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# UVA Path Report News from the UVA Department of Pathology

Volume 1 | November 2015

## A Message from the Chairman

I am very happy to introduce the inaugural newsletter from the UVA Department of Pathology. We intend to use this publication to keep in touch with the graduates of our training programs and other friends of the Department, and to let our clinical colleagues and collaborators know about the activities of our current faculty and trainees, advances in our diagnostic offerings, and the exciting new research being performed here.

The past year has been one of tremendous change in our Department, with the retirement of several faculty members after long and distinguished careers, and with the addition of dynamic new faculty who are carrying on the tradition of clinical and academic excellence at UVA. Sad as we are to bid a fond farewell to the stalwarts of our field that have built the reputation of this Department, I am thrilled to say that our new faculty are bringing additional expertise and fresh perspectives that are energizing our activities and leading us in new directions.

Although there are many advances and programs that we could highlight, including new molecular diagnostics in infectious disease, a clinical trial validating digital pathology, and new assay development with mass spectroscopy, we have chosen to highlight the deployment of next generation sequencing in our medical laboratories. The genomic era at UVA Health System has begun!

The academic and research efforts of the Department remain strong – even a quick perusal of the selected publications in this newsletter shows that our faculty and trainees are making major contributions by advancing both basic science and clinical practice. Our research portfolio includes 17 new grants and contracts awarded to our faculty over the last year worth over 9.3 million dollars in total support. In 2014 we were ranked 35th of all Pathology Departments in NIH research

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funds received, with \$5,339,888 attributed. Clearly our faculty is recognized as worthy of support from sponsors for their productivity and academic prowess.

Finally, I will note that with the retirement of Don Innes, our dedication to medical student teaching remains strong, and the torch has been passed to Robin LeGallo who already has been chosen for several teaching awards by the medical students and by our institution. We are commemorating Don's devotion and talent for medical student teaching by creating a summer internship program in Pathology for medical students, to give students an immersive experience in our discipline. The cost to host each student is approximately \$2500, and we invite you to consider a donation in Don Innes' name to fund one of these internships. Your contribution will help secure the future of Pathology by giving us the opportunity to highlight our field to a select group of trainees.

Christopher Moskaluk M.D., Ph.D.

# In Focus: Clinical Genomics Goes Live

The University of Virginia Health System has recently opened a high-tech Clinical Genomics Laboratory that will personalize care for patients, help doctors determine the best treatments for cancers and other diseases, and allow UVA to offer its patients access to the most cutting-edge clinical trials.

The new lab, under the direction of Dr. Mani S. Mahadevan, a professor in the Department of Pathology, gives doctors the power to examine patients' DNA quickly and comprehensively. In so doing, they can diagnose genetic disorders, identify cancercausing gene mutations and tailor treatments for maximum effectiveness. In short, it puts UVA at the forefront of precision medicine – medicine that is personalized for each patient's particular condition and needs.

With the advent of next-generation sequencing (NGS), the Clinical Genomics Laboratory is able to analyze a larger panel of genes with an increased sensitivity and using a limited amount of biopsy material. "In the case of one of the tests we're using now, it allows us to sequence many genes within a cancer patient's tumor, to determine what mutations or changes they have in their tumor's DNA, with the goal of helping the clinicians decide if the patient will respond or not respond to a particular therapy," Mahadevan said. "This is particularly useful for patients with lung cancer, colon cancer, melanomas, brain cancer and blood cancers like the leukemias."

The facility will also have an impact on the treatment of genetic disorders, such as the heart condition known as cardiomyopathy, and in diagnosing genetic disorders, such as in children with neurological disorders or developmental disorders. "This technology allows us to sequence over 4,500 genes at once in a child and a child's parents to help us find out if there's a genetic basis for their clinical condition," Mahadevan said. "That panel covers pretty much most of the known genetic disorders."

The new lab is certified through the Clinical Laboratory Improvement Amendments (CLIA), the federal government's regulatory program that oversees such facilities. The certification offers important benefits, as it allows the lab results to be used both clinically for patient care and in clinical trials testing new treatments, Mahadevan said. "Many of the new therapies that the drug companies are developing require that this kind of analysis be done in order to select appropriate participants," he said.



Dr. Mani S. Mahadevan

"This technology allows us to sequence over 4,500 genes at once in a child and a child's parents to help us find out if there's a genetic basis for their clinical condition, "Mahadevan said. "That panel covers pretty much most of the known genetic disorders."

"So having this capability in the facility here enables UVA's Cancer Center and the hospital to provide state-of-the-art clinical care for our cancer patients as well as to get involved in cutting-edge trials."

Tests currently available at UVA using NGS technology include analysis of mutations in solid tumors (TruSight Tumor Panel) and in leukemias (Trusight Myeloid Panel). The former includes 26 and the latter includes 54 clinically actionable and relevant genes that provide a more comprehensive view of mutations in cancers such as lung, colon, gastric and ovarian cancers, melanoma, myelodysplastic syndromes, acute and chronic leukemias. The Medical Laboratories Molecular Diagnostics Lab also offers pyro-sequencing tests on targeted cancer genes that are performed individually, including KRAS, EGFR, NRAS, BRAF, IDH1/IDH2, and MGMT (methylation assay).

Continues on next page.

## In Focus: Clinical Genomics Goes Live

The detailed reports issued to users of the Clinical Genomics Laboratory includes genomic data gleaned from tissue samples submitted, as well as molecular pathologist interpretation of this data and guidance for clinicians. For information about ordering these as well as other tests available at the UVA Medical Labs call 888-882-3990 (inside Virginia) or 800-552-3723 (outside Virginia).

The Clinical Genomics Laboratory represents an important collaboration between the UVA Medical Center and the School of Medicine, and Mahadevan and his colleagues are tremendously excited by its arrival. "To have this now at UVA," he said, "is a big step forward for the institution and the patients who come here."

The Clinical Genomics Laboratory complements a number of other facilities and programs currently in place at UVA that are also helping advance both basic and clinical research. These include multi-institutional programs such as the Oncology Research Information Exchange Network (ORIEN), the Cooperative Human Tissue Network (CHTN), and the Lung Cancer Biospecimen Resource Network (LCBRN), as well as the UVA Biorepository and Tissue Research Facility (BTRF). The BTRF Director, as well as the UVA Principal Investigator for each of the multi-institutional programs noted, is a Pathology Dept. faculty member. As such, Pathology Dept. faculty, staff, and trainees collaborate often with basic researchers and clinicians at UVA and elsewhere on studies made possible by these facility and program resources.

The newest of the multi-institutional programs, ORIEN, is expected to have a big impact on the pace of scientific discovery. UVA is one of four new members of ORIEN, joining the founding members (Moffitt Cancer Center and The Ohio State University Comprehensive Cancer Center) in February 2015. The addition of the new ORIEN members is expected to exponentially increase the number of patients consenting to donate their tissue and clinical data – including corresponding genomic data – for research to understand cancer at the molecular level, with the goal of developing more targeted cancer treatments.

Additional cancer centers are in the process of joining ORIEN, where partners share de-identified data to accelerate the development of targeted treatments, allowing researchers and clinicians to more quickly match eligible patients to clinical trials and conduct larger and richer analyses.

ORIEN personifies "big data" – extensive databases with cancer patient information (medical history, cancer tissue, DNA) that can be used for basic research and clinical trials – that puts cancer genomics on the leading edge of precision medicine.

ORIEN is expanding just as the national spotlight is focused on the promise of precision medicine. President Obama revealed his plan to invest in precision medicine during his State of the Union speech, and on Jan. 30 unveiled the \$215 million initiative.

With programs and infrastructure improvements such as ORIEN and the UVA Clinical Genomics Laboratory in place, the UVA Health System is poised to take full advantage of the opportunities the NIH Precision Medicine Initiative will bring. The UVA Dept. of Pathology plans to play a leading role in this charge.

A portion of this article was reprinted with permission from UVA Health System press releases.

For information about ordering these as well as other tests available at the UVA Medical Labs call:

888-882-3990 (Inside Virginia) 800-552-3723 (Outside Virginia)



# Faculty: Moving On, Moving Up





Pam Clark, M.D., J.D

## **Retiring Faculty**

**Jim Boyd, M.D.** retired from the Department after devoting his professional career to UVA. Arriving at UVA fresh from residency and fellowship at Washington University at St. Louis, Jim became a central figure in the Medical Laboratories, holding several directorships of laboratory services including Clinical Chemistry, Toxicology, Lab Computing, Systems Engineering, and Laboratory Automation. His academic work centered principally on various analytic techniques in clinical chemistry, statistical analysis of laboratory results and laboratory automation. He authored approximately 120 peer-reviewed articles and 36 books or book chapters. His scholarship and commitment to service was recognized in his being named Associate Editor of Clinical Chemistry in 1992, one of the most prestigious journals in this field, with elevation to Deputy Editor in 2007. In 2010 he was named Chief of the Division of Clinical Pathology at UVA. With his colleagues, Jim has built this division into a highly respected academic laboratory medicine program with one of the most well regarded training fellowships in Clinical Chemistry. In retirement Jim plans to travel with his wife Barbara, engage in volunteer activities, and continue his interest in choral singing.

**Pam Clark, M.D., J.D.** is a Wahoo several times over having earned her M.D. and J.D. degrees and performing a CP residency and Blood Bank fellowship, all at UVA. Pam has been a fixture in the Transfusion Medicine service, eventually rising to Directorship of the Blood Bank. She is a gifted and thoughtful teacher, providing many hours of instruction to medical students and physician trainees in various aspects of transfusion medicine. She was also Director of the Blood Bank Fellowship for many years. Her academic and research interests included lymphocyte subsets in normal bone marrow, clinical apheresis, and legal issues in blood banking. She was responsible for overseeing several advances in transfusion medicine techniques at UVA including most recently a real-time system of monitoring patient coagulation status to inform the use of platelets and other blood products. She is spending time in her retirement traveling extensively across the world with her husband, Paul, and enjoys not taking call.

**Don Innes, M.D.** retired from the Department after a career that also was exclusively devoted to UVA, its trainees and its patients. Having completed his residency in Pathology at UVA, Don showed his precociousness by going on to complete a fellowship in diagnostic Pathology here while simultaneously achieving the rank of Instructor and being named Director of the Hematology Laboratory. Never looking back, Don also went on to stints as Director of the Ambulatory Care and the Primary Care Center Laboratories. For essentially all of his time at UVA he played a central role in the hematopathology diagnostic service. His academic interests were broad, and he authored 69 peer-reviewed publications dealing with diagnostic pathology and hematopathology, as well as participating in various experimental projects. However, perhaps his greatest impact was on undergraduate medical education, where he ran the Pathology course for many years, and then helped oversee the development of the new integrated curriculum as Associate Dean for Undergraduate Medical Education. Over his tenure Don won a dozen teaching awards and was an exceptional teacher and mentor to thousands of medical students, resident physicians and fellows. In retirement Don plans to travel with his wife Allison and continue his interest in art.

# Faculty: Moving On, Moving Up

## **Retiring Faculty**

Dennis Templeton, M.D., Ph.D. retired from the Department after serving as its Chairman from 2001 to 2012. Dennis received his M.D. and Ph.D. degrees from the University of California-San Diego where his thesis work helped elucidate the role of polyoma virus genes in cell transformation. He went on to complete a Pathology residency and fellowship at Harvard, where his work in the laboratory of Robert Weinberg centered on the control of the retinoblastoma protein activity by phosphorylation. He built a successful career as a cancer researcher at Case Western University, with a research focus on the role of signal transduction in oncogenesis. After being recruited to UVA, Dennis oversaw the designation of the Dept. of Pathology as a basic science department, with the creation of a Ph.D. granting program in Experimental Pathology, and establishing the Molecular and Cellular Basis of Disease graduate training program. Over his career he has been principal investigator on 5 different NIH RO1 grants, in addition to several other grants, and has published 61 peer-reviewed articles. Dennis has retired from UVA but not from academic medicine. His "second act" is Dean of the College of Medicine and Health Sciences at United Arab Emirates University!

We would be remiss in not also marking the retirement of **Debra Reed**, Dr. Innes' and Boyd's long time administrative assistant. Joining the Department of Pathology in 1986, Debra devoted most of her professional life to UVA. While assisting faculty of the Clinical Pathology Division in their various academic pursuits, Debra joined Don Innes' passion for medical student teaching and became the chief administrative source of support first for the Pathology course in the traditional medical school curriculum, and then as an invaluable aid to Don in his role as Associate Dean in the development of the new integrated curriculum. Debra hung in there as long as Don and Jim were around, and is now enjoying retirement with her husband Thurman, traveling (camping and of course cruising the seven seas), reading and enjoying her children and grandchildren.





Dennis Templeton, M.D., Ph.D

Debra Reed

## **Faculty Promotions**

Helen Cathro, M.B.Ch.B., M.P.H., has been awarded tenure.

Janet Cross, Ph.D., has been named Assistant Dean for Graduate Research and Training.

Hui Li, Ph.D., has been promoted to Associate Professor.

Ed Stelow, M.D., has been promoted to Professor.

Congratulations to all on your accomplishments!

# Faculty: Moving In











### **New Faculty**

**Lindsay Bazydlo, Ph.D.,** joined the Dept. of Pathology in 2014 as Assistant Clinical Professor. She completed a doctorate in Chemistry as well as a fellowship in Clinical Chemistry at UVA. She was Co-Director of Clinical Chemistry and Director of Clinical Toxicology at the University of Florida for 3 years before returning to UVA. Her clinical interests include laboratory testing in clinical chemistry, toxicology, hemostasis and endocrinology. Her research interests include development of new assays in toxicology, drug monitoring and endocrinology using liquid chromatography and tandem mass spectrometry. Her outside interests include sports, exercise, fitness and spending time with family.

James Gorham, M.D., Ph.D., joined the Dept. of Pathology in 2015 as Professor, Chief of Laboratory Medicine, and Director of the Blood Bank and Transfusion Medicine. He completed medical school at New York University, a residency in Laboratory Medicine at Washington University, and a fellowship in Blood Bank and Transfusion Medicine at Dartmouth Hitchcock Medical Center. He was a faculty member at Dartmouth Geisel School of Medicine for 16 years prior to coming to UVA. His research interests include factors affecting blood storage, immune tolerance and autoimmunity, immunology of the liver, and mouse genetics. His outside interests include Ultimate Frisbee, reading, baseball (Red Sox) and football (Patriots).

Alejandro Gru, M.D., joined the Dept. of Pathology in 2015 as Assistant Professor. He completed medical school at Universidad de Buenos Aires, a residency in Anatomic and Clinical Pathology at Washington University School of Medicine, and fellowships in Hematopathology and Dermatopathology at Washington University. He was a faculty member at Ohio State University Medical Center for 2 years prior to coming to UVA. His clinical interests include skin lymphomas, T-cell and NK-cell lymphomas, and melanocytic pathology. His research interests include cutaneous lymphoproliferative and myeloproliferative disorders, T and NK-Cell lymphoma, and EBV-lymphomagenesis.

**C. John Luckey, M.D., Ph.D.,** joined the Dept. of Pathology in 2015 as Associate Professor and Associate Medical Director of Blood Bank and Transfusion Medicine. He completed medical school and a doctorate in Microbiology at UVA, a residency in Clinical Pathology at Brigham and Women's Hospital, and a fellowship in Transfusion Medicine at Harvard Medical School. He was a faculty member at Brigham and Women's Hospital and the Harvard Stem Cell Institute for 8 years prior to returning to UVA. His clinical interests include cellular therapies and bone marrow transplantation, as well as transfusion medicine and blood banking in adult and pediatric settings. His research interests include cytokine signaling and transcriptional regulation of red blood cell alloimmunization and of immune memory.

**Anne Mills, M.D.**, joined the Dept. of Pathology in 2015 as Assistant Professor. She completed medical school at UVA, a residency in Anatomic and Clinical Pathology at Stanford School of Medicine, and fellowships in Cytopathology and Gynecologic Pathology at UVA. Her clinical interests include general surgical pathology with specialization in gynecological pathology, cytopathology, and renal pathology. She also provides pathologist support to UVA's Biorepository and Tissue Research Facility. Her research interests include the use of molecular and immunohistochemical techniques to improve cancer diagnosis and prognostication with specific interest in uterine neoplasia, heritable cancer syndromes, and human papillomavirus-related malignancies.











## **First Year Residents**

**Debra Berry, M.D.,** grew up in the East bay in a small suburb of Oakland, California. She began her undergraduate career in a local community college, briefly traveling abroad to develop her conversational Mandarin. Later she studied the History of Art at UC Berkeley and subsequently moved to Manhattan to earn her Master of Science degree in Human Nutrition from Columbia University. From there, she traveled upstate to obtain her medical degree from the State University of New York Upstate Medical University. In her years of schooling, she has cared for two bunnies, Milo and Abbey, and a mixed breed dog, Sadie, all culled from the rescue creatures at the SPCA. She enjoys movies, running, and coffee.

**Jonathon Davick, M.D.**, was born in Iowa City, Iowa and grew up in Des Moines, Iowa. He received his B.A. in Chemistry at St. Olaf College in Northfield, Minnesota where he played trumpet in the St. Olaf Band and St. Olaf Jazz I Ensemble. While at St. Olaf, Jonathan also participated in the St. Olaf curling club, and traveled to both Ecuador and Japan. He received his M.D. from the University of Iowa Carver College of Medicine. Following his third year of medical school, Jonathan participated in his medical school's Pathology Externship Program where he gained experience in surgical pathology, autopsy, dermatopathology and research. He enjoys playing guitar, piano and trumpet, as well as listening to music. His other interests include cooking, gardening, camping and reading. Jonathan is pursuing AP/CP training.

**Erik A. Dill, M.D.**, was born in Sterling, KS. While pursuing his B.S. in Biology at Kansas State University, he worked in an immunology lab studying ischemia reperfusion injury and spent several spring breaks volunteering in East St. Louis. After college, Erik did research at National Jewish Health in Denver, CO using a mouse model for lung injury and repair and married his incredible wife Dana, a creative writer. In 2011, he attended the University of Kansas School of Medicine, where he founded and led a Medical Ethics Discussion Group, received a grant to write an immunology tutorial, and published an article on teaching basic sciences to medical students. Erik has a wonderful daughter, Amelie (4), and an amazing son, Hudson (8mo). He enjoys reading, writing and playing music, writing prose, and spending time with his family going to museums and coffee shops, hiking, and eating many things.

**Joel Murphy, M.D.**, was born and raised in Flower Mound, Texas. He first began his undergraduate degree at Lenoir-Rhyne University after receiving a soccer scholarship. Deciding to "hang up his boots" and pursue medicine, he received his B. S. degree in Medical Laboratory Science from Texas Tech University Health Science Center in Lubbock, Texas. While an undergrad, Joel was elected into the Alpha Eta Honor Society for Allied Health Professionals. Joel received his M.D. from the University of Texas at Houston. While in medical school, he enjoyed mentoring high school and undergraduate students in their goal of becoming physicians. His wife is a Physical Therapist for Barren Ridge Physical Therapy, working in the outpatient Orthopedic setting. Joel enjoys spending free time with friends and family as well as hiking, golfing, playing ice hockey, and occasionally playing soccer. Joel is pursuing AP/CP training.

**Sara Zadeh, M.D.,** is a true Georgia peach. She grew up in Atlanta, Georgia and completed her B.S. in Biology in 2010 and in Biotechnology the following year at the University of Georgia. With a strong interest in international healthcare, she had the opportunity to travel to Peru and Tanzania on multiple mission trips as an undergraduate. She went on to receive her M.D. from The Medical College of Georgia in 2015. As a medical student, she held leadership roles and was involved in numerous organizations that focused on the healthcare disparities of women, minorities, and the indigent population in her local community. She envisions herself completing a fellowship and working with students after graduating from residency. Sara enjoys trying new foods, traveling, meeting new people, skiing, and being a big sister.

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### **First Year Fellows**

**Felicia Allard, M.D.,** is a Rocky Mountain Girl raised in Northern Colorado. She received her undergraduate degree in Philosophy from Colorado State University and her M.D. from the University of Colorado School of Medicine. She completed her residency in Anatomic and Clinical Pathology at Beth Israel Deaconess Medical Center in Boston, Massachusetts where she also completed a fellowship in Gastrointestinal and Hepatobiliary Pathology. She then relocated to Charlottesville for a fellowship in Cytopathology at UVA. In the future she hopes to find a position as an academic pathologist where she can utilize both her GI and cytopathology training, teach and pursue translational research.

**Rahat Bhatti, M.D.,** completed his medical degree at University of Washington and his Anatomic and Clinical Pathology residency at UVA, where he was Chief Resident in his final year. He is currently a Hematopathology fellow at UVA.

**Sean Campbell, Ph.D.,** was born and raised in Absecon, New Jersey. He attended Johns Hopkins University for undergraduate study, earning a B.A. in Chemistry with a minor in Theater Arts. While attending JHU he worked in the laboratory of Dr. David E. Draper, studying the biophysics of RNA folding. After finishing his degree, he travelled out west to attend the University of Arizona as a Ph.D. student in Chemistry and Biochemistry under the Biological Chemistry program. There he studied the molecular basis of Bcl-2/BH3-Only interactions that regulate apoptosis as well as the design of novel switchable kinases for the dynamic regulation of kinase activity in cells. Sean now lives in Charlottesville with his wife, a current Masters of Biotechnology student at Johns Hopkins, and is pursuing his further training in Clinical Chemistry.

**Joseph McDermott, M.D., r**eceived his undergraduate degree in Biology from the University of Utah in 1998. He then joined the US Air Force, and has served as an officer for 17 years since. He received his medical degree from Uniformed Services University of Health Sciences, and then completed a surgical internship at Wright State University, and a residency in Anatomic and Surgical Pathology at the San Antonio Uniformed Services Health Education Consortium. Following residency, he moved to England, where he served as Chief of Anatomic Pathology at RAF Lakenheath Hospital, and medical director over clinical labs in England, Italy, Portugal, and Turkey. From there, he was transferred to Germany, where he served as Chief of Surgical Pathology and Medical Director of Blood Services at Landstuhl Hospital, and medical director over clinical labs in Germany and Belgium. He then spent two years in California, where he was Deputy Medical Director and Chief of Surgical Pathology at David Grant Medical Center, and medical director of one of the two blood processing laboratories of the Department of Defense. He has had a longstanding interest in dermatopathology, and is excited to be doing a fellowship in the subject at UVA, under the tutelage of Dr. Patterson and Dr. Wick.

**Yunchuan "Delores" Mo, M.D.,** completed her medical degree at the University of Hawaii and her Anatomic and Clinical Pathology residency at UVA. She is currently a fellow in Blood Banking and Transfusion Medicine at UVA.







## **First Year Fellows**

**Yaseen Mohiuddin, M.D.,** grew up in Michigan and attended the University of Michigan in Ann Arbor for undergraduate studies, graduating with a Bachelors of Arts degree in Economics. He subsequently stayed in Ann Arbor and completed medical school also at the University of Michigan. He then headed south to North Carolina, where he did an AP/CP residency at the Brody School of Medicine at East Carolina University. Last year, he was the Hematopathology fellow at UVA, and is now a fellow in Gynecologic Pathology. Yaseen is married with two daughters, 11 months old and 3 years old, and enjoys spending time with his family during his free time.

**Garrett Mullins, Ph.D.,** was born in Snellville, Georgia. He received his B.S. in Molecular Biology from Brigham Young University and his Ph.D. in Pharmacology/Biochemistry from UVA. His Ph.D. thesis was completed in the lab of Dr. Thurl Harris, focusing on how the adaptive stress response, through the actions of catecholamines, inhibits insulin-stimulated glucose uptake in adipose tissue. Garrett and his wife have two young children, and together they enjoy naptime, hiking, eating, and music. Garrett is a car fanatic and a local Scoutmaster in Charlottesville, where he hopes to instill the love of the outdoors to his scout troop. Garrett is pursuing training in Clinical Chemistry.

**Karyn Prenshaw, M.D.**, completed her medical degree at MD Wayne State University and her Anatomic and Clinical Pathology residency at the University of Tennessee. She is currently a Dermatopathology fellow at UVA.



**Anne Stowman, M.D.,** is from Detroit Lakes, Minnesota. She received her undergraduate degree from the University of Wisconsin and her medical degree from the University of Minnesota. She completed a residency in Anatomic and Clinical Pathology and is now completing a fellowship in Dermatopathology at UVA. She and her husband have a 2 year-old daughter, and are expecting a second child in October.





**Tatjana Terzic, M.D.**, comes from Montreal, Canada. She completed her M.D. and her residency in Anatomical Pathology at the Université de Montréal. She is currently pursuing a clinical fellowship in Cytopathology. In her free time, she enjoys traveling, swimming, hiking, taking music lessons and spending time with friends and family.

**Miriam Wildeman, M.D.,** is originally from central Pennsylvania and has a B.S. in Languages and Linguistics from Georgetown. The medicine bug struck, and she took an extra year to fulfill premed requirements. She was fortunate to get into the Penn State College of Medicine, where she met her husband. They couples-matched in pediatrics and surgery (neuro) at Emory. Three years into residency, she realized she enjoyed seeing the sun, resigned, had three children, and engaged in nonmedical pursuits for too many years. Finally, when the kids were all grown, she was again fortunate to be accepted into pathology residency at East Carolina University. Neuropath was a natural and long-time interest, so she was delighted to be accepted at UVA as a fellow. She enjoys dabbling in languages, poetry, classical guitar and quilting, though she hasn't had much time to devote to the last two for several years.













### **Entering Graduate Students**

**Breanna Brenneman** grew up in Goshen, Indiana and received her undergraduate degree in Microbiology from Ball State University in Muncie, Indiana in 2013. She was a founding member of the undergraduate microbiology research journal, Fine Focus, in 2012. She also attended a National Science Foundation funded biotechnology internship at Western Kentucky University in Bowling Green, Kentucky during the summer of 2012. She is now beginning her second year at the University of Virginia as a PhD student in the Molecular and Cellular Basis of Disease Graduate Program. Breanna hopes to illuminate the brain's immune response to malignant gliomas and in doing so identify effective treatments for these devastating cancers. After receiving her PhD, Breanna's ultimate goal is to become a university professor in cancer biology and continue research on brain tumor immunology.

**Kelly Drews** is from Leesburg, VA, and received his B.S. in Biology, B.S. in Biochemistry, and B.A. in History from Virginia Tech in 2014. As an undergraduate he worked on effector proteins of the fungal pathogen Aspergillus fumigatus to characterize their interactions with host phospholipids at the molecular level. At UVA Kelly is involved in a collaborative project between the Kester and White labs attempting to determine the influence of sphingolipids on influenza viral infection. He is particularly interested in the intersection between business and science and hopes to integrate that into his future research. When not in the lab Kelly enjoys hiking, traveling, and participating in the local sports leagues.

Alexandra Harris, M.S., was born and raised in southern California, receiving her B.S. degree in Biochemistry and Cell Biology from the University of California, San Diego. As an undergraduate researcher in the lab of Eyal Raz, M.D., her project discovered a novel mechanism by which capsaicin, the pungent component of chili peppers, negatively regulates EGFR signaling in the context of intestinal tumorigenesis. Enthralled with cancer research, she chose to remain at UCSD to achieve a M.S. degree in Biology. Her Master's thesis research explored combinatorial therapeutic approaches in the MAPK signaling pathway in colorectal cancer. She has now joined the Biomedical Sciences Graduate Program at UVA to pursue her Ph.D. in Experimental Pathology. In the biomedical engineering laboratory of Jennifer Munson, Ph.D., Ali's project explores the role of lymphatics in triple-negative breast cancer. Ali has recently been awarded an NIH-sponsored Biotechnology Training Grant, which will fund her Ph.D. research as well as sponsor a unique international externship opportunity in the private sector.

**Paige M. Kulling** graduated with a B.A. in Biological Sciences from Cornell University in May 2014. During her undergraduate career, she received an NSF grant to study DNA repair mechanisms in response to ultraviolet radiation (UVR) damage in freshwater zooplankton. Although Paige focused on ecological genetics as an undergraduate, she has always been passionate about biomedical sciences, particularly cancer and infectious diseases, which prompted her to pursue biomedical research as a graduate student. Currently she is a second year graduate student in Dr. Thomas Loughran's laboratory where she studies LGL leukemia, a rare blood cancer. Paige is particularly attracted to translational science and plans to pursue a career in clinical research. When Paige is not at her lab bench, she enjoys traveling the world and dancing.

**Camille Lewis** was born in Cottonwood, Idaho, and graduated from Tulane University in New Orleans with a Bachelor of Science in Cell and Molecular Biology and a minor in Chemistry. She became fascinated with research as an undergraduate working in a lab that focused on novel mechanisms of drug resistance in breast cancer. As a graduate student, she is focusing her attention on understanding interactions between papillomavirus oncoproteins and cellular proteins. Outside of lab, she enjoys home renovation projects, volleyball, and hanging with friends.

Laryssa Manigat was born in Port-au-Prince, Haiti, but has lived most of her life just outside of Boston in Newton, Massachusetts. She received her bachelor's degree in Behavioral Neuroscience from Northeastern University where she gained real world experience through their renowned Co-operative education program. As an undergrad working in such places as Biogen and Genzyme Sanofi, she developed her interest in translational research. After graduating, Laryssa spent two years at Massachusetts General Hospital's Center for Computational and Integrative Biology before starting her graduate career at UVA. She is currently studying the effect that the combined treatment of HDAC inhibitors and Notch inhibitors has on glioblastoma and melanoma. When not in lab, Laryssa enjoys playing sports, reading, and spending time with family and friends.

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### **Entering Graduate Students**

**Stephanie Melchor** grew up all over the country, but her heart resides in the land of fireflies, magnolias, blueberry bushes, and honeysuckle (a.k.a. Auburn, Alabama). She studied German and Microbiology at Brigham Young University, graduating with a B.S. in Microbiology in 2012. Stephanie is thrilled to return to UVA, where her father received his Ph.D., and where she has fond memories of playing on the Lawn and in Mr. Jefferson's gardens as a child. She has just begun the 2nd year of her PhD program in the Department of Pathology, training in Dr. William Petri's lab. She is using intestinal stem cells to study mechanisms of gut healing during persistent inflammation and malnutrition, and is grateful for the opportunity to combine creativity with analysis to answer important questions in global health. Stephanie is passionate about all aspects of musical theatre, and on bad days you can find her singing sad songs from Les Misérables to her dying cells in the tissue culture room. She also enjoys cooking, writing, cleaning/organizing, and spending time with her cute husband.

**Ellen Mintz, M.S.**, is from Santa Cruz, California. She received her B.S. in Biology from California Polytechnic State University, San Luis Obispo in 2012. She earned her M.S. in Biology in 2014 from Cal Poly studying the role of Wnt signaling in fibroblast reprogramming to iPSCs. This research was completed at University of California, San Diego as a visiting CIRM Bridges student. She currently works in the lab of Dr. George Christ, studying skeletal muscle tissue engineering and regeneration. In her spare time, Ellen likes to sail, read, and spend time outside.

Victoria (Tori) Osinski grew up in Milwaukee, WI and received her B.S. in Biochemistry at the University of Wisconsin-Madison. As an undergrad, she studied transcriptional regulation of genes of interest in bone and liver while working part-time in a UW biochemistry lab and during a summer research internship at the University of Pittsburgh, respectively. Upon arriving at UVA, Tori received a first-year graduate Peach Fellowship and is now supported by the NIH Basic Cardiovascular Research Training Grant. Her research interests lie at the intersection between adipose tissue biology and immunology as she works to better understand the regulatory mechanisms behind brown adipose tissue formation and "beiging" and to better characterize the immune response in adipose tissue during the onset and persistence of obesity. Tori is developing her leadership skills and fulfilling her passion for volunteering by serving as a co-chair in the Graduate Biosciences Society Service and Outreach committee. She also enjoys playing soccer, running, hiking, cooking, and painting in her free time. Tori is currently pursuing her Ph.D. in Experimental Pathology in the McNamara lab.

Jeremy Shaw was born in Cortland, Ohio, and received his B.S. in Cellular/Molecular Biology and a minor in Chemistry from Kent State University in 2014. His undergraduate research spanned three separate institutions including two branches of Kent State University and the Cleveland Clinic while topics included microbiology of mycobacterium ulcerans, cancer biology of Acute Myeloid Leukemia, and stem cell biology of skeletal myoblasts. Jeremy is now performing his Ph.D. research in the lab of Dr. Mark Kester. Although his exact project details are currently nebulous, his interests include both Cancer Biology and Stem Cell/Regenerative Research. In his free time, Jeremy enjoys playing any sport besides basketball (especially soccer), volunteering, hiking, cooking, snowboarding, and telling really bad corny jokes until his friends literally leave the room. He is looking forward to getting more involved in the program, and utilizing the collaborative nature of UVA. Hakuna Matata!

**Logan Patterson** (not shown) was born in Roanoke, Virginia. He received his B.S. in Biochemistry and Biology from Virginia Tech in 2014. His undergraduate research focused on the effects of bacterial quorum sensing molecules from P. aeruginosa on brain cancer. Here at UVA he is studying the effects of the gut microbiota on cancer progression and treatment. In his spare time, Logan enjoys playing videogames but can also be convinced to go outside and play sports every now and then.

# Alumni News: Recent Graduates

**Fahad Bafakih, M.D.,** completed a Neuropathology fellowship at UVA in 2015, and is now employed in the Dept. of Pathology and Laboratory Medicine at Logan Regional Medical Center in Logan, WV.

Alexander Baras, M.D., Ph.D., earned his doctorate in Experimental Pathology in 2010 and completed medical school at UVA in 2011. After completing his AP residency and fellowship in GU pathology at Johns Hopkins Hospital, he accepted a position as Assistant Professor of Pathology at Johns Hopkins University, performing clinical work at Howard County Hospital and translational research in the Division of Molecular Pathology and the Division of Genitourinary Pathology.

**Ben Cho, M.D.**, completed his AP/CP residency at UVA in 2014, serving as Chief Resident in his final year. He is currently at Stanford University in a Hematopathology fellowship.

**Melissa Darling, M.D**., completed a Dermatopathology fellowship at UVA in 2015, and has joined a private practice, Midwest Dermatology Clinic PC, in Omaha, Nebraska, as a practicing dermatologist and as the dermatopathologist for the group.

Han Dong, Ph.D., completed her doctorate in Experimental Pathology (in Dr. Tim Bullock's Laboratory, Dept. of Pathology) in May 2015, and is now a postdoctoral fellow at the University of Chicago in Dr Yang-Xin Fu's lab.

**Terrie Sue Giles, M.D.**, completed AP/CP residency and Blood Bank training at UVA in 2015, and accepted a job at the Department of Veteran's Affairs Medical Center in Fayetteville, NC as the Chief of Pathology and Laboratory Medicine.

**Jennifer Kaley, M.D**., completed a Dermatopathology fellowship at UVA in 2015, and is currently employed as a Clinical Instructor at the University of Arkansas for Medical Sciences in Little Rock, AK.

**Kristin La Fortune, M.D**., completed her AP/CP residency at UVA in 2015 and is now in a Cytopathology fellowship at Indiana University.

**Tom Mendel, M.D., Ph.D.**, completed his doctorate in Experimental Pathology at UVA (in Dr. Paul Yates Laboratory, Dept. of Ophthalmology) in 2014, his medical degree at UVA (Medical Scientist Training Program) in 2015, and is now a first-year resident in the UVA Dept. of Surgery.



**2015 graduating residents** (left to right) Delores Mo, Rahat Bhatti, Miriam Conces, Anne Stowman, with Dr. Kristen Atkins *Director, Residency Training* (Kristin La Fortune not pictured)

**Mark Mentrikoski, M.D.,** completed his AP/CP residency at UVA in 2014 and Gynecologic Pathology fellowship at Johns Hopkins Hospital in 2015 before accepting his current position at Clinical Pathology Associates in Austin, TX.

**Sam Morris-Rosenfeld, Ph.D.**, completed his doctorate in Experimental Pathology (in Dr. Coleen McNamara's Laboratory, Dept. of Medicine) in 2015, and is currently completing his M.D. degree in the UVA Medical Scientist Training Program.

**Akeesha Shah, M.D.**, completed her AP/CP residency in 2014 and Cytopathology fellowship in 2015 at UVA, and is currently at the University of Pittsburgh in a Head and Neck Pathology fellowship.

**David Webb, M.D.**, completed his AP/CP residency at UVA in 2014 and is currently in community practice at Greenbrier Valley Medical Center in Ronceverte, WV.

Don't see your name here? Write us and let us know where you are and what you're up to. Your friends from UVA would like to know!

## Alumni News: In Memorium

Pathology and dermatopathology lost a giant in the field with the death of **Philip H. Cooper, M.D.** on Friday, January 30, 2015, due to complications of lymphoma.

Philip Hart Cooper was born on August 22, 1941 in Los Angeles, California, the eldest son of Zaullie P. Cooper and Lillian Spiegelman Cooper. Phil graduated Phi Beta Kappa from UCLA and with honors from UCLA School of Medicine. He completed a residency in anatomic and clinical pathology, also at UCLA with Dr. Walter Coulson and colleagues, and then served for five years in the United States Army Medical Corps, spending most of that time in the Department of Skin and Gastrointestinal Pathology at the Armed Forces Institute of Pathology under the tutelage of Elson B. Helwig, M.D. It was there that Phil honed his considerable skills in dermatopathology. Phil came to the University of Virginia (UVA) in 1978, where he taught many pathology and dermatology residents, a number of whom went on to have distinguished careers. Even after his retirement in 1996, Phil continued to hold a twice-monthly teaching conference in dermatopathology.

His contributions to the literature were significant and wideranging, and included 138 peer reviewed journal articles. Some of his non-dermatopathological investigative studies focused on the gastrointestinal system (granular cell tumor of the stomach, the significance of large gastric folds, adenocarcinoid tumors of the appendix, melanoma of the digestive system) and abnormalities of the kidneys and urinary tract (renal neoplasms of the newborn, tubular differentiation and basement membrane production in renal adenoma, the significance of carcinoma in situ of the bladder and its association with overt carcinoma). However, much of Phil's academic work focused on dermatopathology. Examples of his special interests in that field include: fibrohistiocytic lesions (fibrous proliferations of infancy and childhood, fibroma of tendon sheath, fibrosarcomatous changes in dermatofibrosarcoma protuberans), vascular tumors (variants of lobular capillary hemangioma, cutaneous angiosarcoma, histiocytoid hemangioma) and sweat gland lesions (sclerosing sweat duct carcinomas, mucinous syringometaplasia, mitotic activity in sweat gland adenomas). He also published a number of papers on inflammatory dermatopathology. Dr. Cooper even tackled a historical subject---President Cleveland's palatal tumor!

Phil was an excellent morphologist, with a refined eye for the detail in each microscopic section. While recognizing the value of immunohistochemistry, his tendency was to eschew this method or to use it sparingly, preferring to employ the tried and true methods of classical histopathologic analysis. This, in fact, was a highly developed skill that was one of his great strengths as a teacher. Phil had very strong ideas about how things should be done and was not inclined to suffer fools gladly. But for those who had the aptitude and the willingness to listen, he would unselfishly share his knowledge and his experience. As Editorin-Chief of the Journal of Cutaneous Pathology, Phil helped many authors to refine their manuscripts through clarifying the presentation of results and carefully burnishing their wording and grammar. Not one to seek the limelight, Phil made many of his most significant contributions through one-on-one or small group teaching.

Although we will certainly miss Phil's insights and unique personality, all of us will continue to benefit from his very significant contributions to the field of dermatopathology.

James W. Patterson, M.D. Mark R. Wick, M.D. Stacey E. Mills, M.D. July 2015

### **UVA** Path Report

## Philanthropy



Fahad Bafakih M.D., presenting at the American Association of Neuropathology meeting, June 2015



Don Innes, M.D.



Kristin La Fortune, M.D., U.S. and Canadian Academy of Pathology meeting, March 2014

One of the most challenging aspects of carrying out the missions of the UVA Pathology Department is finding funding to support educational and research opportunities for our trainees. Philanthropic support has never been more critically important than it is today. Below are a few opportunities for you to consider as investments in our collective future.

### Sponsor a Pathology Summer Fellowship

The new integrated curriculum that Don Innes helped pioneer has helped spur interest amongst our students in exploring Pathology as a career option. The newly created 8-week Summer Enrichment Program in Pathology provides 2nd year medical students with hands-on experience in disease diagnosis. Each intern rotates through all AP and Laboratory Medicine services. Please consider supporting our profession and in honoring Don Innes on the occasion of his retirement by contributing a donation to support a medical student in this program. The cost of hosting each student is \$2500. With your support, we hope to be able to provide 2 student stipends in 2016.

### Engender a Culture of Investigative Learning

Every trainee in the UVA Pathology Training Programs is expected to participate in research projects that illuminate disease mechanism, advance diagnostic procedures or improve the quality of Pathology/Laboratory Medicine clinical services. We also strongly encourage the trainees to present their work for peer review at national meetings. While the cost of these projects and travel expenses vary widely, the Department currently provides \$2000 annually to each clinical trainee to help support these activities. With tightening budgets, such allocation is becoming increasingly difficult to maintain. Please consider sponsoring one project that will offer an invaluable learning opportunity for a trainee and support an advance in the fields of diagnostic pathology and laboratory medicine.

### Honor a Faculty Mentor

Our clinical faculty members have international reputations for their diagnostic expertise, solidified by authorship and editorship of major medical texts and journals. All our faculty carry out research that spans the spectrum of biomedical inquiry: basic research into biological and disease mechanisms, translational research that brings advances in experimental science to clinical utility in diagnostics and therapeutics, and clinical research that refines and advances current medical practice. Thank your faculty mentor by making a gift to the Department of Pathology in his or her honor.

### Donations can be made online at: www.giving.virginia.edu/ pathologyfellowship

OR, checks can be made payable to the Medical School Foundation and mailed to:

Medical School Foundation PO Box 800776 Charlottesville, VA 22908

# Grants and Contracts

### New Grants and Contracts (since July 2014)

National Institute of Allergy and Infectious Diseases Grant

Title: Adipokines in Pulmonary Viral Infection PI: **Thomas Braciale, MD, PhD** Period of Support: 04/01/15-03/31/17

**Celldex Therapeutics, Inc. Contract** Title: Immune Correlate Study of Varlilimumab and IpiliImumab

Pl: **Timothy Bullock**, **PhD** Period of Support: 05/26/15-05/31/22 Total Budget: \$156,000

#### National Cancer Institute Grant

Title: Immunotherapeutic Nanoparticle Delivery to Melanoma with MR-guided Focused Ultrasound Co-PI: **Timothy Bullock, PhD** Period of Support: 06/01/15-5/31/20 Total Budget: \$489,715

Melanoma Research Alliance Grant Title: Enhancing Immune Therapy for Brain Metastases with Focused Ultrasound PI: Timothy Bullock, PhD Period of Support: 12/01/15-11/30/18 Total Budget: \$375,000

Leukemia and Lymphoma Society Grant Title: Novel Application of Imaging Cytometry in Diagnosis of Unexplained Cytopenias Pl: Adam Goldfarb, MD Period of Support: 10/01/14-09/30/15

National Heart, Lung, and Blood Institute Grant

Title: Controlling an Ontogenic Masterswitch to Maximize Thrombopoiesis Pl: Adam Goldfarb, MD\* Period of Support: 09/01/15-08/31/19 Total Budget: \$1,795,426

Total Budget: \$100,000

Emory University Contract Title: Adverse Effects of RBC Transfusions: A Unifying Hypothesis PI: James Gorham, MD, PhD Period of Support: 05/04/15-07/31/15 Total Budget: \$10,826

Blue Ridge Medical Center Contract Title: Dr. Haverstick's In-Office Consultations PI: Dede Haverstick, PhD Period of Support: 02/26/15-12/31/16 Total Budget: \$1250 Fujirebio Diagnostics, Inc. Contracts Titles: Metho-137 Efficacy; Metho-144 Precision PI: Dede Haverstick, PhD

Period of Support: 06/22/15-08/31/15 Total Budget: \$3109

St. Baldrick's Foundation Grant

Title: Gene Fusions in Rhabdomyosarcoma PI: **Hui Li, PhD** Period of Support: 07/01/14-06/30/17 Total Budget: \$330,000

American Cancer Society Grant

Title: Functional Study of Chimeric RNA SLC45A3-ELK4 in Prostate Cancer PI: **Hui Li, PhD** 

Period of Support: 07/01/14-06/30/18 Total Budget: \$792,000

National Cancer Institute Grant Title: CIS-Splicing of Adjacent Genes in Prostate Cancer PI: Hui Li, PhD Period of Support: 09/22/14-08/30/19 Total Budget: \$1,639,250

Charlottesville Area Community Foundation Grant PI: Hui Li, PhD Period of Support: 01/31/2015-12/31/15 Total Budget: \$25,000

National Institute of Arthritis and Musculoskeletal and Skin Disease Grant Title: Circulating Non-coding RNA's as Biomarkers of Inclusion Body Myositis PI: James Mandell, MD, PhD Period of Support: 05/12/15-04/30/17 Total Budget: \$417,120

Philips Healthcare Contract Title: Pivotal Study for Validation of Philips Dx PI: Christopher Moskaluk, MD, PhD Period of Support: 06/01/15-12/31/15 Total Budget: \$298,725

DOD-Army-Medical Command Title: Lung Cancer Biospecimen Resource Network PI: Christopher Moskaluk, MD, PhD Period of Support: 07/01/15-09/19/17 Total Budget: \$600,000

National Cancer Institute Title: Papillomavirus E6 Structural Consortium PI: Scott Vande Pol, MD, PhD Period of Support: 07/01/15-06/30/20 Total Budget: \$2,290,020

### **Other Active NIH Grants**

National Institute of Allergy and Infectious Diseases Grant Title: Cytotoxic T Lymphocyte Response to Influenza Virus PI: Thomas Braciale, MD, PhD

Period of Support: 09/01/91-11/30/17 2015 Budget: \$404,486

National Cancer Institute Grant Title: BLIMP-1 Mediated Regulation of CD8+ TIL PI: Timothy Bullock, PhD Period of Support: 01/01/13-12/31/17 2015 Budget: \$807,671

National Heart, Lung and Blood Institute Grant Title: Dopamine and Angiotensin Interactions in Genetic Hypertension PI: Robin Felder, PhD Period of Support: 04/01/04-12/31/15) 2015 Budget: \$162,358

National Cancer Institute Title: Signaling and Progression in Prostate Cancer PI: Henry Frierson, Jr, MD Period of Support: 08/23/05-08/31/16 2015 Budget: \$243,542

National Institute of Diabetes and Digestive and Kidney Diseases Grant Title: Dissection and Manipulation of the Cellular Response to Iron Restriction Pl: Adam Goldfarb, MD Period of Support: 02/01/08-06/30/18 2015 Budget: \$343,650

National Institute of Arthritis and Musculoskeletal and Skin Disease Grant Title: Role of FN14 in RNA Toxicity Pl: Mani Mahadevan, MD Period of Support: 09/15/11-07/31/16 2015 Budget: \$346,500

National Cancer Institute Title: Biospecimen Procurement and Tissue Microarray Manufacture for the CHTN PI: Chris Moskaluk, MD, PhD Period of Support: 04/24/14-03/31/19 2015 Budget: \$597,282

National Institute of Allergy and Infectious Diseases Title: Zona Pellucida: Immunopathologic Study Pl: Kenneth Tung, MD Period of Support: 09/01/93-10/31/17 2015 Budget: \$395,000

\* Dr. Goldfarb noted that Dr. Kamal Elagib and the Pathology Grant Review Committee were major contributors to the success of this grant application.

# Publications and Awards

### Selected Faculty Publications (2014-2015)

#### Journal Articles

Auerbach A, **Aguilera NS**: Epstein-Barr virus (EBV)-associated lymphoid lesions of the head and neck. Semin Diagn Pathol 2015, 32:12–22.

**Cathro HP,** Bullock GC, Bonatti H, Meriden Z, Cook S, **Aguilera N:** Post-transplant lymphoproliferative disorders are not associated with IgG4 sclerosing disease. Transpl Infect Dis 2014, 16:897-903.

#### Zhang XM, Aguilera N: New

immunohistochemistry for B-cell lymphoma and Hodgkin lymphoma. Arch Pathol Lab Med 2014, 138:1666–1672.

Paquette C, Jeffus SK, Quick CM, Conaway MR, Stoler MH, Atkins KA: Interobserver variability in the application of a proposed histologic subclassification of endocervical adenocarcinoma. Am J Surg Pathol 2015, 39:93-100.

Mentrikoski MJ, Rochman CM, **Atkins KA**: Tattoo ink within lymph nodes: a possible clinical mimicker of abnormal calcifications. Breast J 2014, 20:314–315.

Lee D, Garrett TJ, Goldberger BA, **Bazydlo LA**: Quantitation of 25-hydroxyvitamin D2 and D3 in serum and plasma by LCMS/MS. Bioanalysis 2015, A 7:167-178.

Krinsley JS, **Bruns DE, Boyd** JC: The impact of measurement frequency on the domains of glycemic control in the critically ill. A Monte Carlo simulation. J Diabetes Sci Technol 2015; 9:237-45.

**Boyd JC, Bruns DE**: Performance requirements for glucose assays in intensive care units. Clin Chem 2014, 60:1463-1465.

Annesley TM, **Boyd JC**. The P value: probable does not mean practical. Clin Chem 2014; 60:1021.

**Boyd JC**, Annesley TM. To P or not to P: that is the question. Clin Chem 2014; 60:909-10.

**Boyd JC, Bruns DE**: Effects of measurement frequency on analytical quality required for glucose measurements in intensive care units: assessments by simulation models. Clin Chem 2014, 60:644–650. Kim TS, Hanak M, Trampont P, **Braciale TJ**. Stress associated Erythropoiesis is regulated by CD8a Dendritic Cells. J Clinical Investigation 2015 (In Press)

Hufford MM, Kim TS, Sun J, **Braciale TJ:** The effector T cell response to influenza infection. Curr Top Microbiol Immunol 2015, 386:423-455.

Braciale T, Kim T: Influenza pathogenesis: club cells take the "cure". J Exp Med 2014, 211:1705.

Yoo J, **Braciale TJ**. IL-21 promotes later activator APC-mediated T Follicular Helper cell differentiation in experimental pulmonary virus infection. PLoS One. 2014 Sep 24; 9 (9):e105872

Kim TS, Gorski SA, Hahn S, Murphy KM, **Braciale** TJ: Distinct dendritic cell subsets dictate the fate decision between effector and memory CD8(+) T cell differentiation by a CD24-dependent mechanism. Immunity 2014, 40:400-413.

Moser EK, Hufford MM, **Braciale TJ**. Late engagement of CD86 after influenza virus clearance promotes recovery in a FoxP3+ regulatory T cell dependent manner. PLoS Pathog. 2014, 10 (8):e1004315.

Kelting SM, Kimpel DL, **Bruns DE**: Persistence of infliximab in circulation for 7 years? Clin Chem (In press).

Bossuyt PM, Reitsma JB, **Bruns DE** et al. STARD 2015 – An updated list of essential items for reporting diagnostic accuracy studies. Multiple Journals

Mullins GR, Caldwell SH, **Bruns DE**: Undetectable alanine aminotransferase during hospitalization. Clin Chem (In press).

**Bruns DE**, Burtis CA, Gronowski AM, McQueen MJ, Newman A, Jonsson JJ: Variability of ethics education in laboratory medicine training programs: results of an international survey. Clin Chim Acta 2015, 442:115-118.

Kelly BN, **Haverstick DM**, Lee JK, Thorner MO, Vance ML, Xin W, **Bruns DE**: Circulating microRNA as a biomarker of human growth hormone administration to patients. Drug Test Anal 2014, 6:234-238.

Wendroth SM, Heady TN, **Haverstick DM**, Bachmann LM, Scott MG, **Boyd JC, Bruns DE:** Falsely increased chloride and missed anion gap elevation during treatment with sodium thiosulfate. Clin Chim Acta 2014, 431:77-79.

**Bullock T:** Resident good? Persistent infection increases the number of potentially protective T cells localized in peripheral tissue. J Leukoc Biol 2015, 97:211-213.

Dong H, **Bullock TN:** Metabolic influences that regulate dendritic cell function in tumors. Front Immunol 2014, 5:24.

Hargadon KM, **Bullock TN:** The role of tumor/ dendritic cell interactions in the regulation of anti-tumor immunity: the good, the bad, and the ugly. Front Immunol 2014, 5:178.

Mentrikoski MJ, **Stelow EB**, Culp S, **Frierson HF**, **Cathro HP**: Histologic and immunohistochemical assessment of penile carcinomas in a North American population. Am J Surg Pathol 2014, 38:1340-1348.

Mentrikoski MJ, Frierson HF, Stelow EB, Cathro HP: Lymphoepithelioma-like carcinoma of the penis: association with human papilloma virus infection. Histopathology 2014, 64:312-315.

Conine SJ, **Cross JV**: MIF deficiency does not alter glucose homeostasis or adipose tissue inflammatory cell infiltrates during diet-induced obesity. Obesity (Silver Spring) 2014, 22:418-425.

Felder RA: Automated specimen inspection, quality analysis, and its impact on patient safety: beyond the bar code. Clin Chem 2014, 60:433-434.

**Felder RA**, Jackson KD, Walter AM: Process evaluation of an open architecture real-time molecular laboratory platform. J Lab Autom 2014, 19:468-473.

Gildea JJ, Seaton JE, Victor KG, Reyes CM, Bigler Wang D, Pettigrew AC, Courtner CE, Shah N, Tran HT, Van Sciver RE, Carlson JM, **Felder RA**: Exosomal transfer from human renal proximal tubule cells to distal tubule and collecting duct cells. Clin Biochem 2014, 47:89-94.

Gildea JJ, Shah IT, Van Sciver RE, Israel JA, Enzensperger C, McGrath HE, Jose PA, **Felder RA:** The cooperative roles of the dopamine receptors, D1R and D5R, on the regulation of renal sodium transport. Kidney Int 2014, 86:118–126.

Shah AA, Grosh WW, **Frierson HF** Jr.: Malignant gastrointestinal neuroectodermal tumour of the oesophagus with pulmonary metastasis and protracted survival. Histopathology. 2015 May 27.

# Publications and Awards

### Selected Faculty Publications (2014-2015)

#### Journals Continued.

Elagib KE, **Goldfarb AN:** Megakaryocytic irreversible P-TEFb activation. Cell Cycle 2014, 13:1827-1828.

**Gorham JD** and Gleeson MW. Cirrhosis and dysbiosis: new insights from next generation sequencing. Hepatology 2015 Aug 27.

Celaj S, Gleeson MW, Deng J, O'Toole G, Hampton TH, Toft MF, Morrison HG, Sogin ML, Putra J, Suriawinata AA, **Gorham JD**. The microbiota regulates susceptibility to Fas-mediated acute hepatic injury. Lab Invest 2014, 94:938-49.

Maria A, English KA, **Gorham JD**. Appropriate development of the liver Treg compartment is modulated by the microbiota and requires TGF-and MyD88. J Immunol Res 2014, 279736.

Hibler J, Salavaggione AL, Martin A, **Gru AA**: A unique case of concurrent chronic lymphocytic leukemia/small lymphocytic lymphoma and lymphomatoid papulosis in the same biopsy. J Cutan Pathol 2015, 42:276–284.

Kaffenberger B, Haverkos B, Tyler K, Wong HK, Porcu P, **Gru AA**: Extranodal marginal zone lymphoma-like presentations of angioimmunoblastic T-Cell lymphoma: a T-Cell lymphoma masquerading as a B-Cell lymphoproliferative disorder. Am J Dermatopathol 2015, 37:604-613.

**Gru AA**: Pathology of T-cell lymphomas: diagnosis and biomarker discovery. Cancer Treat Res 2015, 165:51-95.

**Gru AA**, Coughlin CC, Schapiro ML, Lombardi M, Martin A, Bayliss SJ, Frater J, Dehner LP: Pediatric aleukemic leukemia cutis: report of 3 cases and review of the literature. Am J Dermatopathol 2015, 37:477-484.

Smith SM, Kiracofe EA, Clark LN, **Gru AA:** Idiopathic Hypereosinophilic Syndrome with cutaneous manifestations and flame figures: a spectrum of eosinophilic dermatoses whose features overlap with Wells' syndrome. Am J Dermatopathol 2015.

**Gru AA**, Becker N, Dehner LP, Pfeifer JD: Mucosal melanoma: correlation of clinicopathologic, prognostic, and molecular features. Melanoma Res 2014, 24:360-370.

**lezzoni JC**, Ewton A, Chévez-Barrios P, Moore S, Thorsen LM, Naritoku WY: Selective pathology fellowships: diverse, innovative, and valuable subspecialty training. Arch Pathol Lab Med 2014, 138:518-525.

Qin F, Song Z, Babiceanu M, Song Y, Facemire L, Singh R, Adli M, **Li H:** Discovery of CTCF-sensitive Cis-spliced fusion RNAs between adjacent genes in human prostate cells. PLoS Genet 2015, 11:e1005001.

Jividen K, Li H: Chimeric RNAs generated by intergenic splicing in normal and cancer cells. Genes Chromosomes Cancer 2014, 53:963-971.

Jividen K, Movassagh MJ, Jazaeri A, **Li H:** Two methods for establishing primary human endometrial stromal cells from hysterectomy specimens. J Vis Exp 2014, May 23.

**Lopes MB**: Errors in the pathology laboratory. J Neurosurg 2015, 122:273-274.

Kleinschmidt-DeMasters BK, **Lopes MB**, Prayson RA: An algorithmic approach to sellar region masses. Arch Pathol Lab Med 2015, 139(3): 356-372.

Oldfield EH, Vance ML, Louis RG, Pledger CL, Jane JA Jr, **Lopes MB**. Crooke's changes In Cushing's Syndrome depends on degree of hypercortisolism and individual susceptibility. J Clin Endocrinol Metab. 2015, 100(8):3165-71.

Luckey CJ, Silverstein LE: A mouse model of hemolytic disease of the newborn. Blood 2014, 122:1334-1335.

Quillen K, Luckey CJ: Blood and bombs: blood use after the Boston Marathon bombing of April 15, 2013. Transfusion 2014, 54:1202–1203.

Yadava RS, Foff EP, Yu Q, Gladman JT, Kim YK, Bhatt KS, Thornton CA, Zheng TS, **Mahadevan MS**: TWEAK/Fn14, a pathway and novel therapeutic target in myotonic dystrophy. Hum Mol Genet 2015, 24:2035-2048.

Gladman JT, Yadava RS, Mandal M, Yu Q, Kim YK, **Mahadevan MS**: NKX2-5, a modifier of skeletal muscle pathology due to RNA toxicity. Hum Mol Genet 2015, 24:251–264.

Kim YK, Mandal M, Yadava RS, Paillard L, Mahadevan MS: Evaluating the effects of CELF1 deficiency in a mouse model of RNA toxicity. Hum Mol Genet 2014, 23:293-302.

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Rehman S, Gladman JT, Periasamy A, Sun Y, Mahadevan MS: Development of an AP-FRET based analysis for characterizing RNA-protein interactions in myotonic dystrophy (DM1). PLoS One 2014, 9:e95957.

Louveau A, Smirnov I, Keyes TJ, Eccles JD, Rouhani SJ, Peske JD, Derecki NC, Castle D, **Mandell JW**, Lee KS, Harris TH, Kipnis J: Structural and functional features of central nervous system lymphatic vessels. Nature 2015, 523 (7560): 337-41.

Sokolowski JD, Gamage KK, Heffron DS, Leblanc AC, Deppmann CD, **Mandell JW**: Caspasemediated cleavage of actin and tubulin is a common feature and sensitive marker of axonal degeneration in neural development and injury. Acta Neuropathol Commun 2014, 2:16.

Sokolowski JD, Chabanon-Hicks C, Han CZ, Heffron DS, **Mandell JW**: Fractalkine is a "find-me" signal released by neurons undergoing ethanolinduced apoptosis. Front Cell Neurosci 2014, 8:360.

Verduin L, Bishop J, **Mills SE**: Gnathic and peripheral ameloblastomas lack human papillomavirus DNA. Ann Diagn Pathol 2015, 19:306-9.

Boyd K, Shea SM, **Patterson JW**: The role of capsaicin in dermatology. Prog Drug Res 2014, 68:293-306.

Dustin SM, Jeffus SK, **Stelow EB**: Taxane effect in a bladder washing. Diagn Cytopathol 2015, 43:32-33.

Shah AA, Wenig BM, LeGallo RD, Mills SE, Stelow EB: Morphology in conjunction with immunohistochemistry is sufficient for the diagnosis of mammary analogue secretory carcinoma. Head Neck Pathol 2015, 9:85-95.

Shah AA, Mehrad M, Kelting SM, Lewis JS, Stelow EB: An uncommon primary lung tumour: hyalinizing clear cell carcinoma, salivary glandtype. Histopathology 2015, 67:274-6.

Shah AA, Jeffus SK, **Stelow EB**: Squamous cell carcinoma variants of the upper aerodigestive tract: a comprehensive review with a focus on genetic alterations. Arch Pathol Lab Med 2014, 138:731-744.

# Publications and Awards

### Selected Faculty Publications (2014-2015)

#### Journal Articles Continued.

**Stoler MH**, Austin RM, Zhao C: Cervical cancer screening should be done by primary HPV testing with genotyping and reflex cytology for women over the age of 25 years. J Clin Microbiol 2015, 53:2798-804.

**Stoler MH**, Ronnett BM, Joste NE, Hunt WC, Cuzick J, Wheeler CM, New Mexico HPV Pap Registry Steering Committee: The interpretive variability of cervical biopsies and its relationship to HPV status. Am J Surg Pathol 2015, 39:729-736.

## Mills AM, Sloan EA, Thomas M, Modesitt SA, Stoler MH, Atkins KA, Moskaluk, CA.

SA, Stoler MH, Atkins KA, Moskaluk, CA. Clinicopathologic comparison of Lynch Syndromeassociated and Lynch-like endometrial carcinomas identified on universal screening. Am J Surg Pathol (In press)

Mills AM, Paquette C, Castle PE, Stoler MH: Risk stratification by p16 immunostaining of CIN1 biopsies: a retrospective study of patients from the quadrivalent HPV vaccine trials. Am J Surg Pathol 2015, 39:611-617.

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### **Book Chapters**

Aguilera, NS Multiple chapters (including Hereditary spherocytosis, HIV in spleen, Castleman disease, Congenital splenic abnormalities, Gamnagandy bodies, Hemophagocytic syndrome, Vascular lesions and other entities). In: Diagnostic Pathology: Spleen, Amirsys Press, 2014

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#### Awards

Residents **Dylan Coss** and **Sara Kelting** each received the Young Scientist Award from the UVA Graduate Medical Education Office. Their work will be presented in 2016, and the award money can be used to offset research and travel expenses.

**Jessica Harakal** and **Dr. Ken Tung** are recipients of a \$25,000 Cancer Center Trainee Support grant, 2015.

**Dr. Jim Boyd** was the recipient of the 2014 American Association for Clinical Chemistry Outstanding Contributions through Service to the Profession of Clinical Chemistry Award.

**Dr. Thomas Braciale** was awarded an Alumni Endowed Professorship of Pathology by the UVA School of Medicine.

**Dr. Beatriz Lopes** was elected as Vice President of the American Association of Neuropathologists for 2014–2015.

## National Presentations

Braciale TJ, GTCbio 4th Influenza Research and Development Conference, Boston, MA, July 2015

**Bruns DE**, "Desirable analytical performance of continuous glucose monitors". IFCC WORLDLAB Congress, International Federation of Clinical Chemistry, Istanbul, June 2014.

Felder RA, "Future Healthcare", Finnish Embassy, Washington DC, Oct. 2014.

Felder RA, "Organizing an Optimized Automated Medical System", to CEO and C level staff of University Health University of Louisiana, Shreveport, Louisiana, September, 2014.

Felder RA, "GRK4, a Druggable Target for Hypertension and Salt Sensitivity", Federated Association of Societies of Experimental Biology (FASEB), Steam Boat Springs, CO, March, 2014.

Felder RA, "The Present and Future of Clinical Lab Automation", Washington G2 Lab Institute Capitol Hill, January, 2015.

Felder RA, "Laboratory Medicine of the Future in a Fully Automated Hospital", MACS telehealth Conference, Capitol Hill, Washington D.C. April 2015

Felder RA, "Wearable Wellness and Personalized Diagnostic Monitoring, the End of the Lab as we Know it?," Mid-Atlantic Telemedicine Conference, Greenbrier Resort, White Sulfur Springs, W. Virginia, March 12, 2015.

Felder RA, "Human Stomach Cell Gastrin Inhibits Renal NHE3 and NaKATPase in Concert With the Renal D1R," John J Gildea, Peng Xu, Chi Zhang, Dora Bigler Wang, Hahn T Tran, Pedro A Jose, American Heart Council for High Blood Pressure Research, Sept. 18, 2015, Washington DC.

Felder RA, "Characterization of a Sodium Responsive Human Sodium Bicarbonate transporter NBCe2 in Human Proximal Tubule". John J Gildea, Peng Xu, M Carlson, Robert T Gaglione, Dora Bigler Wang, Brandon A Kemp, Camellia M Reyes, Helen E McGrath, Robert M Carey, Pedro A Jose, American Heart Council for High Blood Pressure Research, Sept. 18, 2015, Washington DC.

Gorham, JD, "Autoimmune Hepatitis: Lessons from Animal Models", European Association for the Study of the Liver (EASL) monothematic conference on Autoimmune Hepatitis in London, UK, September 3, 2015.

**Gorham, JD,** "The Microbiota Regulates Inflammatory Liver Injury in Mice", 2015 Advancing Microbiome Research Symposium: Microbiome and Mice, Cambridge, MA, September 29, 2015. (Keynote Speaker)

Harakal J, Rival C, Oiao H, **Tung K**, Loss of Regulatory T Cells Leads to Th2-Mediated Murine autoimmune Gastritis. Keystone Meeting on Autoimmune disease and tolerance. Keystone Feb 3, 2015. (Platform presentation)

Rival C, Sanders A, Harakal J, Oiao H, Unanue E, **Tung K.** NK cells are pathogenic in type 1 diabetes accelerated by maternal autoantibodies. Keystone Meeting on Autoimmune disease and Tolerance, Keystone Feb 3, 2015.

Tung KSK, Harakallj, Oiao H, Rival C, Paul L, Hardy DM, Cheng CY, Goldberg E. Sertoli cell that controls testicular barrier also exports "sequestered" germ cell antigens to maintain regulatory t cell-dependent systemic tolerance. Keystone Meeting on Autoimmune disease and Tolerance, Keystone Feb 3, 2015. (Invited speaker)

Tung KSK, HarakalJj, Qiao H, Rival C, Paul L, Hardy DM, Cheng CY, Goldberg E. Normal male meiotic germ cell antigens are either non-sequestered and tolerogenic, or sequestered and non-tolerogenic; they impact differentially testis autoimmunity and cancer immunotherapy as cancer/testis antigens. American Society for Investigative Pathology (ASIP) Meeting, Baltimore, October 2015.

Harakal J, Rival C, Qiao H, **Tung K.** Transient Depletion of Regulatory T cells Leads to Th2-Dominant Murine Autoimmune Gastritis. American Society for Investigative Pathology (ASIP) Meeting, Baltimore, October 2015. (Platform presentation).

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This is just a representation of the recent academic and scientific output of our Department. Please visit our faculty pages at the UVA Pathology website to see more: www.medicine.virginia.edu/clinical/departments/pathology.

### **UVA** Path Report

## **Final Notes**

## 2016 Calendar of Events

### March 12-18, 2016

United States and Canadian Academy of Pathology (USCAP), 105th Annual Meeting Washington State Convention Center Seattle, WA

### March 14, 2016

University of Virginia Dept. of Pathology Alumni Dinner at USCAP Seattle, WA

### April 29, 2016

University of Virginia Dept. of Pathology 12th Annual Research Day Jordan Hall Conference Center Charlottesville, VA



Scott Wendroth, M.D., presenting at the U.S. and Canadian Academy of Pathology meeting, March 2014

## What's in a name?

In 2015 the Division of Clinical Pathology was renamed the Division of Laboratory Medicine. Dr. James Gorham, the new Lab Medicine Chief, feels that this name more accurately reflects the activity and purpose of faculty overseeing the broad range of laboratories and diagnostic services in this division.

### Unique online resource!

Anne Mills, M.D., has spearheaded a new educational resource: Sound Bite Series, a series of short videos narrated by UVA faculty on a range of diagnostic topics. Google "UVA Pathology Soundbites" or visit our website at: http://www.medicine.virginia.edu/clinical/ departments/pathology/Education/resources/ educational-resources.html

The University of Virginia Department of Pathology's Sound Bite Series

Breast Pathology: Proliferations of the terminal duct

Kristen Atkins, M



University of Virginia Health System Department of Pathology P.O. Box 800214 | 1215 Lee Street Charlottesville, VA 22908

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Editors: Donna Barnd, Ph.D. and Barbara Becker For more information, please visit **www.medicine.virginia**. **edu/clinical/departments/pathology**