JOHNS HOPKINS MEDICINE

DECEMBER 2024

PATHWAYS

JOHNS HOPKINS PATHOLOGY

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DIRECTOR'S CORNER

I am a naturally hopeful person and, as I look forward to the coming year, I am extraordinarily optimistic about the future of our department.

I'm hopeful for several reasons. In partnership with the Whiting School of Engineering, we were just awarded a cluster of three Bloomberg Distinguished Professorships in artificial intelligence. This is an unimaginable advance for the Department. These professorships provide us with extraordinary resources to hire leaders in artificial intelligence (AI) with a focus on the application of AI to digital pathology (although the cluster doesn't come with a specific dollar amount, we estimate it to be an investment of tens of millions of dollars). This is a game-changing advance and, in an instant, we will become the world leaders in this burgeoning field. In the meantime, we remain one of the most highly ranked pathology departments in NIH funding and, as highlighted in the "recent publications" section of our web page (thank you Barbara Detrick for keeping this updated), our faculty continue to produce exciting and impactful science.

In education, our residency training program is again ranked #1 by Doximity. Although Doximity ranking is undoubtedly more of "a popularity contest" than a scientifically-based evaluation, our ranking does, I believe, reflect the wonderful collegiality and the special spirit that permeates our training program. I congratulate Chris VandenBussche and his team. Our pathobiology Ph.D. program, led by Lee Martin, continues to graduate future leaders in science, government, and industry.

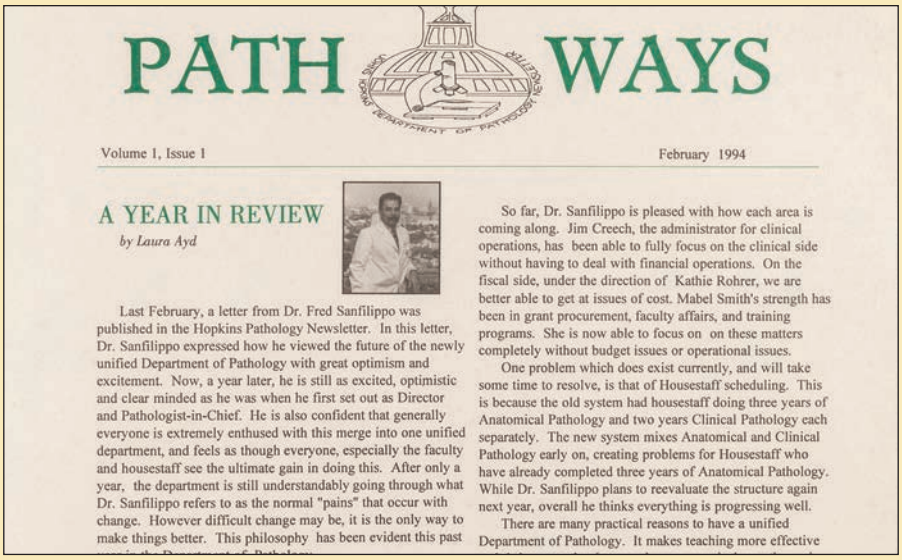
Clinically, we created the new position of Director of Anatomic Pathology and the inaugural director, Angelo De Marzo, is already proving an impactful leader in this position (see page 16). As many of you know, we have also taken a big leap and have completely sub-specialized surgical pathology. Where we once had general surgical pathology sign-out, we now have sub-specialized sign-outs in head & neck/ lung, breast, bone & soft tissue, GI "bigs," and genitourinary pathology. Special thanks to Ashley Cimino-Mathews, Lisa Rooper, and Elizabeth Thompson for these efforts. We believe this change will not only improve patient care, but it will also improve resident teaching.

The Department continues to grow, and I am especially happy to welcome our new faculty. As you will read on pages 6 and 7, our new faculty are diverse in their life stories, diverse in their talents and diverse in their interests. Alisha, Ashley, David, Huili, Radiana, Rofieda, and Tsion embody our bright future.

While I think you can see why I am so very hopeful, my hope goes deeper. Hope, as beautifully articulated by Václav Havel in his book *Disturbing the Peace,* is something fundamental, an inner orientation. Havel wrote, "the kind of hope I often think about…I understand above all as a state of mind, not a state of the world…it is a dimension of the soul…it's not essentially dependent on some particular observation of the world or estimate of the situation. Hope is not prognostication. It is an orientation of the spirit, an orientation of the heart…"

I believe our department is oriented towards hope. I see, daily, diverse faculty with varied perspectives and approaches who are united by the belief that together, they can provide the finest teaching, research, and patient care possible.

The "heart" of our department is clearly oriented towards hope. ■



PATH WAYS

Volume 1, Issue 1 February 1994

A YEAR IN REVIEW

by Laura Ayd

Last February, a letter from Dr. Fred Sanfilippo was published in the Hopkins Pathology Newsletter. In this letter, Dr. Sanfilippo expressed how he viewed the future of the newly unified Department of Pathology with great optimism and excitement. Now, a year later, he is still as excited, optimistic and clear minded as he was when he first set out as Director and Pathologist-in-Chief. He is also confident that generally everyone is extremely enthused with this merge into one unified department, and feels as though everyone, especially the faculty and housestaff see the ultimate gain in doing this. After only a year, the department is still understandably going through what Dr. Sanfilippo refers to as the normal "pains" that occur with change. However difficult change may be, it is the only way to make things better. This philosophy has been evident this past

So far, Dr. Sanfilippo is pleased with how each area is coming along. Jim Creech, the administrator for clinical operations, has been able to fully focus on the clinical side without having to deal with financial operations. On the fiscal side, under the direction of Kathie Rohrer, we are better able to get at issues of cost. Mabel Smith's strength has been in grant procurement, faculty affairs, and training programs. She is now able to focus on on these matters completely without budget issues or operational issues.

One problem which does exist currently, and will take some time to resolve, is that of Housestaff scheduling. This is because the old system had housestaff doing three years of Anatomical Pathology and two years Clinical Pathology each separately. The new system mixes Anatomical and Clinical Pathology early on, creating problems for Housestaff who have already completed three years of Anatomical Pathology. While Dr. Sanfilippo plans to reevaluate the structure again next year, overall he thinks everything is progressing well.

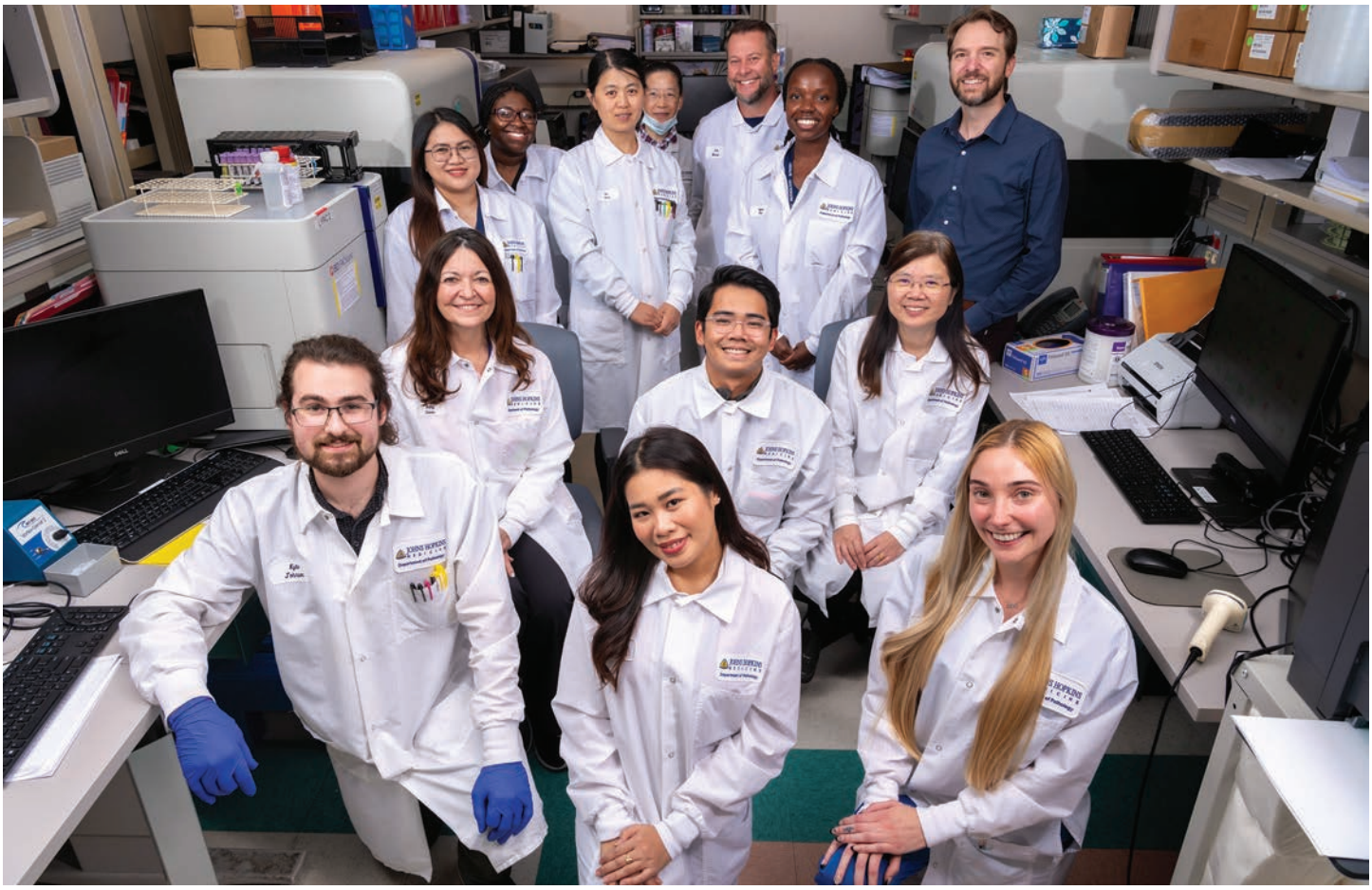
There are many practical reasons to have a unified Department of Pathology. It makes teaching more effective

Pathways is 30 Years old!

It is hard to believe, but PathWays turned thirty this year. Fred Sanfilippo ushered in the inaugural issue soon after he came to Hopkins in 1993.

Cover Photo: The Hematopathology physician team: Front left to right: Tanvi Verma, M.B.B.S., Radiana Trifonova, M.D., Ph.D., Alisha Ware, M.D.; Middle: Division Director Christopher Gocke, M.D.; Back: J. David Peske, M.D., Ph.D., Ivo Francischetti, M.D., Ph.D., Leo Yenwongfai, M.D., MPH, Matt Bayes, M.D., MPH [not pictured: Rena Xian, M.D., MS, Xiaojun Wu, M.D., Ph.D.]

Spotlight on Hematopathology



The Flow Cytometry Laboratory. Row 1 (front, left to right): Kyle Johnson, Genefer Apusaga, Bailey Martini; Row 2: Kathy Cowan, Lester Alfonso, Hailan Zhou; Row 3: Fatima Panaligan, Wei Zhang, Tiffany Sang, J. David Peske, M.D., Ph.D. (director) Row 4 (back): Breyonna Jones-Key, Yun Lin, Lee Harris

The Division of Hematopathology has a new look! While two long-time leaders of Hematopathology at Johns Hopkins, Michael J. Borowitz, M.D., Ph.D. and Thomas S. "Tom" Kickler, M.D., have retired in recent years, in their place is a younger and larger corps of hematopathologists ready to build upon the tradition of excellence established by Drs. Borowitz and Kickler.

The Division fulfills Johns Hopkins' tripartite mission of education, research, and patient care through six primary faculty, one of whom provides clinical care in Hematopathology while also leading the Division of Molecular Pathology. A recruitment effort is underway to expand the Division with another faculty member.

EDUCATION AND TRAINING

From an educational perspective, the Division faculty have long been closely involved with clinical colleagues in Hematology and Oncology in the training of medical students and graduate students in the basic science aspects of hematopoiesis and the diseases affecting the blood, bone marrow, and lymphoid organs. Ranging from a traditional medical student course with lectures and small group sessions to graduate Pathobiology seminars and graduate student lab rotations, Division members have played a crucial role in designing, delivering and, often, leading student education in this area. Of course, much of the educational focus is on clinical training of pathology residents and fellows within the Department of Pathology and from other departments across Johns Hopkins Medicine.

The Hematopathology Division has two fellows who essentially "run the service" while learning the subtleties of morphologic interpretation of bone marrow biopsies and peripheral blood smears, the proper use of immunohistochemical stains for lymphoma work-ups, and the challenging aspects of flow cytometric diagnosis of acute leukemias and their precursor diseases. The Hematopathology fellows for the 2024-25 academic year are Tanvi Verma, M.B.B.S. and Leonard Yenwongfai, M.D.

The Hematology and Coagulation Laboratory. Row 1 (front to left): Ed Galo, Ugochi Ndubuisi, Nicholas Demetrick, Gladimar Vergara, Bahaeddin Zumrawi. Row 2: Jung Chloe, Rochelle Hardy, Sharmila Paudel, Mai Tran. Row 3: Joanna Stone, Priscila Guerrero, Yolanda Beasley. Row 4 (back): Ivo Francischetti, M.D., Ph.D. (Director), Danielle Decker, Ariel Quinn

The director of the ACGME-accredited Hematopathology Fellowship Program is Alisha Ware, M.D., a "new-old" faculty member. Dr. Ware trained at Johns Hopkins as a resident in Pathology and a fellow in Hematopathology before joining the faculty here. After a brief stint in Chapel Hill at the University of North Carolina, Dr. Ware has rejoined the Hopkins faculty with an interest in education and wellness, instituting programs and methods developed during the pandemic and its aftermath.

She also has a long-standing involvement in diversity, equity and inclusion initiatives and has been an important part of the Department's efforts in this area, helping to recruit trainees and faculty who are underrepresented in medicine.

RESEARCH

Research endeavors are key to the Hopkins ethos and the Division of Hematopathology is fortunate to have a robust research portfolio. Ivo Francischetti, M.D., Ph.D, has ably taken the reins of the General Hematology and Coagulation Laboratory from Dr. Tom Kickler. Dr. Francischetti oversees a clinical lab with 35 personnel providing all diagnostics related to the blood system for adult and pediatric patients at Johns Hopkins, running more than 500,000 complete blood counts, 100,000 coagulation assays, and 85,000 urinalyses per year. His funded research interests revolve around heparin-induced thrombocytopenia and leukemia-related thrombotic disorders. Under Dr. Francischetti, the Heme-Coag lab contributed to understanding the complement and thrombosis-related aspects of SARS CoV-2 infection.

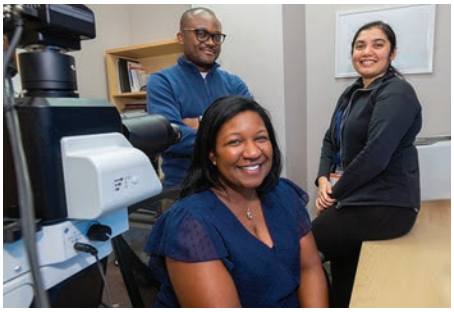
One of the Division's newest faculty members, David Peske, M.D., Ph.D., is a research immunologist who has taken over direction of the Flow Cytometry laboratory established by Dr. Borowitz. He has big shoes to fill, but he has adeptly introduced new analytic software algorithms and new flow cytometers to the lab while establishing his own research lab. Dr. Peske's funded research revolves around antigen-processing enzymes used to provide immune surveillance in the cellular immune system. Dr. Peske is an alum of the Hopkins system, having trained as a resident and Hematopathology fellow, as well as completing his post-doctoral fellowship in the laboratory of the late Nilabh Shastri, Ph.D.

Another research star is Rena Xian, M.D., M.S., who serves as Director of the Division of Molecular Pathology, as well as a practicing hematopathologist. The areas of hematopathology and molecular pathology overlap extensively, with basic hematology research springing from clinical questions that then feed back into clinical diagnosis and management. Dr. Xian has constructed her career with both in mind. She is another alum of our Hematopathology fellowship and is board-certified in Molecular Genetic Pathology. Like the other hematopathologists, Dr. Xian covers the busy clinical Hematopathology service while also driving an extensive research program in the identification and understanding of circulating tumor DNA in patients with B-cell lymphoma and Hodgkin's lymphoma. Part of her translational research portfolio involves early detection of Hodgkin's lymphoma using these methods in South Africa, which emphasizes the global role in healthcare that Johns Hopkins Medicine plays.

CLINICAL CARE

The provision of clinical care is the foundation of the Division of Hematopathology's activities, as is true for the entire Pathology Department. The service load includes nearly 17,000 flow cytometry exams, 3,000 bone marrow and tissue exams, and approximately 1,000 consultations per year. This year, Christopher Gocke, M.D., was named as the new Director of the Division of Hematopathology. Formerly director of the Division of Molecular Pathology, he has taken a major clinical role in the last several years while administering two divisions and serving as Deputy Director for Personalized Medicine in the Department. Dr. Gocke helped start and lead Johns Hopkins Genomics, the institution's clinical and research genomics center, as well as being a founding director of a new professional organization, the Genomics Organization of Academic Labs,

Ivo Francischetti, M.D., Ph.D. and Nicholas DeMetrick discuss plasma viscosity (Ostwald viscometer)



Hematopathology Fellowship program director, Alisha Ware, M.D. with 2024-2025 fellows Leo Yenwongfai, M.D. and Tanvi Verma, M.B.B.S.

aimed at strengthening academic molecular pathology labs to fulfill their mission.

The newest member of the Hematopathology Division is Radiana Trifonova, M.D., Ph.D., who recently completed her clinical training at the University of Massachusetts. Dr. Trifonova is getting accustomed to the clinical workflow before embarking on her own translational research. Her background is in immunology and HIV research.

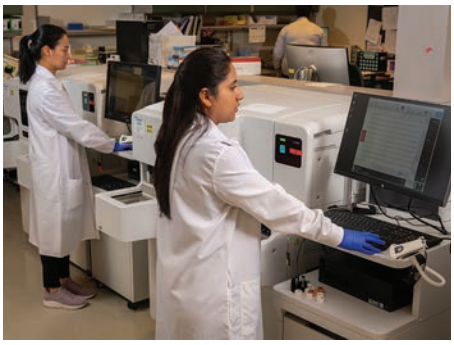
Over the past decade, Johns Hopkins Medicine has expanded its reach through the acquisition of hospitals in the National Capital Region (NCR). Xiaojun Wu, M.D., Ph.D. has offered her expertise to the other pathologists in three of the hospitals in the NCR. In addition to the heavy hemepath service load, Dr. Wu also demonstrates her clinical excellence by providing general surgical pathology coverage while maintaining strong teaching ties to the residents and fellows on the East Baltimore campus through distance education.

Of course, much of the work of the Hematopathology Division must be credited to the excellent technical staff in the various laboratories. The General Hematology/ Coagulation Laboratory is ably led by Lab Manager Lydia Nelson, Project Manager/ Supervisor Jennifer Hurley, and Supervisor Rochelle Hardy. The busy night and evening shifts are overseen by Lab Supervisors Keith Nguyen and Kate Florendo. This group has been diligent about hiring in the current constricted environment and has recently welcomed and onboarded into the labs a number of international medical technologists.

The Special Coagulation Service works closely with the clinical team and the adult and pediatric hematologists to diagnose and treat challenging bleeding and clotting disorders. Similarly, the Flow Cytometry lab is staffed by more than 20 skilled technologists, with Technical Specialists Kathy Cowan and Hailan Zhou and Lead Technologist Kyle Johnson managing a complicated and time-sensitive hospital operation as well as an internationally renowned reference lab service. The Weinberg hematology lab serves the oncology population at Hopkins, including the bone marrow biopsy service.

With the steadily expanding clinical service load, the growing faculty, and new research aims, the Division of Hematopathology is positioned for a bright future in the service of its patients and trainees. ■

Rochelle Hardy (foreground) and Ugochi Ndubuishi working at a hematology analyzer workstation.



Priscila Guerrero (foreground) and Mai Tran working at a coagulation analyzer workstation.

Xiaojun Wu, M.D., Ph.D. at Sibley Hospital and Division Director Christopher Gocke, M.D. at Johns Hopkins Hospital share a challenging flow cytometry case.

NEW AND RETURNING PATHOLOGY FACULTY

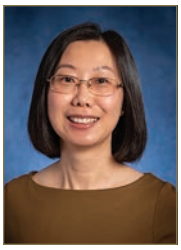
Rofieda Alwaqfi, M.B.B.S.

Dr. Rofieda Alwaqfi earned her medical degree at Jordan University of Science and Technology and began her residency in anatomic pathology at King Abdullah University Hospital. After completing fellowships in gynecologic and breast pathology at the University of Toronto in Canada, she moved to the United States and completed her residency at the University of Iowa and became board-certified in anatomic pathology. She completed additional fellowships in oncologic surgical pathology and gynecologic pathology at Memorial Sloan Kettering Cancer Center in New York before joining the Johns Hopkins Department of Pathology as an assistant professor. Her academic interests include oncologic gynecologic pathology and breast pathology.

David Daniel, M.D.

Dr. David Daniel received his medical degree from the State University of New York Downstate Medical Center (SUNY/DMC). He then completed residency training in obstetrics and gynecology at Westchester Medical Center, before returning to SUNY/DMC to complete his residency in anatomic and clinical pathology. Most recently, he completed a Blood Bank/Transfusion Medicine fellowship at the National Institutes of Health. He joins the Division of Transfusion Medicine as an assistant professor, with interests in medical education, machine learning, and leveraging big data to advance transfusion practice.

Huili Li, M.D., Ph.D.



Dr. Huili Li received her medical degree from the Peking University Health Science Center and her Ph.D. from the Peking University Neuroscience Institute in China. After moving to the United States, she joined the Johns Hopkins Department of Oncology as a research fellow and research associate, where she focused on experimental, bioinformatic and translational breast cancer research. Subsequently, she completed her anatomic and clinical pathology residency training at the Penn State Health Milton S. Hershey Medical Center, followed by an advanced surgical pathology fellowship and a genitourinary pathology fellowship at Johns Hopkins. She joins the faculty in the Division of Urologic Pathology as an assistant professor. Her academic interests are in diagnostic genitourinary pathology and related research.

Tsion Minas, Ph.D.

Dr. Tsion Minas received her Ph.D. in tumor biology from Georgetown University, followed by postdoctoral training in the integrative molecular epidemiology of cancer at the National Cancer Institute. She then became a Fulbright U.S. Scholar to Ethiopia. She joins the faculty in the Division of Genitourinary Pathology as an instructor, where she will utilize epidemiology, molecular biology, and bioinformatics to gain a unique insight into how exposures, tumor biology, and disease outcomes are interconnected. Her research interests include studying factors that contribute to excessive prostate and colorectal cancer among people of African ancestry to reveal effective strategies for cancer prevention and treatment.

Ashley Rackow, Ph.D., DABCC, NRCC

Dr. Ashley Rackow received her Ph.D. in toxicology from the University of Rochester. After completing her fellowship in clinical chemistry at Johns Hopkins, where she was the Daniel W. Chan Fellow in Clinical Chemistry, she joined the faculty in the Division of Clinical Chemistry as an assistant professor. Her primary areas of research include applications of therapeutic drug monitoring, advancing women's health, and implementation of high-value healthcare systems

Radiana Trifonova, M.D., Ph.D.

Dr. Radiana Trifonova received her medical degree from the Medical University of Sofia, Bulgaria and her Ph.D. from the Bulgarian Academy of Sciences in collaboration with Maine Medical Center Research Institute. She did her postdoctoral training at Brigham and Women's Hospital and at Boston Children's Hospital, where her research focused on HIV mucosal transmission and anti-HIV microbicides. She continued her research in the HIV field as a research specialist at the Ragon Institute at Massachusetts General Hospital. There, she tested HIV reservoir elimination strategies, including CAR T cell therapy and mutant CCR5 hHSC, in an in vivo "humanized" mouse model. She then completed her residency training in anatomic and clinical pathology at Albany Medical Center in New York, followed by a hematopathology fellowship at the University of Massachusetts Chan Medical School/UMass Memorial Medical Center in Worcester. Dr. Trifonova joins the faculty in the Division of Hematopathology as an assistant professor. Her academic interests include hematologic malignancies and flow cytometry as a diagnostic tool.

Alisha D. Ware, M.D.

Dr. Alisha Ware returned to the Department of Pathology this fall as an assistant professor. She earned her B.S. in biology at Howard University and her medical degree from the University of Virginia School of Medicine. She completed her anatomic and clinical pathology residency and her fellowship in hematopathology at Johns Hopkins, where she also served as chief resident. Dr. Ware then joined the faculty at Hopkins, where she stayed for two years before transitioning to the faculty at the University of North Carolina in August 2022. She is excited to be rejoining the faculty at Hopkins! In addition to research and education in hematologic malignancies, Dr. Ware has a passion for diversity, equity, and inclusion and has co-led several outreach initiatives, inclusion events, and education programs. Her other passion is well-being and the intimate relationship between DEI and well-being. She has led well-being programs at both Hopkins and UNC Pathology. She will serve as the Hematopathology Fellowship Program Director, and as Deputy Director for Diversity, Equity, and Inclusion for the Department.

Faculty Changes 2024

NEW FACULTY	Rank	Division
Rofieda Alwaqfi, MBBS	Assistant Professor	Gynecological Pathology
David Daniel, M.D.	Assistant Professor	Transfusion Medicine
Huili Li, M.D., Ph.D.	Assistant Professor	Breast and GU Pathology
Ashley Rackow, Ph.D.	Assistant Professor	Clinical Chemistry
Radiana Trifonova, M.d., Ph.D.	Assistant Professor	Hematopathology
Alisha Ware, M.D.	Assistant Professor	Hematopathology
Tsion Minas, Ph.D.	Instructor	Urologic Pathology
PROMOTIONS	**Rank**	**Division**
Michael Borowitz, M.D., Ph.D.	Professor Emeritus	Hematopathology
Brigitte Ronnett, M.D.	Professor Emerita	Gynecology Pathology
Scheherazade Sadegh-Nasseri, Ph.D.	Professor Emerita	Immunpathology
Robert Anders, M.D.	Professor	Gastrointestinal Liver Pathology
Evan Bloch, MBChB	Professor	Transfusion Medicine
Andres Matoso, M.D.	Professor	Genitourinary Pathology
Karen Sfanos	Professor	Genitourinary Pathology
Patricia Simner, Ph.D.	Professor	Medical Microbiology
Nicholas Roberts, Vet.M.B., Ph.D.	Associate Professor	Gastrointestinal Pathology
DEPARTURES	**Rank**	**Current Location**
Lois Arend, M.D., Ph.D.	Associate Professor	University of Michigan
Lysandra Voltaggio, M.D.	Associate Professor	The Joint Pathology Center
Marissa White, M.D.	Associate Professor	Medstar
Claire Knezevic, Ph.D.	Assistant Professor	Northwestern University
Jaclyn Murry, Ph.D.	Assistant Professor	Greenwood Genetic Center
Liz Thompson, M.D., Ph.D.	Assistant Professor	Kaiser Mid-Atlantic Group
Laura Wake, M.D.	Assistant Professor	University of Maryland

Blast From The Past

What is this?

Answer on page 19.

GRADUATE TRAINING PROGRAM IN PATHOBIOLOGY 2024-2025

Moonki Chae, M.S. was born and raised in Seoul, South Korea, and earned his dual undergraduate degrees in food bioscience and biotechnology at Korea University. In 2023, Moonki completed his master's degree at Korea University, studying obesity. His thesis examined the role of olfactory receptors in reducing high-fat diet intake and promoting weight loss. Seeking to deepen his understanding of human diseases, after graduate school, Moonki worked as a research assistant studying steroid-resistant asthma with single-cell analysis at at the Seoul National University College of Medicine. He then studied novel signaling components of the mTOR pathway in cancer at Weill Cornell Medicine in New York. This work solidified his decision to pursue basic biomedical research training in the Pathobiology Ph.D. Program at Johns Hopkins.

Lindsey Ferguson, D.V.M., a veterinarian from Tualatin, Oregon, is currently a postdoctoral fellow in the Johns Hopkins Department of Molecular and Comparative Pathobiology, where she is a resident in veterinary anatomic pathology. Lindsey earned her B.S. in zoology with honors and her D.V.M. from Oregon State University. She then spent two years in practice as a small animal general practitioner in Silverton, Oregon. During veterinary school, she spent a summer as a diagnostic pathology fellow at Johns Hopkins, learning to perform necropsies and studying epigenetic predisposition factors for human pancreatic ductal adenocarcinoma. Lindsey also spent a summer at Cornell University studying proteins involved in chromosomal crossover formation during meiosis. Her interests in comparative research focus on reproductive disease and hormonal effects on disease in humans as well as domestic animals. She also is interested in neoplasia, subfertility, and infertility in zoo and wildlife species.

Tyler Findlay, M.S., a Delaware native, graduated with a B.S. in applied molecular biology and biotechnology, with a minor in animal science, from the University of Delaware. As an undergraduate, he worked on various research projects, including characterizing the equine microbiome, producing antibodies from chickens for western blot applications, and studying the *EWS/FLI1* oncogene in Ewing's sarcoma. He earned his master's degree in Biochemistry and Molecular Biology at the Johns Hopkins Bloomberg School of Public Health, and his master's thesis focused on exploring the linkage between type 2 diabetes mellitus, *H. pylori* infections, and pancreatic ductal adenocarcinoma. After graduating, Tyler worked as a research specialist in the Johns Hopkins Brain and Eye Tumor Laboratory, where his research focused on identifying and targeting tumor-specific vulnerabilities through the development of novel combination therapies for aggressive pediatric brain tumors. This experience has led Tyler to pursue his Ph.D. in the Pathobiology program, with a focus on translational research, particularly in the oncology field.

Akash Jain, B.S. grew up in Sunnyvale, California. He earned a B.S. in Biochemistry from the University of California, Los Angeles. Because his first year of undergrad occurred during COVID-19, Akash became curious to expand his learning beyond the Zoom classroom by joining the laboratory of Catherine Clarke, Ph.D. at UCLA, studying the essential antioxidant coenzyme Q10 (better known as CoQ10) and its biosynthetic machinery. He then joined the Center for Iron Disorders under Nicolaos Palaskas, M.D., Ph.D., where he furthered his antioxidant research by studying alterations to the antioxidant redox balance in systems suppressing ferroptosis. Akash is excited to expand his passion for understanding fundamental cellular processes by joining it with translational research in the Johns Hopkins Pathobiology program.

Michelle Luo, B.S., grew up on Long Island, New York, and obtained her B.S. in biology and neuroscience at the University of North Carolina at Chapel Hill. While at UNC, she conducted research in the laboratory of Alisa Wolberg, Ph.D., investigating pathophysiologic mechanisms of hemostasis and thrombosis. After graduating, Michelle continued her work as a research technician in Dr. Wolberg's lab, investigating cellular and molecular mechanisms of thrombosis and bleeding in pancreatic ductal adenocarcinoma. In 2023, she moved to Maryland for a post-baccalaureate fellowship as a Cancer Research Training Award Fellow in the Translational Nanobiology Section of the National Cancer Institute under the mentorship of Jennifer Jones, M.D., Ph.D., where she investigated extracellular vesicles in cancer. Some of her projects included the study of retroviral elements in tumor-released extracellular vesicles and the evaluation of how radiation therapy affects extracellular vesicle cargo.

Rebecca Morton, B.S., grew up in Elmhurst, Illinois. She earned a B.S. in microbiology at Ohio State University, where she joined the laboratory of Kristine Yoder, Ph.D., and Richard Fishel, Ph.D. She completed her undergraduate honors thesis on using designer DNA-binding domains to target prototype foamy virus for sequence-targeted gene therapy. Her research focused on developing a targetable gene therapy viral vector for monogenic diseases. This project strengthened her interest in translational research. After graduating in 2023, she continued as a lab technician before moving to Baltimore in 2024 to pursue her doctoral degree in the Johns Hopkins Pathobiology program.

Our Pathobiology Ph.D. students are trained rigorously in human disease pathology, basic cell biology, molecular biology, genetics, microbiology and mechanisms using real human specimens; their research is continuously benchmarked against this "gold standard" of clinical disease.

This training approach leverages our clinical roots in the Department of Pathology at Johns Hopkins—one of the most highly funded pathology department in the country—which gives our students unparalleled access to human tissues and specimens. Thus, the work of our students remains grounded in human disease pathology from start to finish.

Jasmine Terrell, B.S., is a proud native of Baton Rouge, Louisiana. She earned her B.S. in Biology from Howard University, where she served as part of the fourth cohort of the Karsh STEM Scholars Program. Her scientific curiosity led her to delve into various research opportunities, including a summer internship at Children's National Hospital under the mentorship of Natella Rakhmanina, M.D., Ph.D, FAAP, AAHIVS, investigating the epidemiology and treatment of HIV-positive children in the D.C. metropolitan area and gaining insight into pediatric HIV care. Jasmine then worked in the D.C. Center for AIDS Research's Diversity, Equity, and Inclusion Pathway Initiative Program under Mark Burke, Ph.D., to research microglia activation in the hippocampus of HIV Tg26 mouse models. Exploring her interest in reproductive biology, she joined MD Anderson Cancer Center in Houston, Texas, as a summer research student in the laboratory of Richard Behringer, Ph.D., where she focused on sex differentiation in mammalian reproductive tracts and organs. Jasmine also interned at the University of North Carolina at Chapel Hill with Russell Broaddus, M.D., Ph.D. and Andrew Gladden, Ph.D., researching the impact of increased endocrine disruptor pollutants on the incidence and mortality of endometrial cancer in African American women. Her passion for translational research and increasing representation in science has now brought her to Johns Hopkins to pursue her Ph.D. in the Pathobiology program.

YOUNG SCIENTISTS IN TRAINING

Forest Park students learning about Phlebotomy

This year marked the 30th anniversary of the Johns Hopkins Summer Jobs Program, a paid internship program for students between the ages of 15 and 21. As it has in summers past, the Department of Pathology hosted ten student interns from the Summer Jobs Program (SJP) for the 7-week program. Supervised by Yulanda Mitchell, the education coordinator for the Department's Surgical Pathology and Anatomic Pathology divisions, the students spent time in various labs, where their tasks ranged from stocking the gross room, billing for research, staining research slides, handling specimen logistics, filing blocks and slides, inventory management, document scanning, and equipment maintenance to answering phones.

The SJP students, along with five merit students from across Baltimore City Public Schools also engaged in weekly learning development sessions, where they were introduced to new aspects of pathology including Autopsy, Cytology, Surgical Pathology, Research, Blood Banking, Microbiology, Virology, Phlebotomy, Clinical Chemistry, and Hematology. These learning days were a collaborative effort by education coordinators in the blood bank (Lorraine Blagg), microbiology (Paula Mister), and core lab (Melody Rorabeck). At the end of a very busy summer, the SJP students put together a presentation to demonstrate what they had learned. These budding scientists, as well as the Department of Pathology, are grateful to the many faculty and staff who helped make their summer learning journey a memorable one.

In addition to the Hopkins SJP students, the Department also hosted 80 students from Forest Park High School for a tour. ■

Top: SJP Scholars learning about Transfusion Medicine

Bottom: Forest Park students learning about Histology

Set the course for a bright future

JOHNS HOPKINS
MEDICINE
PATHOLOGY

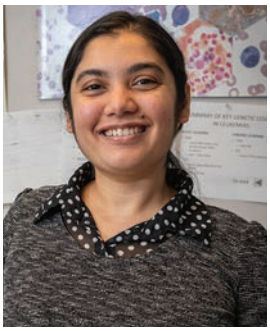
A charitable distribution from your IRA will help you meet your required minimum distributions without increasing your tax obligations and ensure that the Department of Pathology remains a leader in advancing research and making new discoveries for generations to come.

To learn more, contact Amy Helsel, Senior Director of Development and Alumni Relations, Department of Pathology
410-292-4396 | ahelsel@jhmi.edu | giving.jhu.edu/giftplanning

Private philanthropy is critical to our educational and research missions. The smiling faces of the fellowship recipients below tell the story. In addition to these fellowships, there are several funds that support trainee and junior faculty research.

FELLOWSHIP RECIPIENTS 2024-2025

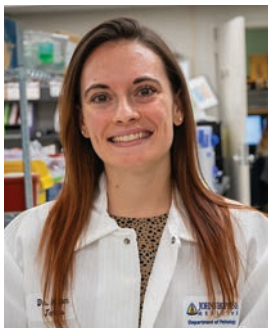
John K. Boitnott Fellow in Liver Pathology
Bing Han, M.D., Ph.D.



Michael J. Borowitz Fellow in Hematopathology
Tanvi Verma, M.D.

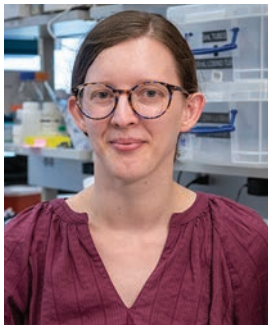
Breast Pathology Fellow
Abigayle Norwood, M.D.

Daniel W. Chan Fellow in Clinical Chemistry
Maxwell L. Harsha, Ph.D.



Patricia Charache Fellow in Medical Microbiology
Meagan M. Jenkins, Ph.D.

Yener S. Erozan Fellow in Cytopathology
Lorena Marcano Bonilla, M.D, Ph.D.



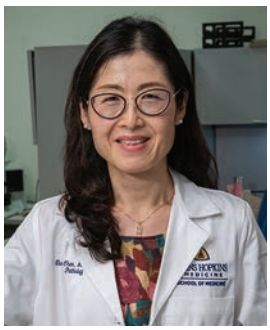
Sol Goldman Fellow in Pancreatic Cancer Research
Abigail C. Cornwell, Ph.D.

Constance A. Griffin Fellow in Molecular Pathology
Matthew Bayes, M.D., M.P.H.

Paul M. Ness Fellow in Transfusion Medicine
Sri Bharathi Kavuri, M.D.

Virginia O'Leary & John C. Wilson Fellow in Autoimmune Disease Research
Solmaz Roshanmehr, M.D.

Dorothy L. Rosenthal Fellow in Cytopathology
Sandra Sanchez, M.D



John H. Yardley Fellow in Gastrointestinal Pathology
Tiane Chen, M.D.

FUNDING OUR FUTURE

Please consider supporting one or more of our funds or fellowships. If you have any questions, please contact the Pathology Development and Alumni Relations Office (**HopkinsPathology@jhmi.edu** or 443-287-7949). If you would like to donate to one of these funds, please visit our secure site at **https://secure.jhu.edu/form/pathol**, scan the QR code at the right, or send your tax-deductible contributions payable to "Johns Hopkins University" to:
Department of Pathology | Johns Hopkins Medicine | 550 North Broadway, Suite 701B | Baltimore, MD 21205

NEW GRANTS AND CONTRACTS AWARDED TO PATHOLOGY FACULTY

10/20/2023 - 11/1/2024

Faculty Member	Award Type	Agency	Dates	Total Funding
Alexandris, Athanasios	Grant	American Parkinson's Disease Foundation	09/01/24 - 08/31/25	$75,000
Asrani, Kaushal	Grant	Kidney Cancer Foundation	09/01/24 - 08/31/25	$75,000
Carroll, Karen	Sub Contract	Duke / Biomeme	02/13/24 - 02/12/25	$9,182
Carroll, Karen	Clinical Trial	Meridian Bioscience Inc	09/29/23 - 01/31/24	$9,910
Carroll, Karen	Contract	Meridian Bioscience Inc	11/29/23 - 11/28/24	$186,169
Carroll, Karen	Contract	Meridian Bioscience Inc	09/18/24 - 09/17/25	$103,118
Chan, Daniel	Contract	University Of Washington	07/31/24 - 07/30/25	$26,000
Cihakova, Daniela	Grant	Foundation for Sarcoidosis Research	12/11/23 - 12/10/25	$50,000
Clarke, William	Clinical Trial	Radiometer Medical Aps	10/24/23 - 06/30/25	$179,969
Clarke, William	Contract	Roche Diagnostics International Ltd	06/21/24 - 10/31/25	$304,761
Clarke, William	Contract	Red Abbey Labs LLC	09/27/24 - 09/26/25	$150,764
Cruz Lebron, Angelica	Grant	DOD HT94252410076	02/01/24 - 01/31/26	$163,750
Demarzo, Angelo	Sub Contract	Leidos Inc. / NCI	05/23/24 - 08/30/24	$41,020
Eberhart, Charles	Grant	Alex's Lemonade Stand Foundation	01/02/24 - 01/02/25	$64,409
Eberhart, Charles	Grant	Children's Cancer Foundation	11/01/23 - 10/31/24	$75,000
Eshleman, James	Grant	The Stringer Foundation	07/01/24 - 06/30/25	$150,000
Eshleman, Susan	Sub Grant	FHI 360 / NIAID	12/01/23 - 11/30/25	$17,571
Eshleman, Susan	Sub Grant	FHI 360 / NIAID	12/01/23 - 11/30/26	$125,125
Francischetti, Ivo	Contract	Attralus	07/12/24 - 07/11/25	$24,651
Grabowski, Mary	Grant	NIAID R01AI177132	03/13/24 - 01/31/29	$3,176,152
Grabowski, Mary	Contract	Stellenbosch University	02/01/24 - 03/31/24	$10,000
Grabowski, Mary	Sub Grant	Botswana Harvard Aids Institute Partnership / Bill and Melinda Gates Foundation	08/01/24 - 07/31/25	$42,517
Hamad, Abdel	Grant	Juvenile Diabetes Research Foundation	06/01/24 - 05/31/25	$199,882
Hamad, Abdel	Grant	Tedco	04/30/24 - 01/30/25	$115,000
Hruban, Ralph	Grant	Karen Toffler Charitable Trust	04/01/24 - 03/31/25	$40,000
Hruban, Ralph	Grant	The Stringer Foundation	07/01/24 - 06/30/25	$150,000
James, Aaron	Grant	DOD HT94252410051	01/01/24 - 12/31/25	$327,500
James, Aaron	Grant	NIAMS R21AR083544	04/01/24 - 03/31/26	$396,275
James, Aaron	Grant	American Cancer Society	01/01/24 - 12/31/25	$300,000
Krummey, Scott	Grant	KidneyCure	07/01/24 - 06/30/26	$200,000
Krummey, Scott	Grant	American Heart Association	07/01/24 - 06/30/27	$300,000
Krummey, Scott	Grant	NIAID R56AI179856	08/08/24 - 07/31/25	$327,500
Larman, Harry	Sub Grant	Brigham and Womens Hospital / NHLBI	03/15/24 - 01/31/28	$37,048
Ling, Jonathan	Contract	Blackbird Laboratories	11/16/23 - 06/30/25	$361,500
Ling, Jonathan	Sub Grant	Tufts / NINDS R21	07/01/24 - 06/30/26	$245,626
Ling, Jonathan	Grant	Milken Institute	09/26/24 - 09/25/26	$500,000
Lotan, Tamara	Sub Contract	Harvard / MIT	04/08/24 - 10/07/25	$174,876
Lotan, Tamara	Contract	Urogen Pharma Limited	2/21/2024 - 02/20/25	$10,000
Lotan, Tamara	Contract	Urogen Pharma Limited	12/19/23 - 12/18/24	$15,000
Lotan, Tamara	Contract	Artera	01/29/24- 12/31/24	$248,507
Mostafa, Heba	Contract	Midiagnostics	04/03/24 - 07/14/25	$259,842
Mostafa, Heba	Contract	Luminex Corporation	12/07/23 - 12/06/24	$175,705
Parrish, Nicole	Sub Contract	Midwest Research Institute / NIAMS	01/02/24 - 11/16/30	$3,965,602
Richardson, Andrea	Grant	Breast Cancer Research Foundation	10/01/24 - 09/30/25	$225,000
Rosenberg, Avi	Sub Grant	University of Michigan / NIAMS	03/05/24 - 01/31/27	$120,709
Rosenberg, Avi	Sub Grant	Georgetown University / NIDDK	08/196/24 - 06/30/29	$204,690
Schneck, Jonathan	Grant	NCI R33CA278429	02/08/24 - 01/31/27	$1,238,657
Schneck, Jonathan	Grant	NIBIB P41EB028239	07/10/24 - 04/30/29	$6,383,822
Schneck, Jonathan	Grant	Tedco	10/23/24 - 07/23/25	$130,000

Faculty Member	Award Type	Agency	Dates	Total Funding
Sfanos, Karen	Grant	Prostate Cancer Foundation	12/01/23 - 11/30/25	$1,000,000
Sfanos, Karen	Grant	DOD HT94252410365	09/01/24 - 08/31/27	$961,118
Sfanos, Karen	Grant	DOD HT94252410919	08/15/24 - 08/14/27	$1,473,751
Sfanos, Karen	Grant	NCI R01CA287126	07/01/24 - 06/30/29	$3,173,289
Shih, Ie Ming	Grant	The Honorable Tina Brozman Foundation	01/01/24 - 12/31/25	$400,000
Shih, Ie Ming	Grant	NCI P50CA228991	08/01/24 - 07/31/29	$12,235,612
Simner, Patricia	Sub Grant	Duke / NIAID UM1	12/01/23 - 11/30/24	$18,589
Simner, Patricia	Sub Grant	Duke / NIAID	12/01/23 - 11/30/25	$98,079
Simner, Patricia	Sub Contract	European Vaccine Initiative / European Commission	01/01/24 - 12/31/27	$842,928
Simner, Patricia	Contract	Accelerate Diagnostic Inc	11/27/23 - 11/26/24	$94,153
Simner, Patricia	Contract	Laboratory Specialists Inc	05/14/24 - 05/13/25	$15,000
Sokoll, Lori	Contract	ABBOTT	04/05/24 - 04/04/25	$64,629
Troncoso, Juan	Sub Grant	Indiana University / NIA	05/01/24 - 04/30/27	$140,826
Wong, Philip	Grant	DOD HT94252410345	06/01/24 - 05/31/27	$2,455,671
Wu, Tzyy Choou	Grant	NCI P50CA098252	09/11/24 - 08/31/29	$10,994,873
Yates, Clayton	Grant	NCI OT2CA297504	05/01/24 - 04/30/25	$281,874
Yates, Clayton	Sub Grant	UCSF / Movember Foundation	11/19/23 - 11/18/24	$126,323
Yates, Clayton	Grant	Cancer Research UK	05/01/24 - 04/30/25	$239,577
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	04/25/24 - 12/31/24	$6,300
Zhang, Hui	Grant	American Heart Association	01/01/24 - 12/31/25	$143,764
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	10/24/23 - 07/31/24	$51,282
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	04/29/24 - 12/31/24	$199,350
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	04/18/24 - 12/31/24	$215,600
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	04/18/24 - 12/31/24	$215,600
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	04/26/24 - 03/31/25	$215,600
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	09/06/24 - 04/25/25	$32,634
Zhang, Hui	Grant	Congress of Neurological Surgeons	05/01/24 - 04/30/25	$20,000
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	07/26/24 - 08/01/25	$156,960
Zhang, Hui	Sub Contract	Leidos Inc. / NCI	07/22/24 - 03/28/25	$167,424
Zhang, Hui	Sub Grant	Icahn School of Medicine at Mt. Sinai / NIAID	04/16/24 - 03/31/29	$303,200
Zhang, Sean	Contract	Euroimmun US	12/15/23 - 12/14/24	$30,300
Zhang, Sean	Contract	Pearl Diagnostics Inc	07/10/24 - 07/09/25	$45,459
Zhang, Sean	Contract	Zepto Life Technology Inc	07/29/24 - 07/28/27	$122,235
			TOTAL	**$58,254,809**

Have you moved or are in the process of moving? Have you changed your email address?

If so, please email **HopkinsPathology@jhmi.edu** to provide your new mailing and email addresses. We don't want you to miss an issue of *PathWays* or communication from the Department of Pathology.

We respect your privacy and will never share your name with other organizations.

AWARDS & RECOGNITION

Syed Ali, M.B.B.S., received the 2023 Papanicolaou Award of the American Society of Cytopathology (ASC) at its 71st annual scientific meeting held in November 2023 in Austin, Texas. The Papanicolaou Award, established in 1958, is the highest award in the field given by the ASC and is presented annually to a physician or Ph.D. member in recognition of meritorious contributions in the field of cytopathology. Dr. Syed Ali gave the Papanicolaou Address at the ASC annual meeting.



Pedram (Pete) Argani, M.D., Ralph Hruban, M.D., and **Brigitte Ronnett, M.D.** were each ranked as "Top Doctors" by the 2024 Castle Connolly Top Doctors list. Castle Connolly Top Doctors, which represent the top seven percent of practicing physicians in the United States, are peer-nominated and thoroughly vetted by the organization's physician-led research team. These doctors are best-in-class healthcare providers, embodying excellence in clinical care as well as interpersonal skills.

Natasha Bachmeyer M.S., MLS(ASCP) SBB, was awarded the 2024 Future Leader Specialist in Blood Bank Scholarship Award by the Association for the Advancement of Blood & Biotherapies (AABB) for her project entitled *"Transfusion Reactions in Patients with Sickle Cell Disease: Are Hemolytic Reactions Being Underreported?"* The AABB is the leading clinical society for transfusion medicine and cellular therapies with over 6,000 individual members and more than 1,000 institutional members in 80 countries.

Maria Bettinotti, Ph.D. and **Scott Krummey, M.D., Ph.D.,** were each selected to receive a Best Paper of 2022 Award by the editorial board of *Human Immunology*. These awards, announced in May 2024, are chosen based on citation and download statistics gathered on the best original research papers and the best review papers from two years previous. Dr. Bettinotti won first place in the Review Category for her publication entitled "*Evolution of HLA testing for hematopoietic stem cell transplantation: Importance of the candidate's antibody profile for donor selection"* and Dr. Krummey won second place in the Research Category for his publication entitled *"The unity of imputation for molecular mismatch analysis in solid organ transplantation."*

Ben Biggs, a second-year doctoral student in Jonathan Schneck's laboratory, is among 50 exceptional STEM scholars selected to receive a 2024 Quad Fellowship. The Quad Fellowship promotes interdisciplinary scientific and technological innovation while empowering and building ties among the next generation of STEM leaders.

Jacqueline Birkness-Gartman, M.D., FASCP, was named as one of "40 under Forty" by the American Society for Clinical Pathology. This award recognizes her for her achievements and leadership qualities that are making an impact on pathology and laboratory medicine.

Karen Carroll, M.D., was elected to the American Academy of Microbiology Board of Governors. Her term started July 1, 2024.

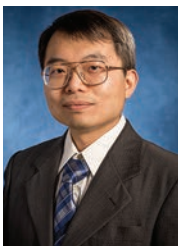
Ashley Cimino-Mathews, M.D., received the 2024 Johns Hopkins House Staff Anatomic Pathology Teaching Award.

Diana Fang, M.D., a third-year resident in anatomic and clinical pathology, was awarded the Arkana Laboratories Award in Renal Pathology. This is a competitive award given to select residents who demonstrate aptitude in renal pathology and will help fund a one-month immersive rotation at Arkana Laboratories.

Carina Friend, MLS(ASCP) SBB, was awarded the 2023 Future Leader Specialist in Blood Bank Scholarship award by the AABB for her project entitled *"Intrauterine Transfusion for Hemolytic Disease of the Fetus Secondary to Maternal Red Blood Cell Alloimmunization versus Fetal Anemia of Nonimmune Etiology."*

Michael Goggins, M.D., Ph.D., was awarded the National Pancreas Foundation's 2024 Nobility in Science Award. The award is presented to a physician who has shown exceptional leadership, dedication, innovation, and compassion in the treatment and care of pancreatic cancer patients.

Ralph Hruban, M.D., received the Heritage Award from the Johns Hopkins Alumni Association, the Distinguished Alumnus Award from the University of Chicago Lab School, and the Rubenstein Award from Memorial Sloan Kettering Cancer Center, and he gave the Stephen Achuff Lectureship in Cardiology.



Chuan Hsiang "Bear" Huang, M.D., Ph.D., was awarded the 2023 Discovery Award by the Johns Hopkins University for his work entitled *"Longitundinal Real-Time Monitoring of Effects of Microplastic Exposure on Cellular Behaviors and Signal Transduction in the Lung Tissue."*

Zahra Maleki, M.D., was invited by Johns Hopkins University School of Medicine Dean Theodore DeWeese, M.D. to serve on the Clinical Excellence Promotion Committee (CEPC), which considers promotions of faculty on the Clinical Excellence Track to both Associate Professor and Professor.

Janielle Maynard, Ph.D., received the Vanguard Award from the Institute of Caribbean Studies at the 31st Annual Caribbean American Heritage Awards. This prestigious honors recognize the contributions and accomplishments of Caribbean leaders in various fields while celebrating Caribbean pride and the great promise of Caribbean immigrants to America and the world.

Mahalia Robinson, D.O., M.S., a third-year resident in anatomic and clinical pathology, was selected by the National Medical Association (NMA) to receive the 2024 Future of Pathology Award. This award was established by the NMA to recognize and reward students and trainees with a special interest in pathology. The award aims to increase representation and recognition of African Americans and other underrepresented minorities impacting the field. The Association of Pathology Chairs (APC) Society of '67 also selected Dr. Robinson as a Kinney Scholar. The Society of '67 fosters the development of academic pathology and future leaders in academic practice, education, and research. A donor will fund her attendance at the APC 2024 Annual Meeting.

PATHOLOGY RESIDENCY TRAINING PROGRAM RANKS #1

Over 30,000 physicians recently participated in a survey to nominate residency training programs that offer "the best" clinical training across 28 different specialties. The Johns Hopkins Department of Pathology is proud to be ranked as the #1 residency training program in Anatomic & Clinical Pathology for the 2024-2025 academic year!

Maxim Rosario, M.D., Ph.D., along with JHU colleagues Scott Wilson, Ph.D. and Jay Bream, Ph.D. received a 2024 Discovery Award from Johns Hopkins University for their proposal to develop "A Bone Marrow Targeting Vehicle for IL-15 to Enhance NK Cell Anti-leukemic Effect."

Jonathan Schneck, M.D., Ph.D., and his team are the proud recipients of a $6.4 million grant renewal from NIH's National Institute of Biomedical Imaging and Bioengineering in response to JHU's Translational ImmunoEngineering Hub.

Trish Simner, Ph.D., received the Clinical and Laboratory Standards Institute Service Award in Wayne, Pennsylvania. She was also given the 2024 College of American Pathologists' Pathology Advancement Award, which recognizes outstanding and transformative work ensuring the use of current breakpoints for antimicrobial susceptibility testing.

T. C. Wu, M.D., Ph.D., received the Notice of Grant Award for the cervical cancer SPORE. This is the fourth competitive renewal received by Dr. Wu and his group.

Clayton Yates, Ph.D., is part of the global Cancer Grand Challenges team (SAMBAI), led by Melissa Davis at Morehouse School of Medicine, in a $25 million initiative over five years to address cancer inequities. Dr. Yates was interviewed by WebMD in an article entitled "Q&A: Precision Medicine for Black Americans With Cancer".

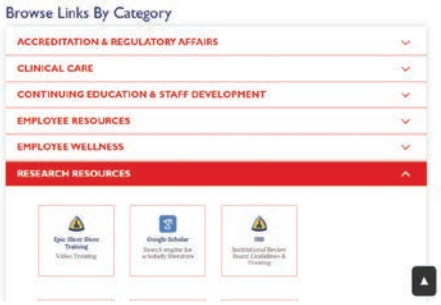
PATHOLOGY WEB NEWS

The web team continues to add new content and functionality to the Pathology web site **(https://pathology.jhu.edu)**. There is a new navigation feature on the INTERNAL USERS page, and a new page on the website called Lab Technical Briefs that provides timely updates about laboratory tests.

The INTERNAL USERS page now has a new accordion menu that displays a variety of links by category to simplify access and allow many more informational and reference links on the Pathology website *(see figures)*.

The Lab Technical Briefs page **(https://pathology.jhu.edu/patient-care/lab-technical-briefs)** has links to recent changes to laboratory tests in the Department of Pathology. Notices on this page may alert providers of new test offerings, reference range changes, critical lab supply shortages, or other situations affecting patient care. This new page lists only recent test changes, though archived changes will also be available.

Please continue to visit the Department of Pathology website and be sure to contact the web team (pathwebteam@jhmi.edu) with your comments, questions and requests. ■



New Director of Anatomic Pathology: Maintaining Tradition and Embracing the Future

Our department has an extraordinary and long history of clinical excellence, scholarship and education. This undoubtedly relates to our prior success in recruiting top talent, coupled with the challenging and diverse clinical material we receive.

The world of anatomic pathology, however, is changing dramatically and we will need to adapt to these changes. Recent developments in artificial intelligence are revolutionizing the entire biomedical enterprise. For example, AI approaches are rapidly increasing in power to augment the ability to diagnose disease in the fields of radiology and anatomic pathology. In parallel, the acceleration in our ability to interrogate molecular features of our tissues, such as single cell and spatial genomic approaches will provide unprecedented ability for discovery and implementation of new approaches to diagnosis and disease management using our "routine" anatomic pathology specimens. Critical challenges, however, include how to best implement these advances while maintaining and evolving our traditional outstanding approaches of teaching excellence? The answer, of course, is to continue and expand our tradition of fostering faculty and trainee development, as well as harnessing their knowledge, creativity, collegiality, and cooperative nature. Thus, the Department plans to embrace the use of artificial intelligence as a new tool to help unleash the human intelligence of our department members.

With these growing complexities in mind, the Department has created the new position of Deputy Director of Anatomic Pathology. We are extremely pleased that **Angelo De Marzo M.D., Ph.D.** was selected as the inaugural holder of this position. Angelo came to the Department as a resident in anatomic pathology 30 years ago. He notes that the most important thing he learned during his training is that by working as part of a team we can achieve synergy to solve the most challenging problems. That by harnessing our collective intelligence we can best develop the appropriate strategies to move us into this future. His goal as Deputy Director of Anatomic Pathology is to leverage his experience and expertise to collaboratively produce a strategic vision for developing and executing new initiatives to enhance

discovery, teaching and patient care and growth of anatomic pathology across the Hopkins health system. Angelo stated, "I very much look forward to exciting times ahead working with faculty, staff, residents, fellows, graduate students, administrators, and staff, both within our department and beyond." ■

ALLEN VALENTINE PATHOLOGY EDUCATIONAL SYMPOSIUM

On October 8-9, 2024, the annual Allen Valentine Pathology Educational Symposium marked its twelfth year. Approximately 600 individuals attended, either in-person or virtually. The program included clinical and anatomic pathology topics such as Weird Micro: Kids Stuff, Optical Genome Mapping, Immunostaining, Forensic Toxicology, Endometriosis, and Duffy-null Neutropenia. The role of nutrition in immunity and how cacti may provide information about human cancer were discussed. Attendees also had a yoga session to practice mindfulness and learn about sleep disorders. A huge "Thank You" to the Pathology Symposium Committee for providing this enriching opportunity for the Department's faculty, fellows, residents, and staff. ■

Top: Alison Gareau, Ph.D., shares the science behind histocompatibility

Bottom: Fan favorite, Paula Mister, shares pediatric microbiology cases

Top: Session on "Weird Micro: Kids Stuff"
Middle: Session on "Interactive Case Studies"
Bottom: Session on "Finding a Match"

NEWS FROM THE LAB

In recent years, the Clinical Immunology laboratory of the Johns Hopkins Hospital (located in Meyer B-137) has significantly expanded its test menu. Since June 2016, the lab has expanded the number of unique tests it offers from 61 to a total of 110. The most significant component of this expansion (29 tests) to date has been the launch of the Autoimmune Neurology Program (ANP). The program, begun in October 2018, is a partnership between the Immunology lab and clinicians in the Department of Neurology who are interested in autoimmune diseases. The program's goal is to create in-house antibody panels that are more specific to the various neurological syndromes having autoimmune pathogenesis and, ultimately, help guide clinicians in selecting the appropriate laboratory tests, reduce the volume of send-out tests, and support patients by avoiding delays in identifying the true cause of their symptoms. The first four ANP tests were launched in July 2019. After several revisions, a total of 11 syndromic panels were finalized, including 6 in serum and 5 in CSF.

The most recent advancement involves the "neuromyelitis optica panel in serum", which includes the measurement of antibodies against aquaporin 4 and myelin oligodendrocyte glycoprotein (MOG). These two antibody specificities were part of the initial July 2019 quartet but were measured by immunofluorescence using fixed (i.e., dead) HEK293 cells as the substrate. Recent years have seen an explosion of knowledge about MOG antibodies. While initially considered a diagnostic biomarker for multiple sclerosis, they are now better associated with inflammatory demyelinating diseases that are clinically and radiographically distinct from multiple sclerosis. Indeed, MOG antibodies have become the key laboratory criterium for the diagnosis of MOG antibody-associated disease. Recent studies show that assays using live cells for the detection of MOG antibodies, such as flow cytometry, are more sensitive than assays using fixed cells. There are only a couple of clinical laboratories around the world that offer the detection of MOG antibodies by flow cytometry. After a few years of trials and tribulations, the Immunology laboratory finally secured a flow cytometer

and launched the MOG antibody flow assay in April 2024. The ability to bring this useful diagnostic tool in-house represents the Department of Pathology's commitment to providing quality in-house testing in addition to reducing send-out costs for the patient.

This expanded in-house testing capability will have a huge impact. Previously, in the United States, the MOG flow cytometry assay was only offered clinically by the Mayo Clinic. For patients at Hopkins who ordered this test, the serum samples had to be sent to Rochester, Minnesota. The cost of this send-out test was $579.40 per test until October 2023, after which it was reduced to $393.75. This price change followed a contract renegotiation between Hopkins and Mayo, which allowed for direct handling of the specimens without involving Quest. From January 2022 to May 2024, 654 serum MOG send-out tests were conducted at a cost of $341,983 (about $12,000 per month). Since May 2024, the Hopkins laboratory has ended these send-out tests in favor of a flow cytometry assay. The Immunology lab has performed approximately 200 assays since then, saving the hospital over $67,000 in just four months. This shift to in-house testing is projected to save around $250,000 annually.

The Immunology lab continues to collaborate with Neurology and the EPIC team to complete all 11 syndromic panels, several of which require the introduction of new tests. The syndromic panels will be used for patients affected by autoimmune encephalopathy, autoimmune epilepsy, neuromyeltis optica, stiff person syndrome, movement disorder, demyelinating peripheral neuropathy, axonal peripheral neuropathy, and myasthenia gravis. The panels are built to provide key information about the most relevant, high-suspicion autoantibodies in an accessible and orderable testing algorithm.

While these antibody tests are available at reference laboratories, they are often included in an extensive list of antibodies that provide little educational value about which are most useful for specific syndromic cases. This can lead to erroneous ordering practices and increased costs for patients. Creating targeted syndromic panels will promote informed ordering and better control over testing through in-house methods. ■

Celebrating Rob Kahl's Retirement

After 35 years at Johns Hopkins, Department of Pathology associate administrator Rob Kahl retired in January 2024. During his tenure, Rob held various finance, management, and leadership roles. He worked closely with faculty on pre- and post-award procedures and supervised and trained a talented group of staff.

Rob was known for his accurate and on-target reports and projections. Pathology's directors were in his office daily learning the status of budgets, revenue, and grant funding. From the largest grants to the smallest philanthropic contributions from donors, administrators were always up to date on every aspect of the Johns Hopkins University-side of Pathology due to Rob's fiscal vigilance. Extremely knowledgeable of protocols across the University, he was recruited for numerous University committees to improve processes in both finance and workflow. Rob was not only an asset to Pathology, but he also supported process improvement in departments University wide.

While Rob is greatly missed, his colleagues and friends throughout the Department and the University wish him a long, happy, and healthy retirement. ■

Pathology Administration. Front row: Shannon Biggers, Cordelia Lee, MaryBeth Marston, Mabel Smith, Stacey March, Kim Gill, Teresa Healy, second row left to right, Jennie Kelso, Tina Mancini-Flegel, Doris Pendergrass, Rob Kahl, Desiree George, Sandy Markowitz, Ksha Stephens, Becky Spivey, Third row: Andrew Byrd, Al Valentine, Ralph Hruban

Rob Kahl and Al Valentine

Becky Spivey, Rob Kahl, Jennie Kelso

Blast From The Past

Before there was PowerPoint, the Harvard Presentation Graphics program, and 35mm transparency slide, there was the glass lantern slide. A lantern slide is a type of transparent photographic slide that was commonly used in the 19th and early 20th centuries for projection in magic lanterns, an early form of image projector. These slides were typically made of glass and featured images that could be illuminated and projected onto a screen for audiences to view. Lantern slides were popular for educational lectures, entertainment, and storytelling before the advent of more modern photographic and digital projection technologies.

The carrying case of lantern slides shown belonged to biological photographer Chester F. Reather, former Director of Photography at Johns Hopkins University School of Medicine, who worked there from 1950-1971.

2024 ENDOWED LECTURES

Ninth Fred and Janet Sanfilippo Visiting Professor Lecture

Chhavi Chauhan, Ph.D., E.L.S., Director of Scientific Outreach for the American Society for Investigative Pathology, presented a talk entitled *"Artificial Intelligence in Medicine: The Best Thing Since Sliced Bread or Are We Toast?"* at the Ninth Fred and Janet Sanfilippo Visiting Professor Lecture in May 2024.

Top: Chhavi Chauhan, Ph.D., E.L.S.; Heba Mostafa, M.B.B.Ch., Ph.D.
Bottom: Ralph Hruban, M.D.; Fred Sanfilippo, M.D., Ph.D.

Third Paul M. Ness, M.D. Visiting Professor Lecture

In March 2024, Steven L. Spitalnik, M.D., Professor of Pathology and Cell Biology at Columbia University Irving Medical Center, presented a talk entitled *"Precision Transfusion Medicine: Past, Present, and Future"* at the Third Paul M. Ness, M.D. Visiting Professor Lecture.

Aaron Tobian, M.D., Ph.D., Steven L. Spitalnik, M.D., and Paul M. Ness, M.D.

Eleventh Joseph C. Eggleston, M.D. Visiting Professor Lecture

Jerad M. Gardner, M.D., a dermatopathologist with the Geisinger Medical Laboratories at Geisinger Medical Center in Danville, Pennsylvania, gave the Eleventh Joseph C. Eggleston, M.D. Visiting Professor Lecture on November 18, 2024. His talk was on *"How YouTube, Facebook, and X (Twitter) Changed My Life: The Role of Social Media in Pathology and Medicine."*

2024 Eggleston Lecture, pictured above, Jerad Gardner, M.D., and Lisa Rooper, M.D.

Tashiding: Beyond Earth & Sky

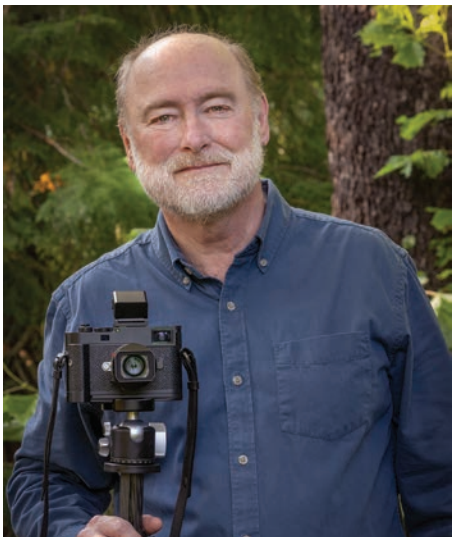
"Do what you love, and you'll never work a day in your life." This ubiquitous quote is attributed to both Confucius and Mark Twain, but as far as Norm Barker's career goes, there is certainly truth to this statement. Norm's consuming passion for photography and books has spanned nearly 50 years. Working in a large academic medical center, he has been presented with many image-capture challenges almost daily. Providing photographic documentation for all kinds of projects and publications is the core of what Norm does here at Hopkins.

But on evenings and weekends, you can find Norm out in the field working on his own projects. His traveling exhibits have been shown in museums and galleries in more than 20 countries. His personal photographs have found homes in the permanent collections of more than 40 museums, including the Smithsonian Institution, the George Eastman Museum, the American Museum of Natural History, the Nelson-Atkins Museum and the Science Museum in London. Norm has also published ten books, as well as numerous scientific articles and book chapters.

Norm's current book project is a collaboration with the property owners of a very unusual garden located in farm country in Northern Baltimore County. Entitled *TASHIDING: Beyond Earth & Sky, The Gardens of Douglas and Tsongie Hamilton,* published by ORO Editions, the 325-page book, comprised of more than two-hundred-fifty color photographs, is due out in Spring 2025.

View of the Conifer Garden from the Archery Field.

ORO Editions specializes in featuring architecture, landscapes, visual art, and photography. Tashiding is a 100-acre private estate named after a small town in the Western District of Sikkim in the Eastern Himalayas of India, whose name means "Devoted Central Glory, the Center of All Things Auspicious." The book project highlights the remodeling of an 1820 farmhouse and the surrounding extensive gardens that were designed and planted by the owners over the past 23 years, including more than 1,000 trees. For the past two years, Norm has been out in all seasons, all weather conditions, and all times of the day and night to capture the incredible beauty of this unique garden, which he likens as part plant nursery, part sculpture garden, and part Xanadu.■



Norm Barker, M.A., M.S., Professor of Pathology & Art as Applied to Medicine

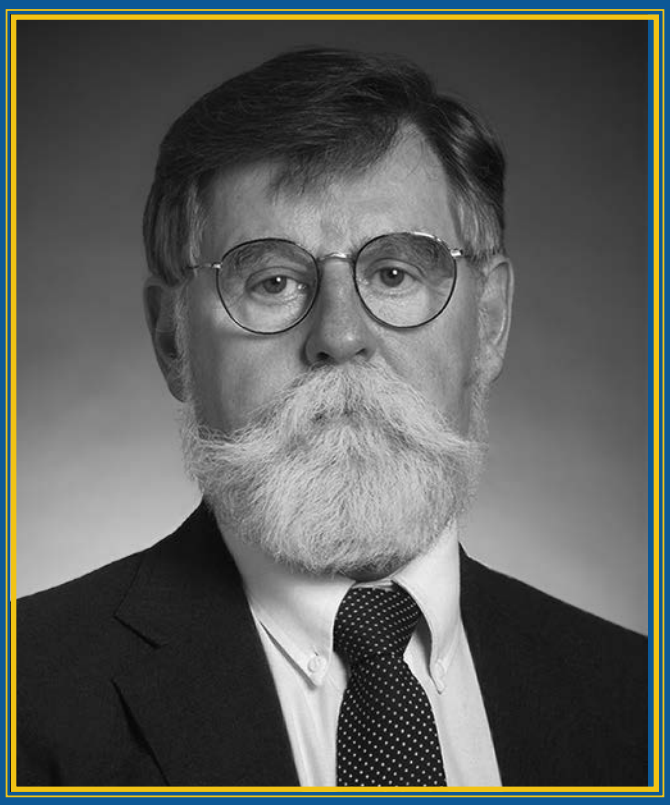
Panorama view of the Lake, Tea House and Prayer Flags, after a fresh snowfall.

Hopkins Pathology Alumni USCAP Reunion

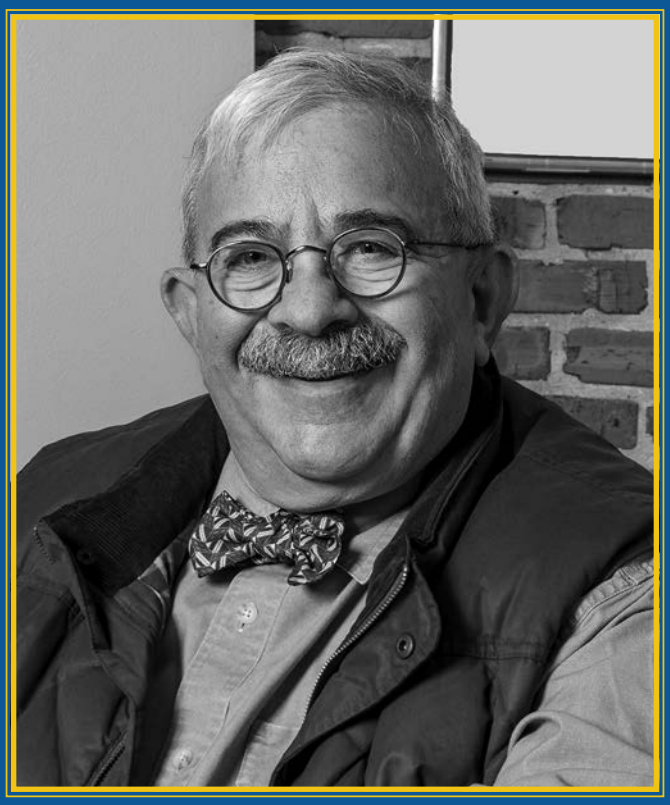
On Sunday, March 24, 2024, during the USCAP Annual Meeting in Baltimore, the Department of Pathology hosted a memorable alumni event. The event started with a tour of the Department led by our residents. The tour included new and old buildings and labs, and an opportunity for alumni to find themselves and fellow alumni in old annual departmental photographs hung in the hall on the 4th floor of the Carnegie Building.

The tour was followed by a reception and dinner in the Armstrong Medical Education Building for 100 alumni and friends from six countries and 22 states. The guests were treated to a large digital display of images from the Department's history. Dr. Ralph Hruban welcomed the crowd, and emeritus faculty member Peter Burger, M.D., gave a presentation entitled "Pathology at Johns Hopkins: Then and Now." The guests spanned generations—from residents in their 20s to one former Department director in his 90s. ■

In Memoriam



Raymond Ellsworth Lund, FBPA
1934-2024



Gary Pasternack, M.D., Ph.D.
1949 - 2024

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CALENDAR OF EVENTS

March 22-27, 2025
United States and Canadian Academy of Pathology
114th Annual Meeting
Boston Convention and Exhibition Center
Boston, MA

Alumni Reception
Monday, March 24th
Omni Hotel - room TBD
5:30 pm - 7:30 pm

May 13, 2025
2025 Pathology Young Investigators' Day
Turner Auditorium
Johns Hopkins University School of Medicine
Baltimore, Maryland
10 am – 3 pm

June 12, 2025, 5:30 p.m.
Pathology Awards Presentation
Turner Auditorium
The Johns Hopkins Hospital
Baltimore, Maryland

2024 Pathology Young Investigators' Day Awardees

CONGRATULATIONS TO THE TOP AWARD RECIPIENTS

Bailey West, B.S. – Basic Research
Thomas Zaikos, M.D., Ph.D. – Clinical Research
Kirsten Bowland, Ph.D. – Translational Research

FOR EXCELLENCE IN BASIC RESEARCH

David Elias, B.S.
Neelima Thottappillil, Ph.D.
Prajita Paul, Ph.D.

EXCELLENCE IN CLINICAL RESEARCH

Annie Wu, M.D., Ph.D.
Katherine Fomchenko, M.D.
Mike Mikula, M.D.

FOR EXCELLENCE IN TRANSLATIONAL RESEARCH

Carolina Gomes Alexandre, M.D.
Joseph Heinemann, M.D.
Jun (Tony) Choe, B.S.
Kaushal V. Asrani, MBBS, Ph.D.
Ming-Hung (Lance) Hu, M.D.
Niklas Bachmann, B.Sc.
Rafid Al-Hallaf, Ph.D.
Selina Shiqing Teh, Ph.D.
Stephen Brown, B.S.
Yeh Wang, M.D., Ph.D.