing test was created in EPIC/Beaker to simplify ordering by clinical staff. The laboratory has validated and implemented a new DNA extraction instrument that allows processing of whole blood and buccal samples on the same instrument. A process to block the interfering effect of rituximab and alemtuzumab on the flow cytometry crossmatch test has been validated. This will result in fewer false positive flow crossmatch results in patients being treated with these agents. Several staffing changes have occurred. Dana Collins has taken over the duties of HLA supervisor and the laboratories overnight position has been filled which eliminates the needs for daytime technologist to take call Mondays through Thursdays.

The Flow Cytometry Laboratory (FCL) has experienced a 29% increase in billable test results between the 2017 and 2018 fiscal years. The FCL has implemented several changes during the past year to address workload increases and enhance services. The laboratory has completed validation of several antibodies including two 8-color panels for leukemia phenotyping; intracellular staining with Tdt and MPO antibodies and T cell receptor alpha/beta antibody staining. These antibody combinations will be utilized by the Hematopathology service to enhance their ability to diagnose hematologic malignancies. Significant staffing changes have occurred in this laboratory. The Senior Technologist position in the laboratory has been filled and three new technologists hired and in training to bring staffing to a level to accommodate workload.

CORE LABORATORY (Chem/UA/Coag/Hem/Tox/Endo)

HERBERT C. WHINNA, M.D., Ph.D., DIRECTOR

The Core Laboratory services include clinical chemistry, coagulation, hematology, and urinalysis. The Laboratory receives ~5000 samples daily performing ~6 million tests annually. The UNCH Core Laboratory team continues to lead quality care and improvement initiatives to improve patient care and safety for staff and patients.

New test validations were completed for Fecal Immunochemical testing and the new Sweat Chloride collection system and analyzer (done in partnership with Phlebotomy). Core Laboratory Leadership provided technical assistance to Hillsborough Hospital Laboratory and Chatham Hospital Laboratory during their respective CAP inspections. A major endeavor in 2018 was the completion of the Siemen's Atellica Chemistry Solution evaluation performed by Core Laboratory Leadership for the UNC Healthcare System Chemistry Standardization process.

Internal projects in the Core Laboratory included investigation and creation of protocol for biotin interference, body fluid validation studies, serum chemistry reference range verification, and SOGI range creation. The Special Chemistry Laboratory completed numerous specimen stability studies, ion suppression studies, implementation of O2 monitoring system, overhaul of all of the department procedures, and creation of multiple procedures in response to new CAP checklist and standards. Core and the Specialty Laboratories converted all procedures to the new PolicyStat system and completed Risk Assessments for all the areas of the laboratory.

The major quality improvement project completed this year was the Purple Belt Project focusing on reduction of mishandling and misrouting of specimens processed in the Core Laboratory leading to a reduction in canceled specimens, with heightened focus on Referral Testing specimens. Core Laboratory and Performance Improvement Leadership collaborated to test Computerized Physician Order Entry (CPOE) in the Leapfrog Annual Survey. UNC's team successfully received the highest possible score indicating "Fully Implemented."

The Core Laboratory welcomed the new Co-director of Clinical Chemistry, Dr. Steven Cotten in March 2018.

In addition, the Core Laboratory continues to play a key role in the UNC School of Medicine mission to provide leadership and excellence in patient care and education. In 2018, eight pathology residents,

twenty-one UNC Clinical Laboratory Science (CLS) students, five medical school students, and 2 fellows (one fulltime and one two week rotation) participated in Core Laboratory clinical rotations receiving education in lab testing and the practice of laboratory medicine. This role of education and representation extends out to industry through tours and focus group discussions with diagnostic equipment vendors and their potential clients that take place in the Core Laboratory.

QUALITY MANAGEMENT GROUP

HERBERT C. WHINNA, MD, Ph.D., DIRECTOR

Quality Management focused on two major projects in FY18. The UNC Health Care System engaged in an initiative to standardize document control throughout the UNCHCS. Two members of the Quality Management team led the initiative to convert laboratory procedures from Sharepoint to PolicyStat. This project had a short timeline due to an upcoming CAP inspection. The project was completed successfully.

The second project involved focused safety assessments for both employee and patient safety. In conjunction with the UNC Hospitals Safety Department, all laboratories conducted an employee safety risk assessment during which each procedure and workplace environment were assessed for potential risk. Mitigation steps were then introduced into work practices. As a result the number of employee safety incidents continue to decrease.

Patient safety risk assessments were initiated in both Outreach Processing and Surgical Pathology. The Outreach Processing team focused on lost cytology specimens. Tracking and workflow improvements were successful in streamlining specimen delivery and decreasing the number of lost specimens. The Surgical Pathology initiative is still underway and is focusing on identifying and mitigating specimen identification errors in Histology. Other Quality Improvement projects included a Core Laboratory Purple Belt in specimen processing, Reimbursement Purple Belt, and streamlining of new employee safety training.

Quality Management successfully completed Hillsborough Hospital and Chatham Hospital CAP inspections. A major emphasis was placed on engaging residents in CAP pre-inspection inspections. Groups of residents participated in on-site inspections at both Hillsborough Hospital and McLendon Clinical Laboratories.

OUTREACH LABORATORY SERVICES

HERBERT C. WHINNA, MD, Ph.D., DIRECTOR

The McLendon Clinical Laboratories Outreach Department has had a very busy year. Working collaboratively with the UNC Physician Network leaders, and with the help of the EPIC Ambulatory and Beaker teams, several UNCPN offices moved their reference lab services from LabCorp to UNC Health Care. Chapel Hill Internal Medicine converted on January 4, 2018. Later in the month, two offices based in Siler City - Chatham Primary Care and Chatham Medical Specialists, were also converted. These two offices utilize lab services delivered by both Chatham Hospital and McLendon Labs.

In addition to growth from UNCPN, several other clients were brought into our system allowing us to provide laboratory services for Carolina Community Clinic, Brookdale Home Health and the Orange County Health Department.

After FIT Testing was implemented into the Core Laboratory, a FIT Test mailer program was launched with the UNC Population Health Services department. The relationship has allowed for expansion of FIT testing to a wider range of our patient base.

Quality improvement initiatives have allowed for enhanced specimen tracking from client office to delivery into both UNC Medical Center and Hillsborough Hospital. We are continuing to work with the contracted courier services utilized by the Outreach program to reduce the number of lost specimens.

PHLEBOTOMY SERVICES

PETER H. GILLIGAN, Ph.D., DIRECTOR

Phlebotomy Services continues to monitor Patient Satisfaction by participating in the Tests and Treatments section of the Press-Ganey Patient Satisfaction Surveys. The Press-Ganey mean score for the inpatient survey was 90.7% for the fiscal year ending June 30, 2018. Carolina Care was rolled out in the outpatient setting this spring. The outpatient staff participates in department appropriate activities related to Carolina Care.
The goal for Blood Culture contamination continues be less than 2%. The average contamination rate for phlebotomy draws was 1.13% for 2017-2018. This is well below the required rate. However, each phlebotomist's contamination rate is reported and monthly interventions are performed if they go above 2%.

In April, Phlebotomy Services changed methodologies for Sweat Chloride collection. The Gibson-Cooke Method was retired and the Wescor Macroduct system was validated and implemented. There was an uptick in QNS with the new system (From 5.3% overall to 30% overall). Phlebotomy Leadership has consulted with the pediatric pulmonary team as well as national experts to create an action plan for decreasing the QNS rate. This involves collection and analyzing changes to the current procedures.

The Core Laboratory had a successful CAP inspection with minimal deficiencies found by the inspection team.

In addition, the Core Laboratory continues to play a key role in the UNC School of Medicine mission to provide leadership and excellence in patient care and education. In 2017, eight pathology residents, fourteen UNC Clinical Laboratory Science (CLS) students, and 1 external CLS student participated in Core Laboratory clinical rotations receiving education in lab testing and the practice of laboratory medicine.

RESEARCH CORE LABORATORIES

MICROSCOPY SERVICES LABORATORY

PABLO ARIEL, Ph.D. DIRECTOR

Microscopy Services Laboratory is a UNC core facility for electron microscopy, light microscopy and image analysis. The laboratory is also a light microscopy core facility for the Lineberger Comprehensive

Cancer Center. In addition to its research role, the laboratory serves as the primary electron microscope facility for ultrastructural clinical diagnosis for Dr. Charles Jennette's renal pathology referral service. The laboratory also serves as an alternate for specimen preparation for electron microscopy for the same service.

During this reporting period the laboratory supported research by around 170 principal investigators from many departments and centers at UNC-CH, as well as other area institutions. The total number of active laboratory clients now stands at greater than 300. From July 2017 to June 2018, the light microscopy component of the core logged over 6000 hours, electron microscope facilities logged over 1500 hours, and image analysis logged over 900 hours of use. In addition, the laboratory performed 265 electron microscopy specimen preparations.

The MSL has implemented several important equipment upgrades in the past year, thanks to significant support from UNC's Core Facilities Advocacy Committee, as well as the Department of Pathology and Laboratory Medicine. A new sputter coater was installed for faster, more precise, higher throughput and more user-friendly preparation of samples for scanning electron microscopy. Funding was secured for a significant upgrade to our inverted widefield fluorescence microscope that will allow faster, more sensitive imaging.

One of our most recent, unique offerings is a Lavision Ultra II light-sheet microscope (installed in the lab in November 2016). This system is ideally suited to study questions that require cellular resolution in very large samples (mouse organs or similar), and is the only system with these capabilities in the state of North Carolina. Over the past fiscal year, usage of this system increased further, with over 40 active users from 27 labs using it for their research, over the course of 670 hours.

TRANSLATIONAL PATHOLOGY LABORATORY (TPL)

C. RYAN MILLER, M.D., Ph.D., DIRECTOR

The Translational Pathology Laboratory continues to meet the needs of clinical, basic, and population scientists who require the analysis of human tumors. The Core provides a centralized resource for researchers, offering professional expertise, quality-controlled and validated procedures, digital pathology evaluation, and access to human archived specimens. Utilization of this Core, which is equipped with new-generation instrumentation, allows investigators to perform innovative clinical trials using molecular correlates and endpoints; to conduct research with large numbers of samples; and to perform qualitative and quantitative analysis of fresh, frozen and formalin-fixed, paraffin-embedded specimens using morphology-based assays of DNA, RNA, and proteins.

During 2017-2018 TPL provided 60032 ($534,1485) service units to 174 investigators (137-UNC and 37-non-UNC): the Lab pulled 1938 diagnostic slides and FFPE blocks from the UNCH Surgical Pathology archives; provided 28917 units of histology services (cell line and tissue processing, microtomy and coring); 2476 H&E slides; 5723 single chromogenic and multiplex fluorescent IHC slides; 373 ISH slides, developed new staining protocols for 47 new antibodies and 24 new multiplex IF assays; provided19570 units and 697h of digital pathology and 143 h pathology (MD) services .

The Core's rapidly growing image library (https://tpl-spectrum.med.unc.edu), currently contains 200,876 digital images belonging to 416 users, the server is maintained by the IT professionals in the LCCC Bioinformatics Core.

In 2017-18 TPL services were acknowledged in 37 published manuscripts and abstracts and TPL staff were co-authors on 9 (24%) of these.

ANIMAL HISTOPATHOLOGY AND LABORATORY MEDICEIN LABORATORY

STEPHANIE A. MONTGOMERY, Ph.D., D.V.M., DIRECTOR

The Animal Histopathology & Laboratory Medicine Core (AHLMC) is a Core Facility that provides the UNC biomedical research community access to a variety of high quality, affordable pathology services that allow for the replication of clinical testing in animal models. The facility offers investigators a centralized, on-campus location for animal pathology expertise and consultation. Major histologic services include tissue embedding and sectioning (frozen and paraffin), routine and special stains, consultation on animal study design and tissue collection, immunohistochemistry (IHC), and immunofluorescence tissue labeling. Major clinical laboratory services include hematology, blood and urine chemistry tests, urinalysis, and biomarker quantification.

The AHLMC is overseen by a board-certified veterinary pathologist, employs 4 FTEs, and hosted 2 undergraduate work-study students in FY2018. The histotechnicians have over 50 years of combined experience, the majority of which are experience specifically in handling animal tissues. The AHLMC is equipped with a Leica tissue processor, Leica autostainer, Leica coverslipper, Ventana Discovery Ultra immunostainer, 2 Leica histoembedders, Thermo Scientific Cryostat, 5 Leica microtomes, Bone Station, Ventana Discovery ULTRA, IDEXX Procyte DX Hematology Analyzer, Alfa Wassermann Vet Axcel clinical chemistry analyzer, Luminex MAGPIX multiplexing system, and numerous microscopes, including a fluorescent microscope. Investigators have the ability to directly consult with a board-certified veterinary pathologist on site.

The core offers investigators over 50 pre-optimized IHC assays, as well as custom immunohistochemistry or immunofluorescence testing. Commonly requested IHC markers include immune cell, cancer cell, or cell death markers. For clinical chemistry tests, over 40 different analytes are available, including common liver function, kidney function, or lipid markers. For automated hematological testing, the following parameters are routinely determined: WBC#, Neut#, Neut%, Baso#, Baso%, Eos#, Eos%, Lym#, Lym%, Mon%, Mon#, RBC#, Bands, HGB, HCT, MCV, MCH, MCHC, RDW, Retic#, Retic%, PLT, MPV, and nRBCS. The AHLMC offers a Luminex MAGPIX magnetic-bead based assay that allows for quantification of numerous biomarker analytes (i.e., cytokine, chemokines, toxicity markers, metabolic markers) from a variety of biologic specimens. To aid investigators in generating the best possible results, the core offers free consultation on specimen collection, selection of analytes, and data interpretation.

In FY2018, 160 users from the labs of 102 UNC investigators and 7 off-campus labs utilized AHLMC histology services, and 90 users from the labs of 46 UNC investigators and 10 off-campus investigators utilized the laboratory medicine services. The Core was acknowledged or authored 10 publications. In FY2018, the core produced nearly 13,000 H&E slides, 1700 special stain slides, 1600 IHC slides, 1600 CBCs, 1800 BUN, 1700 creatinine, 2400 ALT, and 1900 AST tests.

In FY2018, the specialty animal lung tissue services previously performed at the UNC Marsico Lung Institute/Cystic Fibrosis Center were transferred to the AHLMC, with the potential for up to 20 new investigators to utilize the histology services at AHLMC.

FACULTY HONORS AND AWARDS

FRANK CHURCH, Ph.D.
The PD /blog was recognized by Feed Spot as the 15th ranked blog out of a total of 50 ranked blogs on Parkinson's Disease in the world

KEVIN GREENE, M.D.
Frederic B. Askin Award for Teaching Excellence in Anatomic Pathology – 2017

MARGARET L. GULLEY, M.D.
Best Doctors in America, Best Doctors Inc. 2017

SUSAN C. HADLER, M.D.,M.S.
Foundation Phase Outstanding Director Award – awarded by the UNC Medical Class of 2020

JONATHON HOMEISTER, M.D, Ph.D.
Dalldorf Teaching Excellence Award 2017

J. CHARLES JENNETTE, M.D.
Best Doctors in America, Best Doctors Inc. 2017-2018
Philip Hench Memorial Lecture at the American College of Rheumatology Annual Meeting
Opening Plenary Lecture at the European Vasculitis Society (EUVAS) Vasculitis Course, Florence, Italy

DAVID G. KAUFMAN, M.D., Ph.D.
Albert Nelson Marquis Lifetime Achievement Award

NICOLE KORPI-STEINER, Ph.D.
Unc Junior Faculty Development Award
American Association for Clinical Chemistry Society for Young Clinical Laboratorians Service Award

NATHAN MONTGOMERY, Ph.D, D.V.M.
Association for Molecular Pathology Young Investigator Award

STEPHANIE MONTGOMERY, Ph.D, D.V.M.
UNC Junior Faculty Development Award

VINCENT J. MOYLAN, JR., M.S., PA (ASCP)
2018 Frederic B. Askin Award for Excellence in Teaching Anatomic Pathology

VOLKER NICKELEIT, M.D.
Best Doctors in America, Best Doctors Inc. 2017-2018
Jacob Churg Award, Renal Pathology Society 2018

LI QIAN, Ph.D.
Outstanding Mentor Award, UNC-Chapel Hill 2017

JAY S. RAVAL, M.D.
UNC Nutrition Research Institute Award for Metabolomic Profiling Services of TTP Patient Plasma

MARIAN ROLLINS-RAVAL, M.D.
Award for Excellence in Medication-Use Safety, American Society of Hospital Pharmacists,

JOHN SCHMITZ, Ph.D.
President of the American Society for Histocompatibility and Immunogenetics

JOAN TAYLOR, Ph.D.
Outstanding Alumni Award University of Michigan

KAREN WECK, M.D.
Best Doctors in America, Best Doctors, Inc. 2017-2018
College of American Pathologists Liaison to The National Academies of Sciences Roundtable on Genomics and Precision Health

BERNARD WEISSMAN, Ph.D.
Journal of Pathology Jeremy Jass Prize for Research Excellence in Pathology

SCOTT WILLIAMS, Ph.D
John Wheeler Grisham Award for Excellence in Teaching Graduate Students 2017

MONTE S. WILLIS, M.D., Ph.D.
Society of Endocrinology Journal Award.

JOHN WOOSLEY, M.D., Ph.D.
Sixteenth Walter R. Benson Lecturer

QING ZHANG, Ph.D.
Jefferson-Pilot Fellowship in Academic Medicine
Mary Kay Foundation Award
Atomwise AIMS Award

LEADERSHIP POSITIONS

VICTORIA BAXTER, Ph.D, D.V.M.
International Mock Board Exam Coalition Exam Coordinator, Southeast Region

JESSICA BOOKER, Ph.D.
Chair of Credentials Committee, American Board of Medical Genetics and Genomics
Board of Directors, the American Board of Medical Genetics and Genomics

FRANK C. CHURCH, Ph.D.
Communications Committee, World Parkinson Coalition

BRIAN C. COOLEY, Ph.D.
International Society for Thrombosis and Hemostasis
Animal Models Sub-Committee Co-Chair

STEVEN COTTEN, Ph.D
FDA Medical Decive Advisory Committee

GEORGETTE A. DENT, M.D.
American Society of Hematology (ASH) Committee on Promoting Diversity (CPD)
ASH Recruitment and Retention Working Group
ASH CPD Minority Recruitment Initiatives (MRI) Programs Subcommittee

LESLIE G. DODD, MD
Member, CAP - Surgical Pathology Committee
Member, CAP - Cytopathology Committee
Member, ASC PEC Exam Committee

GEORGE FEDORIW, M.D.
AIDS Clinical Trials Group: KS central review
CAP: Hematology and clinical microscopy committee
USCAP: Education committee
ASCP Annual meeting hematology– course proposal review board
ASCP annual meeting hematology – abstract review board
AIDS Malignancy Consortium, Clinical Trials Group: Kaposi Sarcoma central review
Session Chair/Moderator at national/international meeting
Society for Hematopathology, Education committee

CRAIG A. FLETCHER, D.V.M., Ph.D.
NCABR Executive Committee & Board of Directors 2013 – 2017
ACLAM (American College of Laboratory Animal Medicine) Planning Committee Chair 2013 – 2018
Lab Animal, Nature Publishing Group – Editorial Board 2015 – 2018

WILLIAM K. FUNKHOUSER, M.D.
Nominating Committee, Pulmonary Pathology Society
Session Chair/Moderator at national/international meeting
Immunology Devices Panel, FDA

PETER GILLIGAN, Ph.D.
American Academy of Microbiology Committee on Elections 2016-
American Academy of Microbiology Committee on Elections 2016-
US and European CF organization's International Task Force on Antimicrobial Resistance in Patients with Cystic Fibrosis 2017-
American Society for Microbiology Working Group on Laboratory Diagnosis of *Clostridium difficile* infections 2015-
Session Chair/Moderator at national/international meeting

MARGARET (PEGGY) GULLEY, M.D.
The Cancer Genome Atlas (TGCA) project at the National Cancer Institute (NCI):
Leader, Pathogen Committee, Mutation Signatures Working Group (2016-17)
Leader, Pathogen Committee, Pan-Gastrointestinal (Pan-GI) Working Group (2016-17)
Viral Immune Working Group (2017-8)

Alliance for Clinical Trials in Oncology:
Member, Translational Research Program Executive Committee
Member, Sequencing Committee
Association for Molecular Pathology Awards Committee

TRACY HEENAN, D.V.M.
Association for the Assessment and Ad hoc consultant, September 2012 – June 2018
Accreditation for Laboratory Animal Care International (AAALAC)
AAALAC International, Council Member, July 2018 – June 2021
Certified Professional in IACUC, Council Member, January 2017
CPIA Recertification Committee, Committee Member, March 2017
North Carolina Association of Biomedical Research (NCABR) Board Member, July 2018 – June 2021
NIH Office of Laboratory Animal, Compliance Auditor, Requested audit June 2018
Welfare (OLAW)

JONATHON W. HOMEISTER, M.D., Ph.D.
ASIP Program Committee
ASIP Meritorious Awards Committee

J. CHARLES JENNETTE, M.D.
Advocacy Committee, Association of Pathology Chairs
Practice and Management Committee, Association of Pathology Chairs
EULAR/ACR Working Group on the Definition and Classification of Vasculitis
International Society Nephrology Commission for Global Advancement of Nephrology
International Society of Nephrology Committee on Renal Pathology
NIH Glomerular Disease Consortium CureGN Pathology Committee
International Organizing Committee, 18th Vasculitis & ANCA Workshop, Tokyo
RPS/ISN Lupus Nephritis Classification Work Group
Chair, NIH UM1 Glomerular Disease Consortium CureGN Pathology Scoring Work Group

KATHLEEN KAISER-ROGERS, Ph.D.
CAP-ACMG Liaison for the ACMG Laboratory Quality Assurance Committee
ACMG Cytogenetics Laboratory Quality Assurance Committee
American College of Medical Genetics Salary Survey Work Group (Construction, distribution, and reporting of ACMG Salary Survey Data)
CALGB/COG Cytogeneticist for UNC
Molecular Genetic Pathology Program (MGP) Evaluation Committee Member, and Clinical Competency Committee Member
Vice Chair of the College of American Pathologists Cytogenetics Resource committee

MEHMET KESIMER, Ph.D.
CF Foundation, Mucociliary Clearance Consortium, 2012-present
American Thoracic Society (ATS) Committee for Standardization of Clinical Criteria for Primary Ciliary Dyskinesia.

NICHOLE KORPI-STEINER, Ph.D.
AACC Society for Young Clinical Laboratorians (SYCL) Mentor Connections Subcommittee, 2016 – 2017

AACC Profession Practices in Clinical Chemistry, 2014– Present
Hemolysis Working Group, 2016 – Present Member, Point of Care Advisory Council, 2014 – Present
Point of Care Advisory Council, 2014 – Present
AACC CPOCT Certification Taskforce, 2018 - Present
Chair, AACC Society for Young Clinical Laboratorians (SYCL) Executive Committee, 2016 – 2017

JIANDONG LIU, Ph.D.
AHA, Fellowship CV Dev Bsc Review Committee Member

CHRIS MACK, Ph.D.
AHA, Transformational Project Award Study Section, Basic Vascular Sciences, 2018

STEPHANIE MATHEWS, M.D.
Society for Hematopathology Education Committee member
ASCP PRISE Committee member
ASCP RISE/FISHE Sub-committee member

C. RYAN MILLER, M.D., Ph.D.
Abstract Review Committee Society for Neuro-oncology, 2016 – Present
Steering Committee Comparative Brain Tumor Consortium National Cancer Institute, 2015 – Present
Neuropathology, Co-Chair Neuro-oncology Committee Alliance for Clinical Trials in Oncology National Cancer Institute, 2011 – Present
NCI, Special Emphasis Panel, Cancer Biomarkers and Biospecimens [ZCA1 TCRB-T M1], Ad-hoc
NIH, Basic Mechanisms of Cancer Therapeutics, Ad-hoc

MELISSA B. MILLER, Ph.D.
ASM, Council on Microbial Sciences
ASM, Professional Practice Committee
ASM, Clinical Awards Selection Committee
PASCV, Clinical Practice Committee
PASCV, Strategic Planning Task Force
CLSI, M48 Revision Committee
ASM, Professional Practice Committee
ASM, COMS, Advocacy Task Force
PASCV, Clinical Practice Committee
ASM, Corporate Council Task Force
ASM, Public and Scientific Affairs Committee, Strategic Planning Task Force
FDA, Microbiology Devices Panel

STEPHANIE MONTGOMERY, Ph.D., D.V.M.
Co-Chair, RTP Rodent Pathology Symposia Planning Committee 3+ biennial meetings
American College of Veterinary Pathologist, Experimental Disease Committee, 5+ year appointment

VOLKER NICKELEIT, M.D.
Banff: Member of EM Working Group
TTS: Member of Abstract Review Board
Member Central Review Transplant Pathology Committee, Cornell University

American Society of Nephrology (ASN), member of pre-meeting 'Kidney Week' teaching faculty committee
Banff: Chair of working group on TCMR
Banff Working Group on Electron Microscopy in the Evaluation of Renal Transplant Biopsies
USCAP: member CME subcommittee focus group
Chair: Banff Working Group on Cellular Rejection and Borderline Changes
Chair: Banff Working Group on Polyomavirus Nephropathy

JUDITH NIELSEN, D.V.M.
North Carolina Academy of Laboratory Animal Medicine, President/Past President 9/30/2015 – present

YARA A. PARK, M.D.
Director, Board of Directors, American Society for Apheresis
AABB, Annual Meeting Education Program Unit, 2013-present
American Society for Apheresis, HPC Donor Subcommittee, 2009-present
Chair American Society for Apheresis, Clinical Applications Committee, 2016-present
Chair, College of American Pathologists, Transfusion Medicine Resource Committee, 2016-present

NIRALI M. PATEL, M.D.
Board of Directors, Association for Molecular Pathology

LI QIAN, Ph.D.
AHA BCVS Abstract Review Committee 2018
Abstract Review Committee, American Heart Association Annual Scientific Sessions 2017
Co-Moderator/Chair for "Heart Regeneration" session & Abstract Review Committee &"Woman in Science" Panelist 2017
Weinstein Cardiovascular Research Conference
Abstract Review Committee, International Society of Stem Cell Research (ISSCR) Annual Meeting 2017, 2018

JAY S. RAVAL, M.D.
ASFA Research Committee
ASFA Neurologic Disorders Subcommittee
ASFA Sickle Cell Disease Subcommittee
AABB Annual Meeting Scientific Abstracts Review Committee
ASFA Abstracts Committee
ASFA Principles of Apheresis Technology Writing Group
ASFA Clinical Applications Subcommittee
ASFA Extracorporeal Photopheresis Subcommittee
ASFA Pediatric Apheresis Subcommittee
AABB Therapeutic Apheresis Subsection
AABB Pediatric Transfusion Medicine Subsection
AABB Clinical Hemotherapy Subsection
UNC SOM Academy of Educators
ASFA Annual Meeting Education Program Organizing Committee
ASFA Extracorporeal Photopheresis International Practice Characterization Initiative
ASFA Pediatric Apheresis Adverse Event Reporting Initiative
American Council of Extracorporeal Photopheresis Working Group

U.S. Thrombotic Microangiopathies Association: TTP Working Group
ASFA Heparin Induced Thrombocytopenia Subcommittee
ASFA Pediatrician Apheresis Guidance Document Initiative
AABB Cord Blood HPC Adverse Event Reporting Initiative
ASFA TTP/TMA Subcommittee
ASFA Severely ADAMTS13 Deficient TTP Registry
AABB Cellular Therapy Product Collection and Clinical Practice Subsection
ASFA Practitioner Subcommittee
ASFA Webinar Subcommittee
ASFA Journal Club Subcommittee
ASFA Online Resources Subcommittee
ASFA ECP Practices Characterization Initiative
ASFA Education Committee
ASFA Annual Meeting Site Tour Committee
AABB/ASFA Extracorporeal Photopheresis Resource Utilization Initiative
ASFA Research Committee
ASFA TTP Registry

MARIAN A. ROLLINS-RAVAL, M.D.
ASFA Clinical Applications Committee, 2015-current
ASFA Coagulation Subcommittee, 2015-current
ASFA Research Committee, 2018-current
ASFA HIT Registry Subcommittee, 2018-current

JOHN SCHMITZ, Ph.D.
Board of Directors, United Network for Organ Sharing
Board of Directors, American Society for Histocompatibility and Immunogenetics
President, American Society for Histocompatibility and Immunogenetics
CPEP Program Directors Committee
UNOS Histocompatibility Education Working Group
2018 ASHI Annual Meeting Planning Committee
2019 joint ASHI/BANNF Meeting Steering Committee
UNOS Nominations Committee
ASHI Award Committee
ASHI External Affairs Committee
ASHI Executive Committee
ASHI membership and engagement task force
American Society of Transplant Community of Practice – Transplant Diagnostics Executive Committee
Chair, ASHI External Affairs Committee
Chair, ASHI Nominations Committee

STEVEN T. SHIPLEY, D.V.M, DACLAM
American Association of Laboratory Animal Science (AALAS) Scientific Advisory Committee Vice Chair 2017-2018
Scientific Advisory Committee – Chair 2018-2019
BOD Liason to the ASLAP Legislative and Regulatory Affairs Committee 7/2015-7/2018

HARSHARAN SINGH, M.D.

Banff Society of Transplantation EM Working Group
Banff Society of Transplatation Working Group on T-cell mediated rejection
Banff Society of Transplantation Polyomavirus Nephropathy Working Group
Banff Society of Transplantation EM Working Group

RANCE CHADWICK SINIARD, M.D.
ASFA Communications Committee, Member
ASFA Coagulation Subcommittee, Member

JOAN TAYLOR, Ph.D
Israel Science Foundation Review Panel, 2018

DIMITRI G. TREMBATH, M.D., Ph.D.
Representative, CAP House of Delegates
CAP Molecular Oncology Committee
UNC CAP Inspection Team for University of Michigan, April 9th-11th, 2017

KAREN WECK-TAYLOR, M.D.
Past Chair Biochemical and Molecular Genetics Resource Committee, CAP/ ACMG
Past Chair Pharmacogenomics Workgroup, CAP/ACMG
Molecular Proficiency Testing Monitoring Workgroup, College of American Pathologists
Pharmacogenetics Workgroup, Association for Molecular Pathology
CAP liaison to the American College of Medical Genetics and Genomics (ACMG)
Clinical and Laboratory Standards Institute (CLSI) Consensus Committee on Molecular Methods
Molecular and Clinical Genetics Devices Panel, FDA Medical Devices Advisory Committee

ERIC T. WEIMER, Ph.D.
ASHI Quality Assurance and Standards Committee
ASHI 44th Annual Meeting Abstract Review Committee
ASM Laboratory Practice Committee
National Kidney Research Committee
CDC Special Emphasis Panel: Epicenters for Prevention of Healthcare Associated Infections

BERNARD WEISSMAN, Ph.D.
NCI SPORE Review Panel October 2017
NIH CSR Special Emphasis Review Panel December 2017
Chair, CB-5 Panel, DOD Breast Cancer Research Program March 2018
NCI P01 Special Emphasis Review Panel June 2018

HERBERT C. WHINNA, M.D., Ph.D.
Epic Pathology Steering Board

DAVID C. WILLIAMS, JR., M.D.
ASIP Annual Meeting Program Committee
ASIP Education Committee
ASIP Career Development and Diversity Committee
ASIP PISA Program Committee
ASIP Executive Council

ASIP Co-chair of the Gene Regulation Special Interest Group
NSF Graduate Research Fellowship Program panelist (2017-2018)

MONTE WILLIS, M.D., Ph.D.

Program Committee for Experimental Biology, American Society of Investigative Pathology, August 2007-present.
Finance Committee, American Society of Investigative Pathology (ASIP), 2014-2018.
ASIP Committee for Career Development and Diversity (CCDD)

SARA E. WOBKER, M.D.

USCAP Membership Committee April 1, 2018 – present

ALISA S. WOLBERG, Ph.D.

American Society for Hematology (ASH) Committee on Scientific Affairs (2016 – 2022)
American Society of Hematology Media Relations Committee (2017 – 2019)
International Society of Thrombosis and Haemostasis Scientific Subcommittee on Animal Cellular and Molecular Models (2015 – present)
International Society of Thrombosis and Haemostasis Scientific Subcommittee on Fibrinogen and Factor XIII (2015 – present)
American Heart Association (AHA) Arteriosclerosis, Thrombosis and Vascular Biology Council Leadership Committee (2016 – 2020)
American Heart Association (AHA) Arteriosclerosis, Thrombosis and Vascular Biology: Spring Program Committee (2014 – 2019)
Thrombosis & Hemostasis Summit of North America Planning Committee (2018)
North American Society for Thrombosis and Haemostasis Research Fellows Committee (2016 – 2019)
9th Symposium on Hemostasis: Advances in the Clinical and Basic Sciences of Coagulation planning committee. Chapel Hill, NC (2017 – 2018)
2nd Joint Meeting of the International Society of Fibrinolysis and Proteolysis and Plasminogen Activation Workshop Advisory Board, Edinburgh, Scotland (2018)
International Society of Thrombosis and HaemostasisMembership and Communications (Chair) 2018-2020
International Society of Thrombosis and Haemostasis Governance (Vice-Chair) 2016 – 2018
American Heart Association/ATVB Brinkhous Award (Immediate Past Chair) 2018 – 2020
American Heart Association/ATVB Brinkhous Award (Chair) 2016 – 2018

MAIMOONA BANOO A. ZARIWALA, Ph.D.

Member of Medical and Scientific Advisory Council (MSAC) for PCD Foundation (patient advocacy group) since August 2017
Panelist for the American Thoracic Society (ATS) project committee working towards standardization of clinical criteria for Primary Ciliary Dyskinesia.
Providing consultation with respect to the expertise and interpretations of the PCD genetic findings that helps selection of patients enrolled in CLEAN-PCD clinical trial (ClinicalTrial.gov identifier: NCT02871778).

QING ZHANG, Ph.D.

The Breast Cancer Alliance, 2018
NCI, Special Emphasis Panel (SEP) ZRG1 CBR55, 2018
Mary Kay Foundation, 2018

DoD, Kidney Research Program, 2018
NCI, Special Emphasis Panel 9SEP0 ZRG CB-D, 2018
Florida Dept. Health, 2017

SERVICE AS EDITOR OR ON EDITORIAL BOARDS

BRIAN C. COOLEY, Ph.D.
Editorial Board, Heart Research – Open Journal
Editorial Board, Journal of Angiology & Vascular Surgery
Editorial Board, Microsurgery

STEVEN COTTEN, Ph.D.
Editorial Board, Journal of Applied Laboratory Medicine

LESLIE G. DODD, M.D.
Associate Editor, Diagnostic Cytopathology
Editorial Board, American Journal Clinical Pathology (AJCP)
Editorial Board, Journal of the American Society of Cytopathology (JASC)

CRAIG A. FLETCHER, D.V.M., Ph.D.
Lab Animal, Nature Publishing Group- Editorial Board, 2015-2018

WILLIAM K. FUNKHOUSER, M.D.
Molecular Path Section Editor, Arch Path Lab Med
Milestones Editor, ASIP Pathways newsletter

PETER GILLIGAN, Ph.D.
Associate Editor, Mbio
Associate Editor, Clinical Microbiology Reviews

MARGARET GULLEY, M.D.
Editorial Board, Applied Immunohistochemistry & Molecular Morphology
Editorial Board, American Journal of Surgical Pathology
Editorial Board, PLOS Currents: Evidenceon Genomic Tests

JONATHON HOMEISTER, M.D., Ph.D.
Editorial Board, Journal of Molecular and Cellular Cardiology
Editorial Board, Cardiovascular Pathology

J. CHARLES JENNETTE, M.D.
Editorial Board, Archives of Pathology and Laboratory Medicine
Editorial Board, American Journal of Kidney Disease
Editorial Board, American Journal of Surgical Pathology: Reviews and Reports
Editorial Board, Clinical Nephrology
Editorial Board, Journal of Rheumatology
Editorial Board, Laboratory Investigation
Editorial Board, Kidney International Reports

DAVID G. KAUFMAN, M.D., Ph.D.
Editorial Board, Experimental and Molecular Pathology
Editorial Board, Frontiers of Biosciences
Editorial Board, Translational OncoGenomics
Editorial Board, Clinical Medicine: Pathology
Editorial Board, The Open Reproductive Science Journal

MEHMET KESIMER, Ph.D.
Associate Editor, Tobacco Regulatory Science
Editorial Board, American Journal of Respiratory Cell and Molecular Biology (AJRCMB)
Editorial Board, Journal of Extracellular Vesicles

NICHOLE KORPI-STEINER, Ph.D.
Section Editor, Clinical Chemistry ASCP Case Report 2014-Present
National Academy of Clinical Biochemistry, Scientific Shorts, 2015-Present
Guest Editor, Journal of Applied Laboratory Medicine, Special issue, 2018 - Present

CHRISTOPHER MACK, Ph.D.
Editorial Board, Arteriosclerosis
Editorial Board, Thrombosis
Editorial Board, Vascular Biology

C. RYAN MILLER, M.D., Ph.D.
Editorial Board, Brain Pathology
Editorial Board, Neuro-oncology Practice

MELISSA B. MILLER, Ph.D.
Editorial Board, Diagnostic Microbiology and Infectious Disease (Elsevier)
Editorial Board, Journal of Clinical Microbiology

STEPHANIE MONTGOMERY
Editorial Board, Journal of the American Veterinary Medical Association

SHANMUGAN NAGARAJAN, Ph.D.
Editorial Board, Chemico-Biological Interactions
Editorial Board, Symbiosis- Journal of Immunology
Editorial Board, Journal of Nurtritional Health and Food Science
Editorial Board, Journal of Nutritional Biochemistry

VOLKER NICKELEIT, M.D.
Journal of Nephrology and Urology, Jacobs Publishers
Austin Journal of Nephrology and Hypertension, open access journal, Austin Publishing Group
Journal of Multidisciplinary Pathology, open access journal, ScienceScript LLC
Annals of Clinical Cytology and Pathology, open access journal
Journal of Transplantation & Stem Cell Biology (JTSCB), open access journal, Avens Publishing Group
World Journal of Transplantation, open access journal
Kidney and Blood Pressure Research
Ultrastructural Pathology

Journal of Cellular and Molecular Pathology, open access journal, SciTechnol
Journal of Modern Human Pathology (JHP), open access journal, Nobel Research

YARA A PARK, M.D.
Editorial Board, Journal of Clinical Apheresis

JAY S. RAVAL, M.D.
Frontiers in Surgery: Reconstructive and Plastic Surgery
Transfusion and Apheresis Science
Therapeutic Apheresis and Dialysis
International Blood Research and Reviews
The Journal of ExtraCorporeal Technology
International Journal of Blood Transfusion and Immunohematology
Journal of Blood Disorders and Transfusion

JOHN SCHMITZ, Ph.D.
Editorial Board, Journal of Immunological Methods

HARSHARAN K. SINGH, M.D.
Editorial Board, Ultrastructural Pathology
Editorial Board, Journal of Nephrology and Urology
Editorial Board, International Journal of Nephrology and Kidney Failure

DIMITRI G. TREMBATH, M.D., Ph.D.
Editorial Board, Journal of Neuropathology and Experimental Neurology

JOAN TAYLOR, Ph.D.
Section Editor for Musculoskeletal Biology issue in Current Opinions in Pharmacology, June 2017

KAREN WECK-TAYLOR, M.D.
Genetics in Medicine, Associate editor of Molecular Genetics and Pharmacogenomics
American Journal of Pathology Editorial Board
Journal of Molecular Diagnostics Editorial Board
Journal of Translational Science and Research

ERIC T. WEIMER, Ph.D.
Section Editor: Point-Counterpoint Series, Human Immunology

BERNARD E. WEISSMAN, Ph.D.
Editorial Board, Journal of Cellular Physiology
Editorial Board, Genetics Research International
Editorial Board, Lung Cancer Targets and Therapy

MONTE S. WILLIS, M.D., Ph.D.
Section Editor, Archives of Pathology & Laboratory Medicine, Clinical Effectiveness and Economics, September 1, 2012-present.
Editorial Board, Military Medical Research, January, 2016-present.

Editorial Board, American Journal of Physiology – Endocrine and Metabolism, July 1, 2015-present.
Editorial Board, Cardiovascular Pathology. January 1, 2012-present (2nd 3 year term).
Editorial Board, American Journal of Pathology. July 2011-present (2nd 3 year term).
Associate Editorial Board, American Journal of Cardiovascular Disease, March 2011-present.

SARA E. WOBKER, M.D., M.P.H.
Assistant Associate Editor, Urology Case Reports

ALISA S. WOLBERG, Ph.D.
Associate Editor, Seminars in Thrombosis and Hemostasis: 2015 – present
Associate Editor, Research and Practice in Thrombosis and Haemostasis (RPTH), 2017 – 2019
Journal of Thrombosis and Haemostasis: 2016 – present
Arteriosclerosis, Thrombosis, and Vascular Biology: 2010 – present
Blood Advances: 2016 – 2019

QING ZHANG, Ph.D.
Editor, Scientific Reports
Associate Scientific Advisor, Science Translational Medicine

INVITED LECTURES AT STATE/NATIONAL AND INTERNATIONAL MEETINGS

PABLO ARIEL, Ph.D.
March 20th, 2018 UltraMicroscope User Meeting Essen, Germany.
Tips and tricks for light-sheet imaging. February 26th, 2018
Frontiers in Microscopy Technologies and Strategies for Bioimaging Centers Network. Janelia Farms, VA.
Light-sheet microscopy of cleared samples in a core facility.

VICTORIA K. BAXTER, DVM, Ph.D., DACLAM
NIH Guidelines and the IBC. 2018 North Carolina Academy of Laboratory Animal Medicine Workshop in Laboratory Animal Medicine. Raleigh, NC. May 17, 2018.
Genetically Modified Animals and Regulatory Compliance with the IBC. North Carolina Academy of Laboratory Animal Medicine Fall 2017 Continuing Education Seminar. Durham, NC. September 21, 2017.

CHRISTINE BOOKHOUT, M.D.
UNC CME event 5/5/2018, Appendiceal Mucinous Neoplasms: Diagnosis, Grading, and Staging Updates

FRANK C. CHURCH, PHD
"Words of Hope" 6 talks given, 1-per-day as a 'life-coach' at the PWR! Retreat/Meeting May 24-May 30, 2018, focusing on the following words: Hope, Adversity, Positivity, Persistence, Courage, and Life

BRIAN C. COOLEY, Ph.D.
Preparing English-Language Oral Presentations and Manuscripts. Research Council Congress of the Japanese Society for Plastic and Reconstructive Surgery. Osaka, Japan. October 20, 2017

GEORGE FEDORIW, M.D.

College of American Pathologists Annual Meeting, National Harbor, MD. October 9th, 2017. Diagnostic Challenges in Low Grade B-cell Lymphomas.

American Society of Clinical Pathology: Practical and Effective Hematopathology. Chicago, IL. May 6th-9th, 2018.

Basics of bone marrow evaluation I and II
Cytologic evaluation of lymphoma
Evaluation of the cytopenic patient
Myelodysplastic syndromes and myelodysplastic/myeloproliferative overlap neoplasms
WHO update of myeloid neoplasms
Immunodeficiency associated lymphomas
Interactive case presentation

North Carolina Society of Pathology Annual Meeting, Charlotte, NC. The Critical Role of Pathology in the Care of Patients with Lymphoma in Sub-Saharan Africa. April 13th, 2018.

CRAIG A. FLETCHER, D.V.M., Ph.D.

Nov. 13-17 SOSA Conference. Jamaica, WI. Leadership & Personal Branding Seminar &Professional Development Symposium

PETER GILLIGAN, Ph.D.

Diagnostic Microbiology in 2020: Who will do it and how will it be done? North Carolina State Public Health Biothreat Forum, Raleigh, NC October 2017

The Last Waltz, Mountain AHEC, Asheville NC Oct 2017

The Last Waltz Wake AHEC Raleigh, NC Nov 2017

MARGARET GULLEY, M.D.

"AMP's first Global Congress", International Showcase at the Assoc. for Molecular Pathology annual meeting, Salt Lake City, Nov 16, 2017.

"Use of Archer ctReveal for Non-invasive Monitoring of Tumor Burden and Emerging Clones", Association for Molecular Pathology ArcherDx Workshop, Nov 16, 2017

"Expert Perspectives on Liquid Biopsy Clinical Implementations – A Panel Discussion", Cambridge Healthtech webinar, Nov 7, 2017.

"UNC Integrated Translational Science Center (UNITs) Clinical-grade Genomic Assays for use in Clinical Trials", Alliance for Clinical Trials in Oncology Translational Research Program Executive Committee, Rosemont, Nov 2, 2017

"CcfDNA In the Lab: Optimizing Purification for Sequencing", Promega webinar, June 12, 2018.

"Capitalizing on Epstein-Barr virus to better classify, treat, and monitor gastric cancer", American Society of Clinical Oncology Gastrointestinal Cancers Symposium, San Francisco, Jan 18, 2018.

TRACY HEENAN, D.V.M.

November 2017 Laboratory Animal Training Program Veterinary Residents' Fall Didactic 2017 NIEHS Research Ethics Compliance – Use of Animals in Research

March 2018 Public Responsibility in Medicine and Research IACUC Conference: Columbus, OH; Presenter and Facilitator, Workshop A9: Program Review and Facility Inspections

March 2018 Public Responsibility in Medicine and Research IACUC Conference: Columbus, OH; Presenter and Facilitator, Workshop D9: Program Review and Facility Inspections (Program Oversight Track).

J. CHARLES JENNETTE, M.D.

Keynote Lecture: Philip Hench Memorial Lecture, "ANCA-Associated Vasculitis Diagnosis and Treatment", American College of Rheumatology Annual Meeting, San Diego, November 07, 2017.

Invited Lecture: Mayo Nephrology Collaborative Group Meeting, "ANCA Glomerulonephritis and Vasculitis: A Tale of Bedside to Bench and Back Again", New Orleans, November 3, 2017

Invited Lectures (3): American Society of Nephrology Kidney Week Pre-Course: Fundamentals of Renal Pathology, Lectures: "Basic Concepts, Methods, Approaches, and Terminology in Renal Pathology", "Crescentic Glomerulonephritis" and "Vasculitides", New Orleans, October 31, 2017

Plenary Lecture: XXXIV Congreso Nacional de Nefrología, Hipertensión y Trasplante Renal, "Advances in Understanding the Pathogenies of ANCA induced Glomerulonephritis, Vasculitis and Granulomatosis", Puerto Varas, Chile, October 19, 2017.

Invited Lectures (4): XXXIV Congreso Nacional de Nefrología, Hipertensión y Trasplante Renal, "Alternative Complement Pathway in the Pathogenesis, Diagnosis and Treatment of HUS, C3 Glomerulopathy and ANCA Disease", "Classification of Membranoproliferative Glomerulonephritis: No Longer Just a Pattern of Injury", "RPS Workgroup Proposed Adjustments in the ISN/RPS Classification for Lupus Nephritis", and "Pathologic Classification of Vasculitis", Puerto Varas, Chile, October 19-20, 2017

Invited Lectures (2), Columbia University Postgraduate Review Course: Renal Biopsy in Medical Diseases of the Kidney, "Crescentic Glomerulonephritis and ANCA" and "IgA Nephropathy and IgA Vasculitis", New York, NY, July 13, 2017 Keynote Address: Society of Toxicologic Pathology 37th Annual Meeting, "Glomerulonephritis", Indianapolis, Indiana, June 18, 2018

Invited Lectures (4): Cleveland Clinic Nephrology Update, "ANCA Disease Concurrent with Anti-GBM Disease and Immune Complex Disease: Diagnostic and Management Issues", "Clinical and Pathologic Markers of Progression of Diabetic Kidney Disease", Clinicopathologic Case Presentation, Renal Biopsy Case Presentations, Cleveland, OH, May 18-19, 2018

Invited Lectures (2): 32nd Annual Glomerular Disease Collaborative Network Meeting, "Complement Induced Glomerulopathy C3 Glomerulopathy and Hemolytic Uremic Syndrome", and "ALECT-2 Amyloidosis", Chapel Hill, NC, April 28, 2018

Opening Plenary Lecture, European Vasculitis Society (EUVAS) Vasculitis Course, "Pathogenesis of ANCA Associated Vasculitis", Florence, Italy, April 19, 2018

MEHMET KESIMER, Ph.D.

Jan 17-19 2018 Meeting: 33rd TransAtlantic Conference on Lung Diseases Location: Lucerne/Switzerland Presentation Title: Mucin Expression, Processing and Secretion

July 24-28, 2017 Meeting: Mucin in Health and Disease (14th International Workshop on Carcinoma-associated Mucins) Location: Cambridge/UK Presentation Title: Mucin-protein interactions in the airways: from innate defense to pathogenesis

CHRISTOPHER MACK, Ph.D.

Qiang Zhu, Matthew Combs, Xue Bai, **Christopher P. Mack** and Joan M. Taylor. GRAF1 is a novel regulator of cardiac mitophagy. Keystone Symposia Selective Autophagy Conference, Kyoto, Japan, April 2018

Mangum KD, Rozenberg, JM, Taylor JM, and **Mack CP**. Transcriptional regulation of the SMC-selective, blood-pressure associated Rho-specific GTPase, GRAF3. North American Vascular Biology Organization Conference – Monterey, CA 9/17/17

Qiang Zhu, Kaitlin C. Lenhart, Rachel Dee, Matthew Combs, **Christopher P. Mack**, and Joan M. Taylor. GRAF1 is a novel regulator of cardiac mitophagy. American Heart Association Basic Cardiovascular Sciences Scientific Sessions, Portland, Oregon, July 2017

Opheim Z, Cheng Z, Dee R, Casad M, Gupton S, **Mack CP** and Taylor JM. Focal Adhesion Kinase promotes cardiopeptide secretion. American Heart Association Basic Cardiovascular Sciences Conference, Portland, Oregon, July 2017

STEPHANIE P. MATHEWS, M.D.

MEDLAB Americas Exhibition and Congress Laboratory Medicine Conference (Hematology): Myelodysplastic Syndrome: Diagnostic Approach and WHO Updates. August 9, 2017.

MELISSA B. MILLER, Ph.D.

American Society for Microbiology, Southern California Branch 81st Annual Meeting, "Molecular Tests in Microbiology: What lies ahead for the Technology and the Technologist?" La Jolla, CA, October 28, 2017.

European Meeting on Molecular Diagnostics, "Maintaining quality for molecular point of care testing for infectious diseases," Noordwijk, Netherlands, October 12, 2017.

ASM Molecular Diagnostics Webinar Series, "Diagnosis of Respiratory Tract Infections," June 14, 2017 (not on American Society for Microbiology, Microbe 2018, "The future of molecular diagnostics in clinical microbiology," Atlanta, GA, June 10, 2018.

American Society for Microbiology, 34th Annual Clinical Virology Symposium, Corporate Workshop (BioFire Diagnostics), "Reimbursement update for multiplex respiratory and GI panels," Fort Lauderdale, FL, May 7, 2018.

American Society for Microbiology, 34th Annual Clinical Virology Symposium, Corporate Workshop (Curetis), "Evaluation of the Curetis Unyvero multiplex PCR lower respiratory infection panel," Fort Lauderdale, FL, May 7, 2018.

Erasmus University Medical Center Rotterdam, Netherlands, Webinar, "Advantages, disadvantages and implementation issues related to microbiological point of care testing," April 18, 2018.

North Carolina Point of Care Network, Spring Meeting, "Molecular POCT for infectious diseases: opportunities and challenges." Morrisville, NC, April 13, 2018.

Podcast: Meet the Microbiologist 081. Developing infectious disease diagnostics with Melissa Miller. April 26, 2018. American Society for Microbiology, Washington, DC.
https://www.asm.org/index.php/podcasts/meet-the-microbiologist/item/7246-developing-infectious-disease-diagnostics-with-melissa-miller-mtm-81

NATHAN MONTGOMERY, Ph.D, D.V.M.

"A practical approach to the diagnosis and classification of low grade lymphomas." North Carolina Society for Pathologists (NCSP) Annual Meeting. Charlotte, NC. April 14, 2018.

"Updates on molecular testing in gastrointestinal pathology." UNC Pathology CME event. Chapel Hill, NC. May 5, 2018.

"Diagnosis of Human Hematolymphoid Malignancies in 2017: A Multi-Modality Approach." American Society for Veterinary Clinical Pathology Annual Meeting- Education Symposium: Lymphoproliferative Disease in Veterinary Medicine. Vancouver, BC, Canada. November 5, 2017.

"Immune Repertoire Sequencing for Evaluation and Monitoring of Multiple Myeloma and Other B-lineage Neoplasms." Association for Molecular Pathology Annual Meeting: Corporate Workshop Day. Salt Lake City, UT, USA. November 14, 2017.

VINCENT J. MOYLAN, Jr., MS, PA (ASCP)

2/14/18 Meeting: Guest lecturer Location: Elon University, Department of Physician Assistant Studies. Presentation Title: "The Techniques of Brain Removal with Forensic Correlation."

VOLKER NICKELEIT, M.D.

American Society of Nephrology (ASN), pre-meeting course on fundamentals in renal pathology: "Infections, drug toxicity, recurrent and de novo glomerular diseases in renal transplants." ASN annual meeting, New Orleans, LA, October/November 2017

American Society of Nephrology (ASN), 50th annual meeting: "Renal biopsy: interpretation and clinical correlation conference". October/November 2017, New Orleans LA, USA

Approaches to the diagnostic evaluation of renal biopsies: interactive forum four times during 2 day seminar at ASN Kidney Week 10.31-11.1.2017

Glomerular-Disease Collaborative Network meeting (GDCN 32nd annual conference): "Renal biopsy case discussions with pathologic and clinical correlations". April 2018, Chapel Hill, NC, USA

Mexican Institute for Investigative Nephrologie, 8th course on Nephropathology: "Banff 2017 revised diagnostic criteria for chronic active rejection, an update." April 2018, Mexico City, Mexico – [invited guest lecturer]

Mexican Institute for Investigative Nephrologie, 8th course on Nephropathology: "Polyomaviruses and Disease." April 2018, Mexico City, Mexico – [invited guest lecturer]

LI QIAN, PH.D

2018 July 30-Aug 2 AHA BCVS Scientific Sessions 2018 "Innovating in Cardiovascular Research", San Antonio, Texas Single Cell Transcriptomics to Study Cardiomyocyte Cell Fate Control

2018 April 22-26 9th International Ascona Workshop on Cardiomyocyte Biology, Ascona, Switzerland Single Cell Omics to Dissect Cell Fate Determination

ALLISON ROGALA, D.V.M.

"Gnotobiotics". Invited lecture, NC Workshop in Laboratory Animal Medicine, Raleigh, NC, May 17-19, 2018.

"Managing Experimental Needs in a Complex Gnotobiotic Facility". Platform presentation, Tech Forum, Cambridge, MA, May 9, 2018.

"Evaluating the Impact of the Environment on Murine Models of Human Disease". Invited lecture, RTP Rodent Pathology Workshop, Raleigh, NC, September 19, 2017.

MARIAN ROLLINS-RAVAL, M.D., M.P.H.

"ADAMTS13 Testing" in "Don't Play Hot Potato with TTP", AABB Annual Meeting, San Diego, CA, 10/2017

JAY S. RAVAL, M.D.

Invited Lecturer, "Don't Play 'Hot Potato' With TTP: A 360 Degree Approach to TTP Patient Care", AABB Annual Meeting, San Diego, CA, 10/2017

Invited Lecturer, "HPC Infusion Reaction Monitoring and Reporting" in "Cellular Therapy: Sizzling Topics Luncheon", AABB Annual Meeting, San Diego, CA, 10/2017

Invited Lecturer, "Hospital-Based Blood Donor Centers: Not Your Average Bear", AABB Annual Meeting, San Diego, CA, 10/2017

Invited Lecturer, "Massive Transfusion: Say What?", Blood Bank Association of New York State Annual Meeting, Syracuse, NY, 6/2017

Invited Lecturer, "Clinical Applications: Donor Apheresis and Cellular Therapy", Apheresis Review Session, American Society for Apheresis Annual Meeting, Chicago, IL, 4/2018
Invited Lecturer, "Vital Sign Changes in Transfusion Reactions", International Society of Blood Transfusion Journal Club, 1/2018

EIZABURO SASATOMI, M.D., Ph.D.

"Diagnosis of Well-Differentiated Hepatocellular Lesions" Current Concepts and Diagnostic Challenges in Gastrointestinal, Liver and Pancreatic Pathology. William and Ida Friday Center. University of North Carolina Chapel Hill Department of Pathology and Laboratory Medicine and Charlotte AHEC, May 5, 2018

JOHN SCHMITZ, Ph.D.

North Carolina Tissue Typers Meeting. November 3, 2017; "Non-HLA Antibodies"

HARSHARAN SINGH, M.D.

Renal Biopsy Session, GDCN Annual Meeting, Chapel Hill, NC April 28, 2018

KAREN WECK-TAYLOR, M.D.

Association for Molecular Pathology Webinar, "Recommendations for Clinical CYP2C19 Genotyping Allele Selection", Tuesday June 5th, 2018 at 1:00pm ET

DIMITRI G. TREMBATH, M.D., Ph.D.

Update on Barrett Esophagus, UNC Department of Pathology CME event, 05-May-2018
Invited lecturer First Annual Health Careers Day, UNC-Greensboro, 11-November-2017

CYRUS VAZIRI, Ph.D.

Environmental Mutagenesis and Genomics Society (EMGS) San Antonio Texas, Sept 2018

ERIC T. WEIMER, Ph.D.

OneLambda NGS Webinar Series – May 23, 2018
Invited Speaker: ASHI 43rd Annual Meeting, San Francisco, CA
Invited Speaker: Molecular Diagnostics and Clinical Applications, AMLI 30th Annual Meeting, Denver, CO

BERNARD E. WEISSMAN, Ph.D.

11/08/2017 Seminar U of Minnesota Therapeutic targeting of SWI/SNF complex mutations in human tumors
11/20/2017 Seminar Baylor College De-BAFling the Role of SWI/SNF of Medicine Complex Loss in Human Tumor Development

JULIA WHITAKER, M.S, DVM

North Carolina Association of Laboratory Animal Medicine Workshop in Laboratory Animal Medicine, Raleigh, NC. Title: "The Laboratory Zebrafish". May 18-20, 2017

SCOTT E. WILLIAMS, Ph.D.

3/21-3/24/18 Meeting: American Association for Dental Research Ft Lauderdale, FL Presentation Title: "Infrequently dividing oral epithelial cells reside in posterior palatal niches"

MONTE S. WILLIS, M.D., Ph.D.

Experiences as an MD/PhD Physician Scientist. Invited Speaker, Universita degli Studi di Milano MD/PhD Day, Dec. 15, 2017. Milan, Italy.

How Muscle-Specific Ubiquitin Ligases Block Inflammation and Aging-Associated Fibrosis in the Heart: The Therapeutic Implications for Heart Failure. Insitituo Veneto de Medicine Molecolare, Venitian Institute of Molecular Medicine (VIMM) Seminar. December 13, 2017. Padova, Italy.

ALISA S. WOLBERG, Ph.D.

XXV International Fibrinogen Workshop. Winston Salem, NC. Fibrinogen and factor XIII in venous thrombosis: from models to translation. June 6, 2018

Synapse Maastricht, Netherlands Applicability of thrombin generation in research and clinic June 14, 2018

2018 Gordon Research Conference on Transglutaminases Les Diablerets, Switzerland Fibrin(ogen), factor XIII, and red blood cells in thrombosis June 20, 2018

AHA/ATVB Research Priorities in Thrombosis: A Bedside to Bench Approach San Francisco, CA If I had $10 million to spend on thrombosis research, I would…..May 11, 2018

9th Symposium on Hemostasis: Advances in the Clinical and Basic Science of Coagulation Chapel Hill, NC Factors I and XIII in thrombosis April 12, 2018

4th Annual ASH Scientific Workshop on Hematology and Aging: Highlighting Novel Science and Promoting a Research Agenda Atlanta, GA, In vitro and in vivo models to dissect the pathophysiology of thrombosis and aging December 8, 2017

Annual Meeting of the Haematology Association of Ireland Belfast, Ireland Fibrinogen, factor XIII, and red blood cells in thrombosis October 14, 2017

XXVI Congress of the ISTH, Scientific Subcommittee on Animal, Cellular and Molecular Models of Thrombosis, Educational Session Berlin, Germany Benchside to Bedside to Community: the Role of Pre-clinical Models July 9, 2017

XXVI Congress of the ISTH, Master Class Instructor Berlin, Germany Maintaining vascular flow: from liquid to solid to liquid again: dynamics of clot formation and lysis July 9, 2017

XXVI Congress of the ISTH, Scientific Subcommittee on Fibrinogen and Factor XIII, Educational Session Berlin, Germany Fibrin structure and crosslinking in disease July 8, 2017

JOHN T. WOOSLEY, MD, PHD

UNC Pathology CME course, May 5, 2018: Current Concepts and Diagnostic Challenges in Gastrointestinal, Liver, and Pancreatic Pathology

MAIMOONA A. ZARIWALA, Ph.D.

08/24/2017 PCD Foundation Minneapolis, MN testing for the panel of genes associated Scientific Conference with PCD in (GDMCC) 5905 study.

QING ZHANG, Ph.D.

10/18 International VHL Medical Symposium 2018, Houston, TX"VHL Substrate Transcription Factor ZHX2 as an Oncogenic Driver in ccRCC"

06/17 Society of Chinese Bioscientists in America (SCBA) 16th International Symposium, Hangzhou, China"The Oxygen Sensor EglN2 Serves as a New Metabolic Target in Breast Cancer"

DIRECTOR OF CONTINUING EDUCATION COURSES

GEORGETTE A. DENT, M.D.
ASH Medical Educators Institute
ASH Committee for Promoting Diversity Trainee Luncheon Session
ASH Committee for Promoting Diversity MMSAP Research Session

KEVIN GREEN, M.D.
UNC DPLM's 2018 Spring Symposium: Current Concepts and Diagnostic Challenges in Gastrointestinal, Liver, and Pancreatic Pathology – Course Director

JONATHON W. HOMEISTER, M.D., Ph.D.
American Society for Investigative Pathology at EB2018, Symposium Organizer and Chair, "Blood Vessel Club-Inflammation, survival and Death in Atherosclerosis. San Diego, CA
American Society for Investigative Pathology at EB2018, Symposium Organizer and Chair, "Mechanisms of Injury, Inflammation, and Repair in the Failing Heart. San Diego, CA

J. CHARLES JENNETTE, M.D.
32nd Annual Glomerular Disease Collaborative Network Meeting, Chapel Hill, NC, April 28, 2018

NICHOLE KORPI-STEINER, Ph.D.
American Association for Clinical Chemistry, 2017 Society for Young Clinical Laboratorians and Division Webinar Series, "Designer drug testing: Keeping up from the laboratory perspective," April 19, 2017; "Biotin and laboratory testing: recognizing interferences and preventing misdiagnosis," September 28, 2017; "Cell-free DNA aneuploidy screening: Opportunities and emerging considerations," October 25, 2017. (3 h); Co-Chair, Scientific program organizing committee
2018 CPOCT International Symposium Organizing Committee, 2017 – Present
2018 NC AACC local section webinar series (3 h), 2018 – Present

MELISSA MILLER, Ph.D.
Molecular Virology Workshop, 25th Annual Workshop, Pan American Society for Clinical Virology, Co-Chair, Fort Lauderdale, FL, May 5, 2017 (6h)

VOLKER NICKELEIT, M.D.
Basel Seminars in Pathology June 2018: Renal Transplantation, Basel, Switzerland (6.25. – 6.28.2018 with H. Hopfer, MJ Mihatsch)

YARA A PARK, M.D.
AABB Annual Meeting, Moderator, "Don't Play Hot Potato with TTP"

JAY S. RAVAL, M.D.
Program Director, "ADAMTS13 Testing: More Questions Than Answers?", AABB Annual Meeting, Boston, CA
Program Director, "Disease Indications for Extracorporeal Photopheresis That Are Category III 2A/B/C: Overview, Advice, and Next Steps", AABB Annual Meeting, Boston, CA
Program Director, "Massive Transfusion: What Have You Done For Me Lately?", AABB Annual Meeting, Boston, CA

ALLISON ROGALA, D.V.M.
"The microbiota and animal models", Raleigh, NC, RTP Pathology of Rodent Models 9/19/17

HARASHARAN SINGH, M.D
Moderator, Renal Biopsy Clinical Correlations Session, November 4, 2017. American Society of Nephrology Annual Meeting, New Orleans, LA. October 31-November 5.
Moderator, Digital Microscopy Room, November 2-3, 2017, American Society of Nephrology Annual Meeting, New Orleans, LA. October 31-November 5.

ERIC T. WEIMER, Ph.D.
Moderator: Bone Marrow/HSCT, ASHI 43rd Annual Meeting, San Francisco, CA
Co-Chair: Molecular Diagnostics and Clinical Applications, AMLI 30th Annual Meeting, Denver, CO

DAVID C. WILLIAMS JR. MD, PHD
Co-chair of Gene Regulation and Breast Cancer symposium at ASIP 2018 annual meeting

SERVICE ON UNC AND UNCH COMMITTEES

PABLO ARIEL, Ph.D.
Member, Core Directors Council
Member, Core Directors Council – iLab task force

JAMES TODD AUMAN, Ph.D.
Member, NC TraCS CTSA Translational Advancements Resource Committee
Member, LDBR Data Sharing Committee
Member, Core Director's Council
Member, IRB Biomedical Committee A

VICTORIA K. BAXTER, DVM, Ph.D.
Member, Institutional Animal Care and Use Committee
Member, Institutional Biosafety Committee
Member, High Containment Team

JESSICA K. BOOKER, Ph.D.
Training Director of the ABMGG Clinical Molecular Genetics Fellowship
Co-Training Director of the ABMGG Laboratory Genetics and Genomics Fellowship

FRANK C. CHURCH, Ph.D.
Member, School of Medicine Admissions Committee
Member, TEC SOM Foundation Phase Curriculum Development Committee Member
Member, "Teaching Champions" Medical Education Committee

BRIAN C. COOLEY, Ph.D.
Member, IACUC
Core Director, McAllister Heart Institute Animal Surgery Core Laboratory

GEORGETTE A. DENT, M.D.
Member, Student Progress Committee
Member, Translational Education at Carolina (TEC) Foundation Phase Committee
Member, TEC Application Phase Committee
Member, TEC Individualization Phase Committee
Member, Education Committee
Member, Genetics Chair Candidate Search Committee
Member, Associate Vice Chancellor for Health and Wellbeing
Member, Mental Health Task Force
Member, SOM/Graduate School Wellness Coach
Chair, Hospital Infection Control Committee (HICC)

ROSANN A. FARBER, Ph.D.
Member, SOM Conflict of Interest Committee
Member, 3 COI Monitoring Committees
Member, Chair's Advidory Committee, Department of Genetics
Member, Tenure-Track Assistant Professor Mentoring Committees
Chair, 4 Committees on Promotion of Tenure-Track Assistant Professors to Tenured Associate Professor
Director, American Board of Medical Genetics & Genomics Postdoctoral Training Programs
Associate Chair, Faculty Affairs, Department of Genetics

GEORGE FEDORIW, M.D.
Member, Oncology Program Heads Committee (NC Cancer Hospital)

CRAIG A. FLETCHER, D.V.M., Ph.D.
Member, Animal Program Master Planning, Executive Committee
Member, UNC Search Committee for Director for Research Division Financial Services
Member, Research Dean Advisory Committee
Member, DCM Advisory Committee
Member, DCM/IACUC Subcommittee
Member, DCM Leadership Committee
Member, DCM Project Planning Committee
Member, GI Center T35 Advisory Board Meeting
Member, Institutional Animal Care and Use Committee (IACUC)
Member, Institutional Biosafety Committee (IBC)
Member, Office of Research (OoR) Large Group
Member, UNC Facilities Planning Committee
Member, UNC Facilities Work Group
Member, UNC University Safety and Security Committee
Advisory Board Member, National Gnotobiotic Rodent Resource Center
Executive Committee, National Gnotobiotic Rodent Resource Center
Member, Mutant Mouse Regional Resource Center-UNC; Internal Advisory Committee
GI Center Gastroenterology Research Training T32 Advisory Board

PETER GILLIGAN, Ph.D.
Director, Medical and Public Health Microbiology Fellowship Program
Member, C. difficile Preventable Harm Task Force
SOM Admissions

VIRGINA GODFREY, DVM, Ph.D.
Alternate Member, IACUC

KEVIN GREENE, M.D.
Member, Cytopathology Clinical Competency Committee
Member, Cytopathology Program Evaluation Committee

MARGARET GULLEY, M.D.
Member, UNC Clinical Genetics Advisory Group to Lineberger Cancer Center and University Cancer Research Fund
Member, Executive Director's Advisory Group, UNCH McLendon Labs
Member, UNC Pathology Residency Education Committee; Director of Molecular Pathology
Member, Search committee, chair of Micro/Immuno Dept
Director, Molecular Genetic Pathology Fellowship Program

SUSAN C. HADLER, M.D., M.S.
Medical School TEC Foundations Committee
Medical School Progress Committee
Dental School Curriculum Committee
Dental School 1st Year Teaching Committee

TRACY HEENAN, D.V.M.
Member, DLAM Advisory Committee (appointed June 2004)
Member, IACUC Animal Concern Subcommittee
Member, IACUC
Chair, IACUC/DLAM Leadership Committee
Member, University's Sustainability Advisory Committee
Member, Research Compliance Committee
Founder and Co-Chair, Network of Laboratory Animal Coordinator, Steering Committee
Lead Coordinator, AAALACi Accreditation Task Force for 2017

JONATHON W. HOMEISTER, M.D., Ph.D.
Director of Graduate Studies, Pathobiology and Translational Science Graduate Program
Member, BBSP Executive Committee
Member, Department of Pathology and Laboratory Medicine Research Advisory Committee
Member, Medical School TEC Foundation Phase Curriculum Committee

J. CHARLES JENNETTE, M.D.
Member, UNC Health Care System Executive Council
Member, Dean's Advisory Committee of the UNC School of Medicine
Member, UNC Faculty Physicians Board
Member, Medical Staff Executive Committee
Member, Clinical Chairs' Committee
Member, Basic Science Chairs and Center Directors Committee
Member, UNCFP/UNCH Clinical Investment Committee

KATHLEEN KAISER-RODGERS, Ph.D.
ABMGG Cytogenetics and Genomics/Laboratory Genetics and Genomics Fellowship Director

DAVID G. KAUFMAN, M.D.
Member, UNC, University Safety and Security Committee
Chair, UNC, Radiation Safety Committee
Chair, SOM, Jefferson Pilot and Woods Award Selection Committee

MEHMET KESIMER, Ph.D.
Member, UNC Committee on Scholarship Awards and Student Aid
Member, Otolaryngology Department Chair Search Committee
Member, Pathobiology and Translational Science Graduate Program Executive

NICHOLE KORPI-STEINER, Ph.D.
Program Director, Clinical Chemistry Fellowship Program
Member and Waived Testing Chapter Leader, Standards and Accreditation Committee
Member, Quality/Safety Subcommittee, Standards and Accreditation
Member, UNC Healthcare POCT Enter/Edit Standardization Committee
Member, ACGME AP/CP Resident Performance Evaluation Committee, Self-Study Working Group Document Review Subcommittee
Chair, UNC Healthcare System Point of Care Testing Committee
Blue Belt Sponsor, Lean Six Sigma Team: Green belt team, Outpatient phlebotomy patient satisfaction

CHARLES TYLER LONG, D.V.M.
Member, Institutional Animal Care and Use Committee

CHRISTOPHER MACK, Ph.D.
UNC Dept of Pharmacology Graduate Program review committee
Medical Student Research Grant Evaluation Committee
Director, NHLBI, Interdisciplinary Vasc Biology
Director, AHA, Med Student Summer Research
Creator and Director, UNC, Certificate Program in Cardiovascular Sciences

NOBUYO MAEDA, Ph.D.
DLAM Advisory Committee

STEPHANIE MATHEWS, M.D.
Member, AP/CP Clinical Competency Committee
Member, AP/CP Self-study Committee

SUSAN MAYGARDEN, M.D.
Program director, Anatomic and Clinical Pathology Residency Program
Member UNC Graduate Medical Education Committee
Member, Department of Pathology Clinical Competency Committee for the Pathology Core Residency Program
Chair, AP/CP residency clinical competency committee

C. RYAN MILLER, M.D., Ph.D.

Member, UNC School of Medicine, Nurturing Physician Scientists Working Group, Office of Clinician Scientist Training
Member, UNC Pharmacology Graduate Program, Preliminary Examination Committee
Graduate Student Mentor, Initiative for Maximizing Student Diversity (IMSD)
Member, IMSD, Advisory Committee
Weekend Coordinator, UNC Biological and Biomedical Sciences Program (BBSP)
Member, UNC Lineberger Comprehensive Cancer Center, Advisory Committee, Animal Histopathology Core Facility
Member, UNC Lineberger Comprehensive Cancer Center, Bioinformatics Core Facility, Senior Oversight Committee
Member, UNC Neuroscience Curriculum, Preliminary Examination Committee
Member, UNC Medical Scientist Training Program (MSTP) Advisory Committee
Member, UNC Lineberger Comprehensive Cancer Center, Clinical Genomics Committee
Director, NIGMS, Translational Medicine
Faculty Director, Translational Pathology Laboratory, Core Facility

MELISSA B. MILLER, Ph.D.

Member, Anti-infective Subcommittee of the Pharmacy and Therapeutics Committee, UNC Health Care
Member, Hospital Infection Control Committee, UNC Health Care
Member, CLABSI/MRSA Bacteremia Prevention Core Team, UNC Health Care
Member, UNC Health Care Systemwide Anti-infectives Committee
Member, Stewardship Committee
Co-director, CPEP Fellowship in Medical and Public Health Microbiology

STEPHANIE MONTGOMERY, D.V.M, PhD.

Member, Dept. of Pathology and Laboratory Medicine, Graduate Student Preliminary Exam Committee
Member, UNC Council of Core Directors
Member, UNC iLabs Implementation
Director, Animal Histopathology & Laboratory Medicine Core

JUDITH NIELSEN, D.V.M.

Member, IACUC
Member, IACUC Animal Concern Subcommittee
Member, Lab Animal Enrichment Committee (resigned Feb. 2016)
Member, LAC Steering Committee
Member, DLAM Leadership Committee
Member, DLAM Advisory Committee 2015-Jan 2016
LCCC Animal Studies Core Advisory Committee
IBC joined this committee in Feb. 2016- present

VOLKER NICKELEIT, M.D.

Director, Nephropathol ogy Fellowship training

SIOBHAN O'CONNOR, M.D.

Member, Resident Clinical Competency Committee
Chair, Cytopathology Fellow Clinical Competency Committee

YARA PARK, M.D.
Director, Transfusion Medicine Fellowship
Member, P&T Committee of UNCH
Member, Bone Marrow Transplant Quality Assurance Committee
Member, Disaster Preparedness Committee
Chair, Clinical Competency Committee and Self-Study Committee, Pathology Residency Program

LI QIAN, Ph.D.
Cell Biology and Physiology (CBP) Preliminary Examination Committee
Faculty Mentor, MD-PhD Woman in Science
Faculty Recruiter, UNC MD-PhD Program
UNC MSTP NHI review on-site visit committee
Faculty Judge, 50th Annual Medical Student Research Day
Search Committee for Research Assistant Professor in Department of Pathology
Search Committee for the new chair of Department of Genetics at UNC SOM
Faculty Judge, Woman in Science (WinS) Symposium
Faculty Director, Human Pluripotent Stem Cell Core
UNC Core Facility Advocacy Committee (CFAC)
Research Advisory Committee (RAC), Dept of Pathology and Laboratory Medicine
Faculty Speaker/Interviewer, BBSP Graduate Student Recruitment
UNC Human Pluripotent Stem Cell Core Faculty Mentoring Committee

JAY S. RAVAL, M.D.
Member, UNC Assistant Professors/Assistant Librarians Representative, Faculty Grievance Committee
Member, Non-trauma Massive Transfusion Protocol Committee
Member, Sickle Cell Disease Patient Committee
Member, TMS Transplant Service Laboratories QA Committee
Member, BMT HPC QA/QI Committee
Member, Pulmonary Transplant Committee
Member, Living Donor Kidney Transplant Committee
Member, UNC Honor Council
Member, AP/CP Residency Program Clinical Competency Committee
Member, Benign Hematology QI/ME
Member, CP QI M&M Committee
Member, UNC Faculty Information Technology Advisory Panel
Chair, Transfusion Medicine Fellowship Program Clinical Competency Committee

ALLISON ROGALA, D.V.M.
Member, DLAM Veterinary Resident Search Committee

MARIAN ROLLINS-RAVAL, M.D., M.P.H.
Member, TMS/Immunology QI Committee
Member, Benign Hematology QI/ME
Member, Hematopathology Director's Meeting
Member, Coagulation Director's Meeting
Member, Flow Cytometry QI/Development
Member, CP QI/M&M Committee
Member, Parker Hematology/Oncology Conference

Member, HIT Collaborative Meeting
Member, Dermatology/Hematology Tumor Board
Member, Pediatric Hematology Tumor Board

LORI RENEE SCANGA, M.D., PhD.
Committee Member, Margaret Gulley and Nancy Nye Awards for Secretarial/Administrative Excellence
Search Committee Member for Renal and Gynecologic Pathologist

JOHN SCHMITZ, Ph.D.
Director, UNC Medical Laboratory Immunology Fellowship

STEVEN T SHIPLETY, D.V.M., DACLAM
Alternate Voting Member, UNCCH IACUC
Member, UNCCH IACUC/DLAM Committee
Member, UNCCH, IACUC Animal Welfare Concerns Sub-Committee
Director, Laboratory Animal Medicine Residency Training Program

SCOTT V. SMITH, M.D.
Member, AP/CP Clinical Competency Committee, UNC Pathology Residency Program
Director of Surgical Pathology Fellowship Program

JOAN TAYLOR, Ph.D.
Department of Pathology, Research Advisory Committee
School of Medicine Conflict of Interest Committee
Internal review committee for Pew, Searle, Ellison, Rita Allen, and Packard scholars
Primary Mentor & Committee Member, Li Qian, Dept. Pathology
Faculty Mentoring Committee Member, Jiandong Liu, Dept. Pathology
Faculty Mentoring Committee Member, Qing Zhang, Dept. Pathology
Faculty Mentoring Committee Member, Sean McLean, Dept. Surgery
Faculty Mentoring Committee Member, Michael Bressan, Dept. Cell Biology and Physiology
Faculty Mentoring Committee Member, Jimena Guidance, Dept. Cell Biology and Physiology
Faculty Mentoring Committee Member, Stephanie Montgomery, Dept. Pathology
Faculty Mentoring Committee Member, Pablo Ariel, Dept. Pathology
Chair, Faculty Search Committees
Vice Chair for Research, Department of Pathology

DIMITRI G. TREMBATH, M.D., Ph.D.
Director, Division of Neuropathology
Schedule organizer, Surgical Pathology

CYRUS VAZIRI, Ph.D.
Member, Department of Pathology and Laboratory Medicine Research Advisory Committee
Member, BBSP 'Pathogenesis' Graduate Admissions Committee
Member, Graduate Program in Molecular Pathology Executive Committee
Member, Graduate Program in Molecular Pathology Qualifying Exam Committee
Member, Curriculum in Toxicology Qualifying Exam Committee
Member, Curriculum in Toxicology Executive Committee
Member, Center for Environmental Health and Susceptibility (CEHS) Research Director

For Environmental Cancer
Associate Director of Graduate Studies, Graduate Program in Molecular Pathology
Director of Graduate Admissions, Curriculum in Toxicology

KAREN WECK-TAYLOR, M.D.
Member, Cancer Genomics Committee, UNC Lineberger Comprehensive Cancer Center

BERNARD E. WEISSMAN, Ph.D.
Member, Post-Tenure Review Committee
Member, UCRF Grant Review Committee
Director, NCI, Cancer Epigenetics Training Program
Director, Postdoctoral Studies for the Curriculum in Toxicology

HERBERT C. WHINNA, M.D., Ph.D.
Member, UNCCH POC Committee
Member, UNCCH Transfusion Committee
Member, UNCCH MSEC
Member, UNCCH Credentials Committee
Member, Epic ePUG Committee

JULIA WHITAKER, M.S., D.V.M.
Member, Institutional Animal Care and Use Committee (IACUC)
Member, DLAM Advisory Committee
Associate Director of Research Administration

DAVID C. WILLIAMS, M.D., Ph.D.
Member, DPLM Research Advisory Committee
Member, NMR faculty recruitment - search committee

SCOTT WILLIAMS, Ph.D.
Member, Genetics & Molecular Biology Executive Steering Committee
Member, Pathobiology & Translational Sciences Executive Committee
Member, BBSP Admissions Committee, NCGC "A"
Member, BRIC Small Animal Imaging Advisory Committee
Chair, BBSP Weekend Coordinator

SARA E. WOBKER, M.D., M.P.H
Member, LCCC Research Operations Committee

ALISA S. WOLBERG, Ph.D.
Member, UNC Thrombosis and Hemostasis Program Seminar Series
Member, Faculty Search Committee, Department of Pathology & Laboratory Medicine
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Member, BBSP graduate program recruitment committee
Chair, Pryzwansky Award Committee

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