Welcome to The University of New Mexico Department of Pathology’s 7th installment of PathFINDER! I find it hard to believe that I am nearing my 5-year anniversary as Chair of Pathology at UNM. As that anniversary approaches I note that UNM is experiencing some exciting changes. We’ve recently welcomed a new UNM University president, Dr. Garnett Stokes. In addition, on July 15, Kate Becker succeeded Steve McKernan as the CEO of UNM Hospital. As is our tradition, in this issue we celebrate transitions in our department by wishing our graduating trainees luck in their next endeavors and welcoming incoming trainees.

In this issue I have contributed an article on digital pathology and artificial intelligence. As some of you are aware, the FDA approval of a digital pathology platform for primary diagnosis has accelerated its integration into anatomic pathology. This also sets the stage for the implementation of machine learning tools as assist devices for pathologists. I’m currently working on a number of these projects with several faculty. Stay tuned!

Finally, I’m excited to report that we have expanded our presence on social media. Please sign up to follow us on Facebook, Instagram and Twitter. In addition, I’ve created my own personal Twitter account and blog where I comment on emerging trends in science, pathology and healthcare. Join us on social media!

DOUGLAS P. CLARK, MD
Professor & The Frederick H. Harvey Chair of Pathology

Cover image details: Colorectal tissue scanned and digitized at 20x within the HALO® environment.
The UNM Department of Pathology’s Dr. Karissa Culbreath is Associate Professor, Director of the new BOSS (Building Outstanding STEM Students) Program in the HSC Office for Diversity, and Scientific Director, Infectious Disease, Research and Development at TriCore Reference Laboratories. She is also a recipient of a 2018 Albuquerque Business First 40 Under Forty Award, and she was nominated for an NAACP Image Award for her children’s book. We are grateful that she took time out of her busy schedule to speak with us.

WFC: In addition to having a recent MedEd publication focusing on diversity and inclusion in the academic medicine workforce, you are the inaugural director for the BOSS (Building Outstanding STEM Students) Program and also the diversity officer in the department of pathology. Can you speak about these initiatives and also about what drives you to take such an active role in creating a diversified and inclusive learning and working environment?

KC: Diversity in thoughts, ideas, framework, strengths and backgrounds makes everything work better. Even at the microbial level as we understand how increased diversity in the microbiome impacts human health. Understanding the unique role that each contributor makes in an environment is how we are now exploring the microbiome. In the same way, increased diversity in the “department-ome” produces a healthier department. In the Department of Pathology, we benefit from a broadly diverse environment which leads to a more vibrant, more enriching and ultimately more rewarding culture.

What role is clinical microbiology playing in improving hospital safety and quality?

Clinical Microbiology and Infectious Disease is at an important interface in hospital safety and quality. We play a role in helping to monitor hospital associated infections and improve the diagnosis of such infections. One way we have been able to do this is by moving C. difficile testing from the Core Laboratory to the Hospital Lab. This change has reduced the turn-around-time for this test by greater than 8 hours which, in turn, helps to support infection control processes and patient cohorting.

How is clinical microbiology playing a role in addressing the problems around antibiotic use?

We collaborate closely with Antimicrobial Stewardship teams at UNM Hospital and across the state of New Mexico. One of the most exciting opportunities in this area is the advances we are seeing in rapid molecular tests that can be used to support antimicrobial stewardship efforts. We are excited to work with various facilities across the state to implement testing that can be used as part of an antimicrobial stewardship toolkit and reduce overall antibiotic use in the state.

You are also the author of the children’s book, Daddy’s Little Girl, which was nominated for an NAACP Image Award. Can you talk about your inspiration to write this book?

Growing up, my favorite book to read with my mom was, Just Us Women. When I found out I was pregnant with my daughter, that book was the first thing I purchased. However, I realized, I didn’t have a book for my husband to read with our daughter. So, I decided to write one! The book helps to show how affirmations can inspire self-worth and value in a child. I have been blessed with several wonderful opportunities to share the book at schools and community events. I hope that it will be a tool that starts conversations and encourages positive words of affirmation in families.

“In the Department of Pathology, we benefit from a broadly diverse environment which leads to a more vibrant, more enriching and ultimately more rewarding culture.”

KARISSA CULBREATH, PHD, D(ABMM)
The term artificial intelligence was coined in 1955 by John McCarthy and refers to the development of computer systems that are able to perform tasks that normally require human intelligence, such as visual perception. Artificial intelligence is a broad umbrella term encompassing more specific areas of computer science that include machine learning and deep learning.

These forms of AI have the potential to profoundly impact the delivery of health care. Emerging examples include the classification of clinical images of skin lesions into various diagnostic categories (e.g. benign/non-neoplastic/malignant; epithelial/melanocytic) using deep convolutional neural networks. Applications of deep learning algorithms to retinal images may enable the early detection of diabetic retinopathy or previously undetected cardiac risk factors. Another application involves the interpretation of radiologic images to identify pneumonia in chest x-rays.

The application of deep learning to anatomic pathology is not surprising, given its dependence on visual pattern recognition and the impressive capabilities of deep learning in this area. The application of these tools to traditional anatomic pathology specimens obviously requires the digitization of a microscopic image of the tissue. The recent approval of whole slide images as non-inferior options to traditional microscopy for primary diagnosis has rapidly accelerated the adoption of digital pathology in diagnostic settings. The UNM Department of Pathology is making exciting advances in this area. Our department already has the capacity to digitize images and is amassing a large database for research and education. And, along with TriCore Reference Laboratories, we have plans to convert to digital pathology for diagnosis in 3-5 years.

Even more exciting are some of our ongoing projects that examine applications of deep learning to areas of unmet need in pathology. We are confident that many of these tools will significantly augment (but not replace!) the practicing pathologist. The Deep Learning Team in the UNM Department of Pathology currently includes: David R. Martin, MD; Joshua A. Hanson, MD; Michael Harrell, MD; Rama R. Gullapalli, MD, PhD; Aisha Sethi, MD; Fred A. Schultz, MA. Stay tuned for our upcoming research publications!
FELLOWSHIP CORNER

COLLEEN (KELLY) GOFF, MD
SURGICAL PATHOLOGY FELLOW
BY JOSHUA HANSON, MD
ASSOCIATE PROFESSOR
SENIOR DIRECTOR OF SURGICAL PATHOLOGY
SURGICAL PATHOLOGY FELLOWSHIP DIRECTOR

The University of New Mexico Surgical Pathology Fellowship is delighted to recognize our fellow, Dr. Kelly Goff, graduating Summer 2018. Dr. Goff received her medical degree in 1993 at the Uniformed Services University of the Health Sciences, Bethesda, MD. She completed her AP/CP residency at the National Capital Consortium, Washington DC and then returned to the Uniformed Services University as an Assistant Professor of Pathology where she was the Assistant Course Director of Pathology from 2003-2005. Dr. Goff was also a staff Pathologist at Walter Reed Army Medical Center where she served as the Medical Director of the autopsy service. When it was all said and done, she had risen to the rank of Lieutenant Colonel!

Dr. Goff has been an exemplary fellow at UNM. Despite her long hiatus from Surgical Pathology, she immediately proved to be an asset in both gross and microscopic diagnostics. She completed her caseloads efficiently and proved to be a great resource on our busy consult service. She did all that was asked of her and much more. We will miss Kelly's exceptional work ethic and positive attitude.

We would like to take this opportunity to thank Dr. Goff for her sterling work this year and are thrilled that she will be joining our faculty in surgical pathology on a part-time basis to provide diagnostic support and pursue her strong interests in medical education here at UNM.

We would also like to welcome our incoming fellow for 2018-2019, Dr. Nathan Tokuda.

GRADUATE STUDENT & POSTDOCTORAL FELLOW NEWS

Charuta Palsuledesai, a fellow in the Wandinger-Ness lab, conducted over 100 customer interviews as the Entrepreneurial Lead for an NSF Innovation Corps project (June 2017-April 2018) focused on a new sepsis and antibiotic stewardship test.

Janie Byrum, a graduate student in Dr. Judy Cannon’s lab, successfully passed her Comprehensive Exam on her studies of T-cell motility and activation in lymph nodes on November 7, 2017. Byrum was selected to give an oral presentation at the American Association of Immunologists (AAI) annual meeting May 4, 2018 and she was also a recipient of the AAI 2018 Trainee Travel Award.

Melanie Rivera, a graduate student in Dr. Wandinger-Ness’s lab presented her work on ovarian cancer at the American Association for Cancer Research, April 14-18, 2018, Chicago IL. Rivera was selected as a participant for the 2018 q-bio Summer school on quantitative biology and predictive modeling of cellular regulatory systems.

Muskan Floren, a graduate student in Dr. Jennifer Gillette’s lab successfully passed her Comprehensive Exam on June 7, 2018. She received an ASCB Education committee travel award to attend the national meeting in December 2017. In April 2018, Floren received a travel award to present her work orally and in poster form at the International Tetraspanin Scaffolding Research Conference. In summer 2018, Floren was awarded a prestigious F31 Ruth Kirschstein National Research Service Award from the National Cancer Institute for her studies on the role of Tetraspanin Organization and Signaling in Acute Myeloid Leukemia Homing and Chemosensitivity.

Chelsea Saito-Reis, a graduate student in Dr. Jennifer Gillette’s lab gave poster presentations at the Biomedical Sciences Graduate Program and Cardiovascular Research Days (UNM), and at the International Tetraspanin Scaffolding Research Conference.

On May 18, 2018 graduate student (Rivera, Byrum, Derek Rinaldi) and post-doctoral (Elton Jhamba) members of the Spatio-Temporal Modeling Center, a National Systems Biology Center gave Lightning Talks for External Advisory Board members from Yale University, University of Colorado, University of Washington, and Pacific Northwest National Laboratory.

From December 2-6, 2017 a contingent of graduate students (Floren, Saito-Reis) and postdoctoral fellows (Palsuledesai) presented their work at the International American Society for Cell Biology/European Molecular Biology Organization Meeting held in Philadelphia, PA.

THESIS DEFENSES

Prashant Dogra, defended his PhD thesis on December 19, 2017 based on his studies using Mathematical Modeling of Nanoparticle Biodistribution. Dr. Dogra was co-mentored by Professor Elaine Bearer (Department of Pathology,
The University of New Mexico) and Vittorio Cristini (The University of Texas Health Science Center at Houston) and was a scholar in the SpatioTemporal Modeling Center.

Annika Jenson successfully defended her PhD dissertation on Feb. 9, 2018. She was mentored by Dr. Larry Sklar, on a collaborative project with Dr. Jeffrey Brinker (Biomedical Engineering) entitled: “Shape and Surface chemistry dictate cellular internalization pathways of mesoporous silica nanoparticles.”

Emanuel Salazar Cavazos defended his PhD thesis with distinction on March 23, 2018 based on his studies of Epidermal Growth Factor Receptor Signaling through Single Molecule Imaging and Computational Modeling. Dr. Salazar Cavazos was mentored by Professor Diane Lidke and was a scholar in the SpatioTemporal Modeling Center. Dr. Salazar Cavazos has accepted a post-doctoral position with Dr. Gregoire Altan-Bonnett in the Cancer and Inflammation Program at the National Cancer Institute.

GRADUATE STUDENTS / MENTORS

Eduardo Anaya / Aaron Neumann
Janie Byrum / Judy Cannon
Rohan Choraghe / Aaron Neumann
Akram Ettemadi Amin / Aaron Neumann
Muskan Floren / Jennifer Gillette
Cristina Flores Cadengo / Diane Lidke
William Kanagy / Diane Lidke
Carmen Martinez / Aaron Neumann
Brianna Mulligan / Elaine Bearer
Dominique Perez / Larry Sklar
Derek Rinaldi / Diane Lidke
Melanie Rivera / Angela Wandinger-Ness
Chelsea Saito Reis / Jennifer Gillette

INCOMING RESIDENTS AND FELLOWS

INCOMING RESIDENTS

Michael Franklin, DO
DO: Pacific Northwest University of Health Sciences College of Osteopathic Medicine, Anchorage, AK

Kaitlyn Nielson, MD
MD: Geisinger Commonwealth School of Medicine, Williamsport, PA

Jordan Redemann, MD
MD: University of Oklahoma College of Medicine, Tulsa, OK

Harley Schainost, MD
MD: University of Kansas School of Medicine, Wichita, KS

INCOMING FELLOWS

CYTOPATHOLOGY
Aaron Rupp, MD
Residency: Pathology, The University of New Mexico School of Medicine, Albuquerque, NM
MD: University of Kansas School of Medicine, Wichita, KS

FORENSIC PATHOLOGY
Andrew Rafael Guajardo, MD
Fellowship: Neuropathology, The Johns Hopkins Hospital, Baltimore, MD
Residency: Pathology, The Johns Hopkins Hospital, Baltimore, MD
MD: New York Medical College, Valhalla, NY

Henry A. McNitt, MD
Residency: Anatomic and Clinical Pathology, Washington University, St. Louis, MO
MD: Oregon Health and Sciences University, Portland, OR

POSTDOCTORAL FELLOWS / MENTORS

Daniel Barto / Elaine Bearer
Carolina Franco Nitta / Diane Lidke
Elton Jhamba / Diane Lidke
Charuta Paisuledesai / Angela Wandinger-Ness
Lynette Rios / Larry Sklar
Tess Shideler / Angela Wandinger-Ness
Nesia Zurek / Aaron Neumann
INCOMING RESIDENTS AND FELLOWS

INCOMING RESIDENTS AND FELLOWS (continued from page 10)

INCOMING FELLOWS

FORENSIC PATHOLOGY
Lindsay Taute, MD
Residency: Anatomic and Clinical Pathology, Oregon Health & Science University, Portland, OR
MD: University of Minnesota Medical School, Minneapolis, MN

HEMATOPATHOLOGY
Chelsey Deel, MD
Residency: Anatomic and Clinical Pathology, University of Oklahoma HSC, Oklahoma City, OK
MD: University of Texas Health Science Center, San Antonio, TX

Jonathon Gralewski, DO
Residency: Anatomic and Clinical Pathology, University of Arkansas for Medical Sciences (UAMS), Little Rock, AR
DO: Kansas City University of Medicine & Biosciences, Kansas City, MO

Audrey Sato, DO
Teaching Appointments: Chief of Anatomic Pathology, Evans Army Community Hospital, Fort Carson, CO
Residency: Anatomic and Clinical Pathology, Walter Reed National Military Medical Center, Bethesda, MD
DO: University of North Texas Health Science Center Texas College of Osteopathic Medicine, Fort Worth, TX

Laura Toth, DO
Residency: Anatomic and Clinical Pathology, Dartmouth-Hitchcock Medical Center, Lebanon, NH
DO: Des Moines University College of Osteopathic Medicine, Des Moines, IA
MPH: The Dartmouth Institute, Lebanon, NH

MOLECULAR GENETICS
Joanna Conant, MD
Fellowship: Hematopathology, University of New Mexico, Albuquerque, NM
Residency: Anatomic and Clinical Pathology, University of Vermont College of Medicine, Burlington, VT
MD: University of Vermont College of Medicine, Burlington, VT

Andrew Judd, MD
Residency: Anatomic and Clinical Pathology, The University of New Mexico School of Medicine, Albuquerque, NM
MD: Washington University of St. Louis, School of Medicine, St. Louis, MO

SURGICAL PATHOLOGY
Nathan Tokuda, MD, PhD
Fellowship: Transfusion Medicine, The University of New Mexico School of Medicine, Albuquerque, NM
Residency: Anatomic and Clinical Pathology, The University of New Mexico School of Medicine, Albuquerque, NM
MD, PhD: The University of Hawaii’s Internal Medicine Residency Program, Honolulu, HI

TRANSFUSION MEDICINE
Kathleen Madden, MD
Residency: Anatomic and Clinical Pathology, The University of New Mexico School of Medicine, Albuquerque, NM
MD: University of Illinois College of Medicine, Chicago, IL

POST SOPHOMORE FELLOWS
Elyssa Glassheim
Institution: The University of New Mexico

Jaryse Harris
Institution: The University of New Mexico

RESIDENT AWARDS

Brittany Coffman, MD, received the Resident in Training Award. Voted on by Faculty, this award recognizes a resident that demonstrates excellence in provision of high quality patient care, depth of medical knowledge, demonstration of practice-based learning, communication skills, professionalism, and systems-based practice.
MAKE A GIFT

Your gift today impacts healthcare and research for tomorrow. Please consider making a recurring, one time, or legacy donation to one of the following funds:

THE FOUCAR ENDOWMENT
Invest in future Pathologists. Recruiting and training highly proficient Pathology residents and fellows is a top priority.
VISIT: The Foucar Endowment

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VISIT: The George D. Montoya Research Scholarship Fund

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Support the greatest educational and training needs within the Department of Pathology.
VISIT: The Dr. Thomas M. Williams & Margaret G. Williams Endowment for Education and Training

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Donate by check, estate planning, bequest, charitable annuity, insurance gift, charitable trust and more, by contacting Amanda Bassett, Director of Advancement and Alumni Relations for the UNM School of Medicine at (505) 272-5700 or abassett@salud.unm.edu.

Thank you for thinking of The University of New Mexico Department of Pathology funds as you generously give!

FACULTY AND STAFF NEWS & AWARDS

FACULTY RETIREES
Ross Zumwalt, MD retired on July 1, 2018. Dr. Zumwalt will remain on faculty as a Professor Emeritus and a working retiree.

NEW FACULTY
Daniel Babu, MD: Assistant Professor, started July 1, 2018.
Cory Broehm, MD: Assistant Professor (previously in visiting status), started July 1, 2018.

FACULTY PROMOTIONS
Devon Chabot-Richards, MD: Associate Professor on the Clinician Educator Track
Karissa Culbreath, PhD, D(ABMM): Associate Professor on the Clinician Educator Track
Joshua Hanson, MD: Associate Professor on the Clinician Educator Track
Diane S. Lidke, PhD: Tenured Professor
Aaron Neumann, PhD: Associate Professor with Tenure

FACULTY AWARDS
Judy Cannon, PhD received the 2018 Women in STEM award.
Douglas P. Clark, MD was elected to the Council of the Association of Pathology Chairs as Councilor-at-Large.
Karen Cline-Parhamovich, DO graduated from the UNM Medical Leadership Academy Program.
Karissa Culbreath, PhD, D(ABMM) was a 2018 recipient of the Albuquerque Business First 40 Under Forty Award.
Samuel J. Reynolds, MD received the Pathology Faculty of the Year Award in June, 2018.

STAFF AWARDS
Nancy Risenhoover received the 2018 Distinguished Service Award in Pathology Department Administration at the 2018 Association of Pathology Chairs meeting.


Right: Nancy Risenhoover stands between current chair Douglas Clark, MD and former chair Mary Lipscomb Lyons, MD.
ACKNOWLEDGEMENTS

The University of New Mexico Department of Pathology gratefully acknowledges Mr. William F. Collins for the design and layout.

Please share your news with William F. Collins: wfcollins@salud.unm.edu

For more information on our department, please visit our website: pathology.unm.edu