Fall
2024

COLUMBIA PATHOLOGY AND CELL BIOLOGY REPORT

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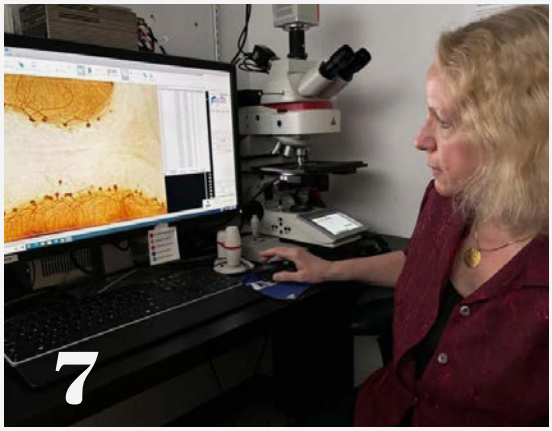

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Chair
Kevin L. Gardner, MD, PhD
Donald W. King, M.D. and Mary Elizabeth King, M.D. Professor of Pathology and Cell Biology
Chair, Department of Pathology and Cell Biology
Pathologist-in-Chief, CUIMC

Department Administrator/CFO
Joann Li, PA, MPH

Editor and Layout Designer
Milan Fredricks

Copy Editor and Webmaster
Ping Feng

Content Reviewers
Taisha Lembert
Joann Li
Ping Feng

Photo Contributors
CUIMC ERG

Address correspondence to:
PCB Reports, Editor
c/o Milan Fredricks
Columbia University
Department of Pathology and Cell Biology
630 W. 168th St., Box 23
New York, NY 10032
Email: PathNews@cumc.columbia.edu

General E-mail: pathology@columbia.edu
Website: https://pathology.columbia.edu

ON THE COVER:
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Digital Pathology Diagnostics in Anatomic Pathology

By: Michael L. Miller, MD PhD (Associate Director of Digital Pathology) and Glen Markowitz, MD (Vice Chair of Anatomic Pathology)

The at-scale digitization of glass microscope slides represents an exciting transformation within the field of Anatomic Pathology. Through our partnership with NewYork-Presbyterian Hospital (NYPH), we are deploying an enterprise-wide end-to-end digital pathology system that will allow Columbia University Pathologists to view histopathologic slides digitally from their computer monitor for primary diagnosis. In addition to improving patient care, this system will facilitate interdisciplinary conferences and teaching, prepare our trainees for the field's digital future, and pave the way for quantitative analysis and structured reporting. This is an exciting moment in Anatomic Pathology at Columbia University Irving Medical Center as we embark on the next steps in our digital pathology initiative.

Current Status

The Section for Digital Pathology Diagnostics ("DPD") has been established in a newly renovated space on VC14, near histology, which will act as a central hub for Anatomic Pathology's digital pathology operations, with six Leica GT450 scanners, each of which can hold 450 slides and scan 30-40 slides per hour. All the scanners are fully functional. We added two staff members to coordinate the rapid transfer of slides between histology and the DPD and we've filled one of two newly created positions for Digital Pathology Application Support Specialists. New, upgraded 4K monitors have been provided to faculty and trainees who will be engaged in digital pathology. We have worked closely with NYPH with respect to image storage and mapping. As a result, when a slide with a CoPath LIS barcode is scanned, the image maps directly to and is accessible from within CoPath. We are preparing to have the same capacity when transitioning to Epic Beaker at the end of 2025.

For the past month, all biopsies cut and stained by the night crew before midnight have been scanned overnight, returned to histology, and made available for attending sign-out by 8:00 AM. Thus, when glass slides are read in the morning, they have already been digitized and are accessible in CoPath. We are scanning ~400 slides overnight. We recently started scanning the midday "regular" (non-biopsy) slides (200-300/day) as well, and the next step will be to scan the additional slides returned at ~3 PM daily from Quest. At that point, all H&E-stained slides produced each day will be scanned prior to sign-out. We are optimistic about reaching this step by December 2024. To avoid delays in workflow, we will hold off on commencing the scanning of slides stained by immunohistochemistry, in situ hybridization, or "special stains" until we complete system validation. There have been limited delays in slide availability to attendings and residents, and we continue to focus on minimizing delays.

Next Steps

With significant input from our department, the entire NYPH health system selected PathAI as our digital pathology vendor. PathAI offers an excellent image management system (IMS), AISight, significantly more robust than the current system employed within CoPath. AISight will be deployed in a limited capacity in December. In early January, we will collectively validate the scanners, newly upgraded monitors, and AISight IMS as part of a single process. Once the validation is complete, AISight will be deployed more broadly, and PathAI will provide staff and support to train our faculty on the optimal use of AISight. We anticipate that individuals will begin to sign-out using solely digital images as soon as February 2025. Still, the plan is also to continue to provide glass slides for the foreseeable future. Importantly, until the validation process is completed, digitized slides can only be used to screen slides. All final diagnoses should only be rendered following a review of glass slides.

Future Goals

There have been additional areas of progress. Over 170,000 images (~27 TB) generated on the legacy AT2 scanner have been migrated to the new CoPath interface. We have begun to screen and evaluate artificial intelligence (AI) applications and are confident that these applications can improve our diagnostic capabilities. Coinciding with these clinical efforts, there has been parallel growth in our translational research program. Through collaboration with the Department's Digital and Computational Pathology Lab (DCPL), we are developing processes to safely and fairly utilize the imaging data for research within the department and across the Medical Center to maximize the impact of our world-class diagnostics and expert knowledge base.

There are many individuals who merit a note of appreciation. First and foremost, NYPH leadership has been a tremendous partner in this process, providing the funding, insight, IT expertise, and prioritization required to make this successful. In particular, Lorraine Corsale, Manager of Digital Imaging at NYPH, has brought unique and timely expertise to the DPD. Lorraine brings years of digital imaging experience, which is unparalleled given the field's young age. She has built a team of digital imaging specialists that ensure safe and efficient day-to-day operations. A special thanks also goes to Dr. Kevin Gardner, who has prioritized digital pathology investigation, computation, and diagnostics since he arrived at CUIMC. We have been working towards a digital conversion in Anatomic Pathology for the past two years and have reached an exciting point. The future is near, and the enthusiasm among the faculty is palpable. We look forward to taking the next steps together, in what should be a year of excitement and transition.

The DPD Team. From Left: (Back) Michael Miller, Dany Toribio Torres, Glen Markowitz (Front) Cassandra Bell, Lorraine Corsale, Clayton Kim

STAFF SPOTLIGHT: FACULTY

Honors and Awards

Osama Al Dalahmah Wins Hereditary Disease Foundation 2024 Transformative Research Award

The Hereditary Disease Foundation recently announced the 2024 Transformative Research Award winners. Osama Al Dalahmah, MD, PhD, assistant professor of pathology and cell biology from Columbia University, and Dr. Andrew Yoo from Washington University School of Medicine in St. Louis and received a $1 million grant to study two novel molecules, HD-LINC and HINT, as potential therapeutic targets for Huntington's disease (HD). The project, named Uncovering Huntington's Disease-Associated Human-Specific Non-Coding Transcripts as Therapeutic Targets, aims to determine if reducing these non-coding RNAs can improve HD symptoms in cells, human brain tissue, and mouse models.

The team will develop antisense oligonucleotides (ASOs) targeting HD-LINC and HINT, potentially leading to clinical trials. Drs. Al Dalahmah and Yoo will focus on what stands to be a totally novel target for HD research, non-coding RNAs, advancing truly transformative research for developing HD therapeutics. Visit the Hereditary Disease Foundation website to learn more about the Transformative Research Award.

Francesca Bartolini Named 2023 Velocity Fellow

We are delighted to announce that Francesca Bartolini, PhD, associate professor of pathology and cell biology, is among the newest class of Velocity Fellows who received funding from the 2023 ride. With the award from Velocity, Dr. Bartolini and her co-investigator Robert Wechster-Reya, PhD seek to discover the precise mechanisms that cause the sonic hedgegog medulloblastoma, or SHH, a particular subtype of a malignant tumor of the central nervous system, which accounts for about 20% of pediatric brain tumors. Despite the prevalence of this cancer, we still don't know enough about its origins. Their work will focus on two particular proteins (INF2 and mDia), and how they interact. This new knowledge will lead the way to targeted treatment.

Carol Troy Named 2024 XSeed Award Winner

Carol M. Troy, MD, PhD, professor of pathology and cell biology at CUMC, received a $250,000 grant as one of the two winners of the 2024 XSeed Award.

Dr. Troy's team is working to develop the first noninvasive treatment for retinal vascular occlusion (RVO), the sight-threatening blockage of a vein in the light-sensitive inner layer of the eye. The XSeed Award, established by Deerfield Management and NYCEDC, supports underrepresented life science startups in New York City. Winners gain access to the Cure ecosystem, including peer learning, investor interactions, and business expertise. Read the full story on the Cure website.

Steven Spitalnik Honored with AABB President's Award

On October 19, Steven Spitalnik, MD, professor of pathology and cell biology, was recognized with a 2024 President's Award during the General Session of the 2024 AABB Annual Meeting in Houston, Texas. He was awarded "extraordinary dedication and service, throughout a remarkable career, to advancing AABB's mission of improving lives by making transfusion medicine and biotherapies safe, available, and effective worldwide." The AABB President's Awards are bestowed annually, and the recipients are selected each year by the AABB president. The honor recognizes "extraordinary public service and contributions of an individual or an organization in the health care arena," and recipients are honored for work that "furthers AABB's goals and missions." Congratulations to Dr. Spitalnik on receiving this remarkable recognition.

STAFF SPOTLIGHT: FACULTY

Pathology and Cell Biology Faculty Recognized at 2024 VP&S Dean's Honors Luncheon

Source: CUIMC Newsroom

(From Left) Dr. Krystalyn Hudson & (Middle) Dr. Tiffany Thomas, who were honorees at the luncheon

Faculty of the Vagelos College of Physicians and Surgeons who received promotions, tenure, endowed professorships, or notable honors and awards during the 2023-24 academic year were celebrated at the annual VP&S Dean's Honors Luncheon on Oct. 9. This included the following XX faculty members of the department of Pathology and Cell Biology:

KEY LEADERSHIP POSITIONS

Kevin L. Gardner, MD, PhD Chair, Department of Pathology and Cell Biology

ENDOWED PROFESSORSHIPS

Kevin L. Gardner, MD, PhD Donald W. King, M.D. and Mary Elizabeth King, M.D. Professor of Pathology and Cell Biology

APPOINTMENTS AND PROMOTIONS TO PROFESSOR

Larisa Debelenko, MD, PhD Professor of Pathology and Cell Biology at CUMC
Tilla S. Worgall, MD, PhD Professor of Pathology and Cell Biology at CUMC

APPOINTMENTS AND PROMOTIONS TO ASSOCIATE PROFESSOR

Mythily Ganapathi, PhD Associate Professor of Pathology and Cell Biology at CUMC
Krystalyn E. Hudson, PhD Associate Professor of Pathology and Cell Biology
Brian Karolewski, VMD, PhD Associate Professor of Clinical Pathology and Cell Biology
Jun Liao, PhD Associate Professor of Pathology and Cell Biology at CUMC
Miroslav Sekulic, MD, MA Associate Professor of Pathology and Cell Biology at CUMC
Tiffany Thomas, PhD Associate Professor of Pathology and Cell Biology at CUMC
George Vlad, PhD Associate Professor of Pathology and Cell Biology at CUMC

NOTABLE HONORS AND AWARDS

COLUMBIA UNIVERSITY

Fabrizio Remotti, MD 2024 Inducted Member, Academy of Clinical Excellence (ACE)
Brent R. Stockwell, PhD 2023-2024 Irving Institute Translational Therapeutics (TRx) Accelerator Pilot Award
Harris H. Wang, PhD Dean's Distinguished Lecture in the Basic Sciences

NATIONAL

Dritan Agalliu, PhD Board Member, PANDAS Physicians Network
Michael L. Shelanski, MD, PhD 2023 Fellow, American Society for Cell Biology
Brent R. Stockwell, PhD 2023 Elected Member National Academy of Medicine
Harris H. Wang, PhD Inductee, American Institute for Medical and Biological Engineering and Named Finalist, Blavatnik National Awards for Young Scientists

INTERNATIONAL

Anette Wu, MD, PhD, MPH Speaker, Expert Luncheon and Seminar, UN Department of Global Communications and the German Center for Research and Innovation New York

PATHOLOGY IN SNAPSHOT

***The Case of the Matching Colleagues**: Sometimes, you get to work and you're wearing an outfit eerily like your coworker. Hmm, this sounds like a mystery!*

The Case of the Grey Tweed featuring (left) Joann Li, DA and Courtney Tulli, HR Generalist

STAFF SPOTLIGHT

New Hire Shout-Outs

Manisha Bhardwaj, *HR Generalist*

Manisha Bhardwaj has joined our HR team as an HR Generalist. Manisha was previously an HR Generalist at Phoenix House New York, where she supported onboarding, leaves of absence, auditing, payroll, and benefits management. She also has a background in recruitment and education. Manisha received her master's in human resources management from Stony Brook University. Manisha likes to work out in her free time and enjoys a good cup of coffee.

Cherisse Fraser, *Project and Grants Analyst*

Welcome Cherisse Fraser, one of our newest members to the Grants team. Cherisse graduated from Baruch College with a bachelor's degree in Biochemistry and has worked in accounting for the last five years. She believes that her dual background in science and budgeting has set her up for success in this new role of maintaining structure and staying the course. In her free time, Cherisse also teaches Physics and enjoys performing karaoke. Cherisse is delighted to join the department and looks forward to helping Columbia's scientists continue their research.

Rebekah Silva, *HR Generalist*

Welcome to Rebekah Silva, who has joined our HR team as an HR Generalist. Rebekah was previously an HR Generalist at COSCO Shipping North America, supporting recruitment and onboarding, benefits administration, and regulatory compliance. She also has previous experience in talent acquisition and recruitment. She received her master's in organizational psychology from Montclair State University and has her Professional in Human Resources (PHR) certification. Rebekah enjoys Broadway shows in her free time and has even attended the Tony Awards.

Rondale Pritchett, *Grants Analyst*

We are pleased to introduce our newest team member, Rondale Pritchett, who has joined us as a Grants Analyst. He comes to us with seven successful years of financial and project management experience. In his spare time, he enjoys home renovation projects and works with local youth programs in his community. Rondale is very excited to expand his knowledge and gain new experiences as part of the Pathology team, and we are excited to welcome him.

Staff Promotions

Courtney Sinn , *Assistant Director, HR/FA*

Please join us in congratulating Courtney Sinn as she joined the Department of Dermatology as Assistant Director on Monday, October 28th. Courtney, an incredibly thoughtful and skilled leader, has been with Columbia since 2016 in the Division of General Medicine and later joined the Department of Pathology and Cell Biology in 2019 as Manager of HR and Academic Affairs. While she will continue to support our department and manage the HR team, her role will be expanding to include oversight of Human Resources functions in Dermatology. We could not be more excited about this well-deserved promotion.

STAFF SPOTLIGHT: FACULTY

Pathology Faculty Featured in Columbia Media

Pioneering ET Research: Dr. Phyllis Faust's Work with the Essential Tremor Centralized Brain Repository at Columbia

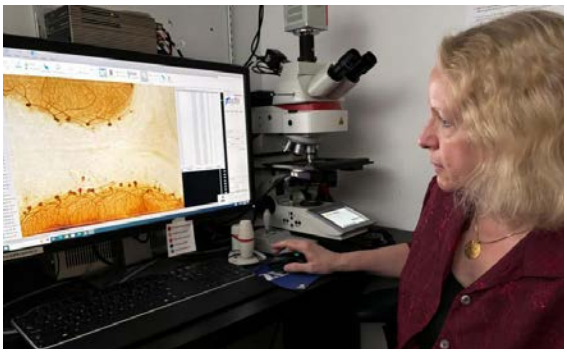
Source: CUIMC Newsroom

Dr. Phyllis Faust, a neuropathologist at the Columbia University Vagelos College of Physicians and Surgeons, Department of Pathology and Cell Biology, is a leading figure in the study of essential tremor (ET). Her work with the Essential Tremor Centralized Brain Repository, the world's most extensive collection of brains from ET patients, has been instrumental in advancing our understanding of this neurological disorder.

Before establishing the repository in 2003, little was known about the biological underpinnings of ET. "Back then, the accepted wisdom was that there were no structural changes in the brains of people with essential tremor," says Dr. Faust. "But those conclusions were made from examinations of a very small number of brain specimens." The repository has allowed researchers to study many brains, leading to groundbreaking discoveries about the disease.

One of Dr. Faust's key contributions has been developing a method for diagnosing ET after death. Based on the analysis of 11 degenerative changes in Purkinje cells (large cerebellar neurons), this method has an accuracy rate of over 90%. This is a significant advancement, as ET is currently diagnosed based on clinical findings, leading to a high rate of misdiagnosis. Dr. Faust emphasizes the importance of this tool: "It is an important step to allow confirmation of clinical diagnoses, which has been a hallmark of research in other neurodegenerative diseases.

The repository has also allowed researchers to identify potential areas of the brain involved in ET. Early research pointed to the cerebellum as a likely origin point for the disorder. However, Dr. Faust recognizes the need to explore other regions: "We've sampled just one region of the cerebellum, but this organ is quite heterogeneous. It's likely that other parts are involved." Her team is currently investigating whether the part of the cerebellum responsible for cognition is affected in ET patients. This could explain why some individuals with ET also experience anxiety, depression, and an increased risk of dementia. Her research extends beyond the cerebellum to explore other brain structures that may contribute to tremor propagation, such as the thalamus, motor cortex, and inferior olive.



Dr. Faust in the microscope room

Dr. Faust's ongoing work with the Essential Tremor Centralized Brain Repository continues to shed light on this complex disorder. Her research efforts and those of her colleagues are paving the way for developing more accurate diagnostic tools and, ultimately, effective treatments for ET. Read the full story here.

PATHOLOGY IN SNAPSHOT

***The Case of the Matching Colleagues**: Sometimes, you get to work and you're wearing an outfit eerily like your coworker's. Hmm, this sounds like a mystery!*

*The Case of **the Black and Green** featuring (left) Milan Fredricks, Strategic Communications Manager and Casey Schadie, Executive Assitatnt to the Chair*

RESEARCH

Featured Publications (in CUIMC Newsroom)

Multi-omic Analysis of Huntington's Disease Reveals a Compensatory Astrocyte State

We are excited to introduce the latest publication by the team led by **Dr. Osama Al-Dalahmah**, entitled "Multi-omic Analysis of Huntington's Disease Reveals a Compensatory Astrocyte State," published in August 2024 on *Nature Communications*. Huntington's disease (HD) is a progressive, incurable neurodegenerative disorder characterized by selective and regional neurodegeneration. The team led by Dr. Osama Al-Dalahmah and Dr. Vilas Menon (Neurology) used single-nucleus RNA sequencing, lipidomics, and neuropathology to gain new insights into the underlying biology of HD. The results showed that astrocytes, the primary glial cells in the brain that maintain homeostasis, can display diverse states that correlate with selective regional vulnerability in HD. They discovered a protective astrocyte state that increases viability in patient-derived neurons. This collaborative effort included contributions from Dr. James Goldman (Pathology), and from collaborators at Washington University in St. Louis, MIT, Northwestern University, and the NY Genome Center. Dr. Al-Dalahmah also presented these findings at the Milton Wexler Biennial Symposium organized by the Hereditary Disease Foundation in Boston on August 8th.

A human-specific progenitor sub-domain extends neurogenesis and increases motor neuron production.

This paper was published in *Nature Neuroscience* on August 19. The author, **Dr. Sumin Jang**, a senior research associate in the lab of Dr. Hynek Wichterle, examined mechanisms that led to an evolutionary increase in the nervous system size and complexity. She identified a new progenitor domain that evolved in the human neural tubes and is absent in the rodent spinal cord. This domain harbors progenitors capable of prolonged neurogenesis, yielding a 5x larger number of motor neurons per progenitor compared to the classical motor neuron progenitors found in mice. Interestingly, this domain generates larger numbers of hand-innervating motor neurons, possibly contributing to our increased dexterity. Sumin also discovered that the identity and function of these human-specific motor neuron progenitors are controlled by a master regulator transcription factor NKX2.2.

Prevalence of and gene regulatory constraints on transcriptional adaptation in single cells

This study by **Dr. Ian Mellis**, our postdoctoral clinical fellow in transfusion medicine, and other researchers from Northwestern University was published on Aug. 14 in Genome Biology. It highlights a significant discovery that a rare form of gene regulation—found previously in only a handful of genes in fish, worms, and mice—is widespread in the human and mouse genomes and that genes affected by transcriptional adaptation, when disabled by a mutation, can turn on related genes to compensate for lost functions. "If we can understand the rules better, this form of gene regulation could eventually lead to a new style of genetic engineering to boost the activity of beneficial genes," says Ian Mellis. Read the full story in CUIMC Newsroom to learn more about the study.

Recent Grants

Francesca Bartolini, PhD, associate professor of pathology & cell Biology, awarded $3,048,488 over five years from 09/01/24 to 08/31/29 from NIH/NCI for "**Investigating the Pathogenic Role of Tubulin Post-translational Modifications in CIPN**". The major goals of this project are to investigate the pathogenic potential for tubulin PTMs in the onset of chemotherapy induced peripheral neuropathy (CIPN) and the mechanisms of CIPN-related drug dependent induction of tubulin and microtubule injury.

Krystalyn Hudson, PhD, associate professor of pathology and cell biology, awarded $2,418,372 over five years for a subaward from the National Heart, Lung, and Blood Institute for "**Basic and Translational Mechanisms of Alloimmunization to RBC Transfusion**".

RESEARCH

Recent Publications

- The multiple roles of chronic stress and glucocorticoids in Alzheimer's disease pathogenesis. Burke MR, Sotiropoulos I, **Waites CL**. *Trends Neurosci*. 2024 Sep 21:S0166-2236(24)00172-3. doi: 10.1016/j.tins.2024.08.015. Online ahead of print. PMID: 39307629

- Extranodal Rosai-Dorfman Disease Presenting as a Rapidly Enlarging Limbal Mass. Yeager LB, **Soderquist CR**, Marr BP. *Ophthalmology*. 2024 Sep 20:S0161-6420(24)00512-8. doi: 10.1016/j.ophtha.2024.08.019. Online ahead of print. PMID: 39306770

- Unusual presentation of ROS1 rearranged metastatic non-small cell lung cancer. Chen LN, Keating C, Leb J, **Saqi A**, Shu CA. *Respir Med Case Rep*. 2024 Aug 18;51:102091. doi: 10.1016/j.rmcr.2024.102091. eCollection 2024. PMID: 39257471

- Regulation of synapse density by Pumilio RNA-binding proteins.Randolph LK, Pauers MM, Martínez JC, Sibener LJ, Zrzavy MA, Sharif NA, Gonzalez TM, Ramachandran KV, Dominguez D, **Hengst U.** *Cell Rep*. 2024 Sep 18;43(10):114747. doi: 10.1016/j.celrep.2024.114747. Online ahead of print. PMID: 39298318

- RhD-positive red blood cell allocation practice to RhD-negative patients before and during the COVID-19 pandemic. **Tanhehco YC**, Fung M, Hermelin D, Becker J, Lu W.*Am J Clin Pathol*. 2024 Sep 17:aqae113. doi: 10.1093/ajcp/aqae113. Online ahead of print.PMID: 39287493

- Systemic T-cell activation and interferon-γ activity in indeterminate severe hepatitis (iSH) are reminiscent of hemophagocytic lymphohistiocytosis (HLH): Implications for T-cell and interferon-γ directed therapies. Nguyen TH, Satwani P, Kumar D, Kapoor U, Malik S, Prince C, Montminy T, Smiley K, Martinez M, Goldner D, Marsh R, **Remotti HE**, **Fazlollahi L**, Rytting HB, Romero R, Chandrakasan S.J. *Allergy Clin Immunol*. 2024 Sep 13:S0091-6749(24)00940-0. doi: 10.1016/j.jaci.2024.08.029. Online ahead of print. PMID: 39278359

- Diffuse Gastric Cancer: A Comprehensive Review of Molecular Features and Emerging Therapeutics. Wu LW, Jang SJ, Shapiro C, **Fazlollahi L**, Wang TC, Ryeom SW, Moy RH. *Target Oncol*. 2024 Sep 13. doi: 10.1007/s11523-024-01097-2. Online ahead of print.PMID: 39271577

- Synaptic imbalance and increased inhibition impair motor function in SMA. Fletcher EV, Chalif JI, Rotterman TM, Pagiazitis JG, Alstyne MV, Sivakumar N, Rabinowitz JE, **Pellizzoni L**, Alvarez FJ, **Mentis GZ**. *bioRxiv* [Preprint]. 2024 Sep 1:2024.08.30.610545. doi: 10.1101/2024.08.30.610545. PMID: 39257773

- VEGF-A-mediated venous endothelial cell proliferation results in neoangiogenesis during neuroinflammation. Shahriar S, **Biswas S**, Zhao K, Akcan U, Tuohy MC, Glendinning MD, Kurt A, Wayne CR, Prochilo G, Price MZ, Stuhlmann H, Brekken RA, Menon V, Agalliu D. *Nat Neurosci*. 2024 Sep 10. doi: 10.1038/s41593-024-01746-9. Online ahead of print. PMID: 39256571

- Purkinje Cell Dendritic Swellings: A Postmortem Study of Essential Tremor and Other Cerebellar Degenerative Disorders. Louis ED, Kuo SH, **Faust PL**. *Cerebellum*. 2024 Sep 4. doi: 10.1007/s12311-024-01739-1. Online ahead of print. PMID: 39230844

- High-grade Endometrial Carcinoma With Serous and Colorectal Carcinwoma-like Components: Unique Morphology in Correlation With Immunohistochemical and Molecular Findings. **Smithgall MC**, Yemelyanova A, Solomon J, Chapman-Davis E, Schatz-Siemers N. *Int J Gynecol Pathol*. 2024 Aug 12. doi: 10.1097/PGP.0000000000001067. Online ahead of print. PMID: 39230591

There are many tax advantages to giving appreciated stock to the Department of Pathology and Cell Biology. In donating appreciated securities, you avoid capital gains tax and qualify for a charitable income tax deduction for the full value of the securities. Please visit **www.giving.cuimc.columbia.edu/ways-give/gifts-securities** for more information. Visit the **Pathology and Cell Biology Giving Page** if you'd like more information on how to make a gift to one of our many worthwhile educational or research funds.

RESEARCH

Recent Grants

Source: CUIMC Update

Minah Kim, PhD, associate professor of pathology and cell biology at CUMC, awarded $422,971 over two years from the National Cancer Institute for "**Unraveling Vascular Mediated Immune Exclusion in Melanoma**" and $255,000 over three years from the Melanoma Research Alliance for "**Spatial Vascular Patterns and Immune Exclusion Mechanisms in Melanoma**." .

Hynek Wichterle, PhD, professor of pathology and cell biology; rehabilitation & regenerative medicine and in neuroscience (neurology), awarded $599,734 over one year from the Milken Institute for "**Modulation of protein surveillance mechanisms in sporadic and familial forms of ALS**".

ALUMNI NEWS

Dr. John Gorman Receives Prestigious Recognition

Dr. John Gorman, a former resident and faculty member in Columbia Pathology and Cell Biology, who, among other things, won the Lasker Award in 1980 as one of the inventors of Rh immune globulin (RhoGAM) to prevent Rh disease, was appointed an Honorary Companion of the Order of Australia (AC) on July 19, 2024 for "eminent service to medicine in co-discovering and pioneering a treatment for Rhesus disease for worldwide benefit to humanity." This is the highest civilian honor bestowed by the Australian government. The investiture, which our Drs. Steven Spitalnik and Patrice Spitalnik were invited to attend, took place on August 30, 2024, at the Australian Consulate General in Los Angeles.

Dr. Gorman presented with the Honorary Companion of the Order of Australia (AC) on July 19, 2024

DEPARTMENT EVENTS

A Festive Halloween Luncheon and Costume Contest

Scarecrows, bumblebees, and Batman came out for tricks and treats at the Pathology Halloween 2024 lunch and costume contest. Yummy food and fun costumes were the day's agenda in King Library. Eileen Fuentes (Director, HR) and Dr. Kevin Gardner (Chair) had the unenviable job of judging the contest.

A happy and festive group of Anatomic Pathology lab staff in their Halloween finest. (From left) A scarecrow (Ella Lim), Willy Wonka of that infamous factory (Debbie Desrouilleres), a goth (ish) princess, the "lovely" Morticia and Wednesday Adams (Anita Sandeva and Berlady Cancel), a living pumpkin (Michelle Matos), Batman (Bliss Moran), and a bumblebee (Cassandra Bell)!

And the winners of our Halloween content are… the "lovely" Morticia and Wednesday Adams (Anita Sandeva and Berlady Cancel! Congrats on great costumes (and staying in character).

We're off to see the wizard! A scarecrow (Ella, Cytology) and a witch (Milan, Central Admin) team up for this epic pic!

CUIMC EVENTS

Path to a Cure Team Exceeds Velocity Fundraising Goal!

Velocity: Columbia's Ride to End Cancer is a cycling event through New York's beautiful Hudson Valley that brings together patients, family members, supporters, and medical professionals with one goal: to help Columbia solve cancer. Since 2017, nearly 4,500 people have joined the Velocity community, raising more than $8 million in support of expert patient care and groundbreaking research at Columbia's Herbert Irving Comprehensive Cancer Center.

Joann Li, Captain

On a gorgeous Sunday, October 6, the department's Path to a Cure team joined over 550 Riders, volunteers, and supporters in the beautiful Hudson Valley and beyond for the 8th Annual Velocity Ride. This year, as of publication, Path to a Cure exceeded our fundraising goal of $5,000 by raising $7,341!

This incredible achievement wouldn't have been possible without the dedication and hard work of our team riders: Joann Li (team captain), Michele Disco, and Elizabeth Stone. Your commitment to this cause is truly inspiring. A huge thank you goes out to all our supporters who generously donated to help us reach this milestone. Your contributions will make a real difference in the fight against cancer.

Michelle Disco

Elizabeth Stone

A special shout-out to Elizabeth Stone, also recognized as a Velocity Crown Club Member, for raising $5,000 or more! Let's keep the momentum going and continue to support the Cancer Center as they work towards a cure. You can still donate to this worthy cause on the Path to a Cure team page through December 31, 2024.

Pathology Staff Awarded at CUIMC 2024 DEIB Summit

On October 29, in celebration of October being Global Diversity Awareness Month, the CUIMC Office of Diversity, Equity, Inclusion, and Belonging hosted the third annual Diversity, Equity, Inclusion, and Belonging (DEIB) Summit, **CUIMC EnERGize – Stronger Together: Enrichment through Diversity**! This day-long event provided a valuable opportunity for all staff, faculty, and students to connect and participate in enriching presentations, panel discussions, and performances. The summit sessions explored the significance and influence of intersectional identities and equities within our institution, fostering a space to collaborate, learn, and grow. Dr. Dennis Mitchell, DDS, MPH, Senior Associate for Diversity for the College of Dental Medicine, delivered the Welcome Address at this ceremonious event.

During the closing award ceremony, three Pathology and Cell Biology staff were recognized for their important service to the CUIMC ERGs. Both Yasmeen Majoka (Executive Director, Finance & Business Operations) and Courtney Sinn (Assistant Director, HR/FA) received the Excellence in DEIB Leadership Award for their outstanding service and dedication to the Islamic Cultural (IC) and Asian Pacific Islander (API) Employee Resource Group, respectively. As staff co-leads, both Yasmeen and Courtney are passionate about their respective ERGs and actively work towards empowering these communities within CUIMC. Milan Fredricks (Strategic Communication Manager) received the ERG Champion Award for continued efforts in serving and embracing our CUIMC ERGs. As an active member of five ERGs, Milan works to support and uplift these CUIMC communities in every way she can.

(Left) Yasmeen Majoka receiving the Excellence in DEIB Leadership Award

(Middle) Courtney Sinn receiving the Excellence in DEIB Leadership Award

(Right) Milan Fredricks receiving the ERG Champion Award

EDUCATION: GRADUATE PROGRAM

Welcome to the 2024 Pathobiology PhD Students!!

Mahabub Alam

CORNELL UNIVERSITY

Mahabub graduated from Cornell University with a BS in Environmental and Sustainability Sciences. He worked as a Research Technician at Albany Medical College for three years, studying the role of microglial autophagy pathway in myelination and epilepsy. He subsequently obtained an MSc degree in Neuroscience from Rutgers University. In 2022, he joined the laboratory of Dr. Neil Shneider in the Neurology Department at CUIMC as a Senior Technician, studying the role of motor neuron degeneration in Amyotrophic Lateral Sclerosis.

Vitor Gomes Pires

COLUMBIA COLLEGE

Vitor graduated with honors with a BA in Biochemistry from Columbia College, where he came after growing up in Brazil. As an undergraduate, Vitor worked in the laboratories of Drs. Shan Zha, Tom Maniatis and Adolfo Ferrando. After graduation, Vitor worked as a consultant at ClearView Healthcare Partners, a consulting firm fully dedicated to life sciences. In this role, he supported pharmaceutical and diagnostics companies with a focus on oncology and neurology.

Sheila Gonzalez Ramos

UNIVERSITY OF CALIFORNIA, LOS ANGELES

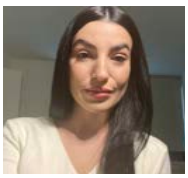
Sheila received her BS degree in Physiological Science from the University of California, Los Angeles. Following graduation, she worked for two years in the Division of Cardiology at the Geffen School of Medicine at UCLA, studying cardiotoxicity in a zebrafish model. Born and raised in Cuba, Sheila trained at the National Ballet School in Havana, where she subsequently taught ballet. She came to the US and was able to navigate the American education system, starting in community college and obtaining her BS at UCLA.

EDUCATION: PATHWAY PROGRAMS

Welcome the Inaugual INTEGRITY Program Fellows

Mila Cordero

"I recently received my Bachelor of Science in Biochemistry from St. Mary's University in San Antonio, Texas and I'm originally from El Paso, Texas. I am thrilled to be an INTEGRITY fellow as I hope to pursue a PhD/MD in the future".



Nathalia Mendonca

"I'm from Brazil and live in New York with my husband and two small dogs. I'm a dentist with five years of oncology experience treating patients with oral cancer and I am deeply passionate about research. I'm excited about the INTEGRITY program and look forward to expanding my research knowledge".

EDUCATION: GRADUATE PROGRAM

Welcome to the 2024 Pathobiology PhD Students!!

Mason Kralovec

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Mason received his BS from the University of California Los Angeles, majoring in Neuroscience. After graduation, he worked for two years at the Salk Institute for Biological Studies, where he worked on a project investigating the reciprocal relationship between circadian rhythm disruption and Alzheimer's disease pathology using genetically modified Drosophila melanogaster lines. Mason's long-term interests include metabolic science, immunology, neurodegenerative disease, aging, and therapeutic design.

Madison Snyder

SWARTHMORE COLLEGE

Madison studied for her BA at Swarthmore College, majoring in Biology and Spanish. Following graduation, Madison pursued biomedical research through a Fulbright fellowship at the Institute for Research in Barcelona. Subsequently, she worked as an R&D Rotational Associate at Pfizer, where she was able to explore the drug development pipeline during six-month rotations. She also worked at Pfizer as a pharmacometrician to develop computational tools for evaluating clinical trial drug performance. She also worked as a computational biologist to define the regulomes of androgen receptor variants that confer resistance to current prostate cancer treatments.

Michael Zrzavy

FORDHAM UNIVERSITY

Michael received his BS in Biological Sciences from Fordham University with a minor in Sociology. He worked for two summers as a laboratory technician at Franklin Pierce University. Following graduation, he worked for two years as a lab manager in the laboratory of Dr. Ulrich Hengst in the Department of Pathology and Cell Biology, where he worked on an independent project in addition to his managerial duties.

PATHOLOGY IN SNAPSHOT

The first-year PhD students hike together near Beacon, NY, on 10/26.

(From left) Front row: Sheila Gonzalez Ramos, Madison Snyder, Michael Zrzavy, Vitor Gomes Pires
Back row: Mahabub Alam, Mason Kralovec

EDUCATION: INTERNATIONAL EDUCATION

The International Collaboration and Exchange Program (ICEP)

Here are some updates from the International Collaboration and Exchange Program, the anatomy course-based international exchange program led by Dr. Anette Wu:

ICEP Global Academic Immersion Travel Conference

The conference participants with the Minister of Health of Taiwan, who gave the conference closing remarks.

The International Collaboration and Exchange Program hosted its second annual Academic Immersion Travel conference. The conference was hosted by the National Taiwan University and 65 students (from Columbia, King's College London, Medical University Vienna, University of Barcelona, University Autonoma Madrid, National University of Singapore, University of Helsinki, Berlin Charite, Ludwig Maximilians University, Kyoto University, National Taiwan University and more) met for a 5-day conference discussing pandemic responses and infectious diseases. Faculty from Columbia University, Harvard University, Yale University, Oxford University, Tokyo University, and National Taiwan University led faculty discussions and speaker lectures with the students. In addition to the academic activities, the students had great experiences in cultural immersion

IFAA Meeting in Gwangju, Korea

IFAA with workshop participants

Dr. Anette Wu hosted a symposium workshop on Anatomists and Science Diplomacy at the IFAA (International Federation of Associations of Anatomists) in Gwangju, Korea, in September 2024. The IFAA draws over 1100 participants to meet every 2-5 years. Dr. Wu's workshop was well received and will work on global collaboration in medical education via faculty exchanges for global understanding

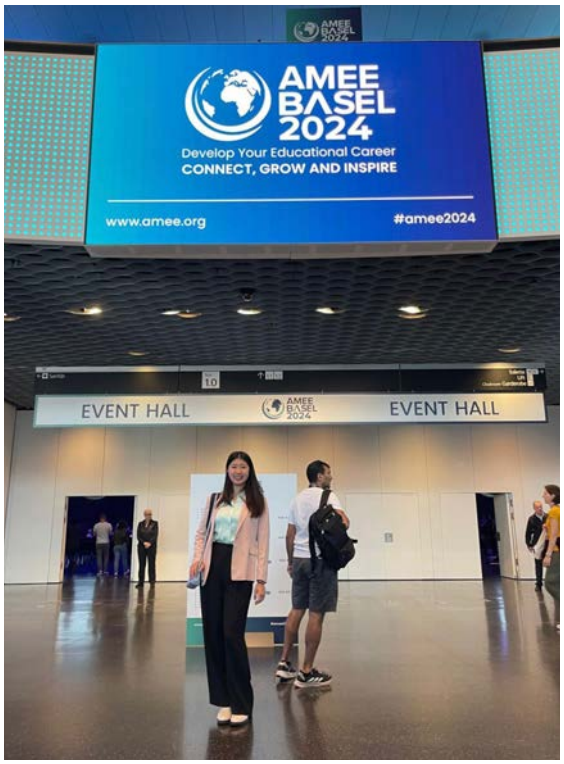
PATHOLOGY IN SNAPSHOT

Yar harrr! Ahoy there ye lily-livered blaggards! It were International Talk Like a Pirate Day on September 19, 2024 and our very own scoundrel, Eric Steinhardt, IT Director, dressed appropriately for the occasion. Aargh!

EDUCATION: INTERNATIONAL EDUCATION

The International Collaboration and Exchange Program (ICEP)

AMEE Conference in Basel



AMEE student presenter in Basel

The ICEP faculty research group led by Dr. Anette Wu gave six presentations (oral platform and one poster) at the AMEE (Association of Medical Educators) annual meeting in Basel, Switzerland. The ICEP faculty group is a collaborative group of faculty members from around the world to investigate research questions in medical education, including cultural competency, empathy, professionalism, artificial intelligence, nutrition, and science diplomacy. At the meeting, Columbia ICEP student Matt Yee, under mentorship by Dr. Anette Wu, won the oral presentation award.

Columbia University Pathology and Cell Biology faculty Drs. Ulrich Hengst, Markus Siegelin, and Carol Troy will host the incoming international ICEP dissertation students for 2024/2025. Please register here if you wish to host a dissertation student from Austria, Denmark, the UK, Germany, or Japan.

EDUCATION: RESIDENCY AND FELLOWSHIP PROGRAMS

Recent Publications

- Wang Q*, **Mellis IA***, Guo Y*, Gherasim C, Valdez R, Gordon A, Ho DD, Liu L. Robust SARS-CoV-2-neutralizing antibodies sustained through 6 months post XBB. 1.5 mRNA vaccine booster. *Cell Reports Medicine*. 2024 Aug 28.

- Wang Q*, **Mellis IA***, Ho J*, Bowen A, Kowalski-Dobson T, Valdez R, Katsamba PS, Wu M, Lee C, Shapiro L, Gordon A, Guo Y, Ho DD, Liu L. Recurrent SARS-CoV-2 spike mutations confer growth advantages to select JN. 1 sublineages. *Emerging Microbes & Infections*. 2024 Sep 10(just-accepted):2402880.Cell Host & Microbe 32, no. 3 (2024): 315-321.

PATHOLOGY IN SNAPSHOT

Pathology Staff Participate in CPR Class

Department staff and affiliates participated in a 3.5-hour Heart-saver CPR AED (Adult) course on August 26. From left to right: Julia Furnari (Neurological Surgery), Arsalan Tariq (Pathology and Cell Biology), Menachem Konikov (Pathology and Cell Biology), Joann Li (Pathology and Cell Biology), Tiffany Thomas (Pathology and Cell Biology), the instructor, Angelita Salinas (NYP Cytology Lab), Juliet Philips (Taub), and Dmitriy Kaminsky (NYP Cytology Lab).

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