

# PATHways

NEWS & NOTES ■ FALL 2016

DEPARTMENT OF PATHOLOGY & LABORATORY MEDICINE  
Larner College of Medicine ■ The University of Vermont Health Network



Celebrating the University of Vermont Pathology Student Fellowship Program

**ALSO FEATURED:** 2016 Faculty Retirees ■ Zika Virus Research ■ Publications & Grants ■ Clinical News



The University of Vermont  
LARNER COLLEGE OF MEDICINE

THE  
University of Vermont  
HEALTH NETWORK

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## PATHways

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Pathology Student Fellows Christina  
Litsakos, Rebekah Wieland,  
and Taylor Goller.  
Photo by Andy Duback

# Letter from the chair

It's been a year of change and growth for the Department of Pathology and Laboratory Medicine. In March of 2016, we became the first department in the UVM Health Network with a goal of integrating high quality pathology and laboratory medicine services, as well as our education and research missions, throughout the Network. Our High Value Patient Care Council is now focused on the strategic initiatives to make our clinical integration successful.



In February of 2016, Nikoletta Sidiropoulos led a team to introduce our first genomic test using next generation sequencing, called the GenePanel Solid Tumor test. This test guides the successful use of targeted therapies for solid tumors, and contributes to optimal and cost-effective care for our cancer patients. Our new Genomic Medicine Laboratory, now under construction, is expected to open in the first quarter of 2017. The Anatomic Pathology team is in the process of a Lean assessment and redesign of their workflows to improve efficiency, given increased patient and anatomic pathology volumes at the UVM Medical Center, especially in Dermatology and Surgery.

Our researchers continue to advance knowledge and understanding of disease mechanisms. Yvonne Janssen-Heininger led a team that sought NHLBI Program Project funding for research on the role of thiol redox signaling pathways in obese allergic asthma patients. The Cocksackie virus research of Iwona Buskiewicz has led her to apply viral identification tools to understand mechanisms of Zika virus induced disease. The Laboratory for Clinical Biochemistry Research, led by Russell Tracy, continues its highly productive research programs in cardiovascular and other chronic diseases.

As educators, members of our department continue to be recognized for their excellence in teaching. Rebecca Wilcox, with Leah Burke from the Department of Medicine and Tamara Williams, attained grant funding for novel genetics and genomics curriculum development at UVM, and is working to translate that curriculum into a national educational program for medical students. These are only a few highlights from the many amazing accomplishments of our department members, all of which make me very proud to be chair. Thank you for all you do for our department, our institutions, and our patients.

Debra G.B. Leonard, M.D., Ph.D.

*Chair and Professor of Pathology & Laboratory Medicine*



On October 21, Vice President Joe Biden hosted at the University of Vermont a roundtable discussion on the Cancer Moonshot with Vermont elected officials and UVM leaders including Department of Pathology and Laboratory Medicine Chair Debra Leonard, M.D., Ph.D.

# PATHOLOGY & LABORATORY MEDICINE

at-a-glance

- 625** Staff Members
- 49** UVM Faculty
- 8** Emeritus Faculty
- 4** UVMHN Pathologists
- 17** Residents
- 4** Clinical Fellows
- 3** Pathology Student Fellows
- 8** Graduate Students
- 5** Post-doctoral Fellows

## Inside this issue

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The Department of Pathology & Laboratory Medicine 2016 faculty, residents, and clinical fellows.

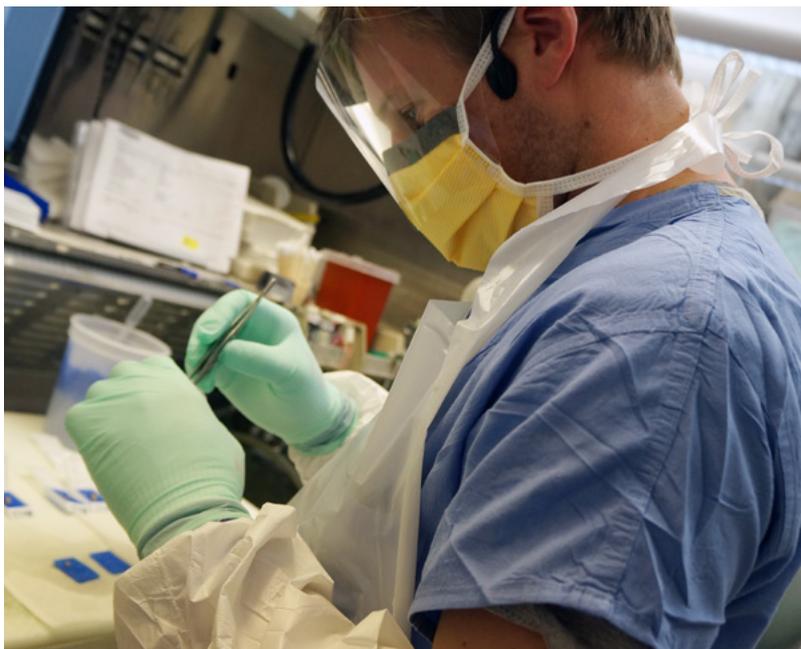
# Celebrating 60 Years: The University of Vermont Pathology Student Fellowship Program

BY SHIRLEY CALLAGHAN, MLS III

The University of Vermont Pathology Student Fellowship Program is in its 60th year, and we wanted to take this opportunity to celebrate the success of the program.

The program was established in 1956 by **ROBERT COON, M.D.**, then department chair, and has since graduated over 120 fellows. **JOHN LUNDE, M.D.**, current director of the Pathology Student Fellowship Program and himself a student fellow in 1980, attributes the success of the program to the quality of experiences fellows have during their fellowship year, including in-depth learning, the expectations of research and clinical responsibilities, and the polishing of presentation skills, that have a lasting impact throughout the career of the fellows. For added value, Dr. Lund noted, successful completion of the one-year fellowship leads to awarding of a master's degree in pathology, which has been the case for the earliest student fellows in the program. Overall, about a third of the pathology student fellows choose a career in pathology, but the educational experience is valued by all fellows, regardless of their eventual specialty.

Past and present pathology student fellows comment that the additional year of their medical school training in pathology has shaped and inspired their careers and lives as clinicians, teachers, and pathologists. UVM Pathology and Laboratory Medicine Professor Emeritus **BRUCE MACPHERSON, M.D.**, was a student fellow from 1965 to 1966. He recalls opportunities for experiential learning and research enriched by



Taylor Goller '18, one of three pathology student fellows, works in the surgical pathology cutting room.

collegiality that were instrumental in defining his career path. **ELIZABETH WILLIAMS, M.D.**, another program alumna, describes finding her calling in pathology during her fellowship year, doing work “that gave as much back to me as I put in.”

Pathology student fellows who followed career paths outside of pathology, including neonatologist **LAURA MADORE, M.D. '09**, and hospitalist **HEATHER SMITH, M.D. '00**, still report stronger understanding of the pathophysiology of disease processes and sharpened clinico-pathologic skills because of their fellowship experiences. As described by **TIM PLANTE, M.D. '11**: “Although I ultimately opted to pursue a career in internal medicine, my year in

pathology instilled in me many of the core values of pathology: scholarship, academic rigor, professionalism, as well as the importance of peer-to-peer relationships in medicine.”

**DEBRA LEONARD, M.D., PH.D.**, current chair of the department, felt an urgent need to ensure the sustainability of this outstanding educational experience for future generations of medical students. Working with the UVM Foundation, she established the Pathology Student Fellowship Endowment Fund in 2015, with a total goal of \$2 million for the endowment to support the stipends and other costs of the fellowship. The department made a significant contribution to

establish the endowment fund and **WILLIAM PENDLEBURY, M.D.**, now Pathology and Laboratory Medicine Emeritus, gave a generous contribution to the fund that established the named William W. Pendlebury Pathology Student Fellow that will be selected annually by Dr. Pendlebury. At this point we have \$563,000 in the endowment fund, which is already being used to defray the costs of the fellowship.

This year, **CHRISTINA LITSAKOS '18** was named the 2016 William W. Pendlebury Pathology Student Fellow and began the fellowship on July 1, 2016. She was attracted to the Pathology Student Fellowship Program for the quality of education to be gained from pathologists, who she describes as exceptional teachers who have an unparalleled commitment to providing the best patient care possible. Ms. Litsakos is still developing her plans for the research that she will do during her fellowship, but the clinical and educational experiences are already exceeding her expectations, especially her responsibilities as an acting intern in Pathology and Laboratory Medicine.

As we celebrate the first 60 years of our highly successful Pathology Student Fellowship Program, we look forward to many more years of sharing the pathology experience with medical students. The impact of our Pathology Student Fellowship Program goes beyond pathology to strengthen the relationships and understanding between pathologists and all other medical specialists. **P**

## Welcomes & Farewells

### WELCOME

**MICROBIOLOGY**  
Ashley Brunet  
Christine Meunier  
Gian Samaritoni

**PHLEBOTOMY**  
Kerry Breen  
Alex Knakal  
Jessica Fuller  
Katherine Furland  
Nataley Lapierre  
Amanda Sears  
Rebecca Simons  
Anisha Vadehra

### SPECIMEN RECEIVING

Ben Bowen  
Tyler Laundhardt  
Nick LeBeau  
Lisa Li  
Nora Monico  
Linden Montague  
Anna Norcross  
Brittany Robertson  
Laurie Sargent  
Lucy Terrien  
Chemistry  
Ashley Holtz  
Ambrose Orr  
Connie Paci

### HEMATOLOGY

Melissa Barber

### FACULTY

**Katie Devitt, M.D.**,  
Hematopathology; Cytogenetics  
**Juli-Anne Gardner, M.D.**,  
Assistant Director, Cytogenetics;  
Hematopathology  
**Andreas Koenig, Ph.D.**, Assistant  
Professor, Research Scholar Pathway  
**David Seward, M.D., Ph.D.**, Assistant  
Professor, Tenure Pathway  
**Marcia Wills, M.D.**, Community  
Practice Pathologist

### LAB CUSTOMER SERVICE

Patricia Martines  
Lindsey Rennie –  
Welcome Back!

### SURGICAL PATHOLOGY

Maria Barton  
Samantha Bissonette  
Pratit Gurung  
William McClelland  
Patrick van Woert

### OTHERS

Reem Aboushousha - Research  
Laboratory Technician  
Alicia Ellis - Biostatistician  
StaciAnne Grove - Administrative  
Assistant, AP  
Eve Johnson - LIS Manager  
Kyleigh Lavigne - Research  
Laboratory Technician  
Lauren Levenson - per diem  
Autopsy Tech  
Carrie Stoner - Compliance Analyst  
Jennifer McGuire - MLS II,  
Blood Bank

### FAREWELL

Leah Chernovetz  
Jeffrey Gaudreau  
Katherine Golde  
Emily Kreiger  
Krystal Marshall  
Sarah Roger  
Zac Brown  
Alex Cline  
Judy Chagnon  
Derrick Gannon  
Erika Notte  
Mary Parmenter  
Barb Root  
Janet Schroeter  
Tamara Williams, Ph.D.  
Fred Westenfeld

### STAFF RETIREMENTS

Steve Bellow, Laboratory  
Customer Service  
Lorraine Brasure, Chemistry  
Chuck Powden, Clinical  
Pathology Manager  
Cheryl Powden, LCBR  
Research Technician

# New & Notable

## Honoring Our 2016 Faculty Retirees

This year we celebrated the careers of three faculty as they retired or became Professor Emeritus at the end of June. They will be missed!

**SALLY HUBER, PH.D.**, joined our department's faculty in 1981 as an assistant professor, and over the last 35 years progressed through the ranks to full professor based



Sally Huber, Ph.D.

on her outstanding research and educational efforts. She has touched the lives of hundreds of undergraduate, graduate, and medical students at UVM, using her passion to instill not only knowledge of, but a deep appreciation for how viruses interact with humans, and the critical role played by adaptive immunity. She has made significant contributions to the peer-review process for the National Institutes of Health and

the American Heart Association, a testament to the regard in which her opinions are held and the power of her national research influence. Through the course of her career, Dr. Huber has published over 170 papers, many on the development of viral myocarditis, for which she is an internationally recognized expert. She has had consistent peer-reviewed extramural funding, primarily from NIH, for nearly 30 years.

Dr. Huber has participated in numerous university and College of Medicine committees, including as chair of the Biosafety Committee, and almost 20 years of service on the department's Research Committee and Graduate Program Committee. She has been the primary mentor for six graduate students and has served on the advisory committees of many more.

Dr. Huber retired as Professor with Emeritus status, and we are pleased that we still get to work with her as she continues to do research and serve as the chair of the department's Reappointment, Promotion, and Tenure (RPT) Committee.

**GLADWYN LEIMAN, MBBCH**, re-



Gladwyn Leiman, MBBCH

tired as a Professor of Pathology and Laboratory Medicine and Director of Cytopathology. She joined the department in 2000 and served as the Director

of the Cytopathology Fellowship Program from 2000 to 2008.

Prior to arriving in the U.S. in 2000,

## Division Highlights

### The Evolution of the Diagnosis and Management of Lung Cancer in the Molecular Testing Era

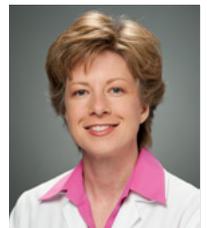
By KELLY BUTNOR, M.D.

Lung cancer is the deadliest type of cancer. However, the discovery of genetic alterations in a small subset of patients that can be targeted by certain pharmaceutical agents has changed how we approach the disease. The way in which pathologists classify and manage tissue samples from lung cancer patients is dramatically different from even five years ago.

Current consensus guidelines recommend all patients with advanced stage non-small cell lung carcinoma in whom an adenocarcinoma component cannot completely be excluded have their tumors tested for epidermal growth factor receptor (EGFR) mutations and anaplastic lymphoma kinase (ALK) rearrangements at the time of initial diagnosis. No longer is it adequate to simply separate small cell lung carcinoma from non-small cell lung carcinoma on

biopsy or aspirate samples. Pathologists are expected to report whether non-small cell carcinomas show morphologic or immunohistochemical features of adenocarcinoma or squamous cell carcinoma, all while being mindful of conserving enough tissue for molecular testing.

The University of Vermont Medical Center began offering molecular testing for lung carcinoma patients earlier this year with a new GenePanel Solid Tumor test. In the six months that the Department of Pathology and Laboratory Medicine has been offering this 29 gene panel test, samples from 41 lung cancer patients have been analyzed, about 20 percent of which were found to have a targetable genetic alteration. Being able to offer this kind of specialized testing to our lung cancer patients right here in Vermont is wonderful, but what is even more exciting is identifying patients who might benefit from targeted therapies that have been shown to prolong the survival and improve the quality of life for lung cancer patients.



Kelly Butnor, M.D.

Dr. Leiman obtained membership and fellowship of the Royal College of Pathologists in London. She served as cytopathology consultant and associate professor at the University of Witwatersrand Medical School in Johannesburg, South Africa. In 1999, the cytopathology department in Johannesburg was renamed the Gladwyn Leiman Cytopathology Center in her honor.

She is world-renowned in the field of cytopathology, and she has served on the International Academy of Cytology as well as the College of American Pathologists' Cytopathology Committees. She serves as one of three associate editors of *Cancer Cytopathology*, and is currently on the editorial review board of *Acta Cytologica*, *Diagnostic Cytopathology*, and the *Journal of Clinical and Anatomical Pathology*, as well as a reviewer of the *International Journal of Gynecology and Obstetrics* and the UK Journal, *Cytopathology*.

In 2013, Dr. Leiman received the 2012 Maurice Goldblatt Award of the International Academy of Cytology at their International Congress in Paris for "her lifelong love and dedication to clinical Cytology; for her very special

relationship to the underserved areas of the world and her willingness to bring knowledge and expertise to people deserving improved medical care; for her academic rigor and achievements in publishing in teaching; to her loyal support of *Acta Cytologica* and the International Academy of Cytology for many years."

Dr. Leiman has been our grand lady of Cytopathology and will be sorely missed.

**BRENDA WATERS, M.D.**, arrived at the University of Vermont more than 44 years ago to earn her bachelor's and medical degrees and stayed to complete her residency



Brenda Waters, M.D.

before becoming a clinical assistant professor in 1984. She was promoted to assistant professor in 1986 and associate professor in 1993. Dr. Waters has served the Vermont community admirably as the regional and hospital medical examiner for 17 years, and as associate director and

then director of the Autopsy Service for 30 years.

Dr. Waters' colleagues and alumni of the department attest to her passion and dedication to the field of pathology, made evident by her service on five committees for the Society of Pediatric Pathology, one as chair, and organizing two local symposia. She also served on many university committees, including 14 years on the Medical School Admissions Committee.

Dr. Waters has been an integral member of our department. She is well-respected for her dedication and administrative leadership of the autopsy service, as well as her excellence in clinical service in autopsy pathology and pediatric/perinatal/placental pathology. Dr. Waters played a vital role in teaching, not only of Pathology and Laboratory Medicine residents, but also medical students, pediatric residents, undergraduates and our medical colleagues. Dr. Waters was also active in collaborative research over the years.

Dr. Waters retired as an Associate Professor with Emeritus status, and her expertise and enthusiasm for pathology and teaching will be missed. 

## New Test Utilization Committee Launches Pilot Projects

By CHRISTINA WOJEWODA, M.D.

The newly formed Test Utilization Committee had its first meeting in January 2016. The Test Utilization Committee is a subcommittee of the Medical Staff Quality Assurance and Improvement Committee and has representation from ten UVM Medical Center healthcare services. Thus far, the committee has focused on developing processes for their work based on specific pilot projects. Some examples of these projects to date are outlined here.

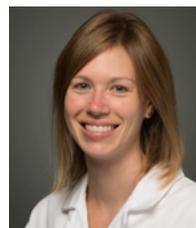
- **GREG SHARP, M.D.**, used the committee as a forum to review and consider removing the anti-HCV antibody stand-alone test from the Clinical Laboratories' test menu, only allowing providers to order the Hepatitis C antibody with reflex to HCV PCR if positive, since the viral load is needed to distinguish between current and past infection and to initiate treatment.

- The committee reviewed the list and contents of test order profiles and panels and decided to discontinue three panels;

annual review of the utilization and appropriateness of test profiles/panels is planned. During the test profile/panel review, the committee realized that the ordering provider only sees the name of the profile/panel and not what tests were included. The committee sought and obtained approval to specify the tests in each profile/panel, which the PRISM team is working on implementing.

- Using an example given by **BOBBI PRITT, M.D. '01**, from Mayo Medical Laboratories, we are developing a Best Practice Alert for repeat ionized calcium test orders for inpatients. This will be used as a template for future repeat orders reduction projects.

- An ongoing project is to add cost of test data to the order entry screen in PRISM. EPIC has this functionality, but we are still in discussions as to what "cost" to use and if actual numbers are better than using a range of dollar signs (e.g. \$ to \$\$\$\$) as a representation of test cost. 



Christina Wojewoda, M.D.

# Research News

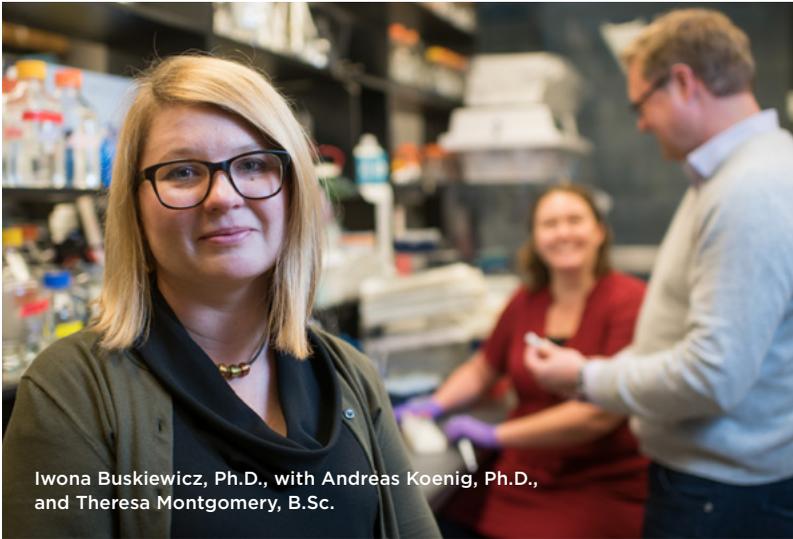
## A Focus on the Zika Virus Genome in the Lab of Dr. Buskiewicz

Assistant Professor of Pathology and Laboratory Medicine **IWONA BUSKIEWICZ, PH.D.**, never thought she would be performing Zika virus research. Her research on myocarditis induced by Coxsackie B virus triggered her search for a better fluorescent probe for RNA viruses. She wanted to track the viral genome in a live cell and determine how positive RNA viruses can persist in the host and lead to development of autoimmune

diseases. Current methods, which rely on the incorporation of various fluorescent proteins into the RNA-virus genomes, cause the viruses to replicate very slowly; therefore, these probes are not particularly useful, as such labelled viruses are quickly eliminated from the cell. Since the use of FISH-related probes is also still troublesome for RNA viruses, Iwona and her colleagues discovered a way to incorporate novel short RNA aptamers into RNA-virus genomes,

which emit fluorescence upon interaction with small molecules. Using a mouse model and primary human cardiomyocytes, Iwona's group has shown that these modified viruses replicate as quickly as the wild type viruses, and can identify the modified viral genomes in both mouse tissue and primary human cells.

This success with Coxsackie virus led them to think this approach might also be a valuable tool for another family of RNA viruses called Flaviviruses, to which the dengue and Zika viruses belong. In collaboration with Dr. Whitehead from NIH, Iwona and her laboratory incorporated the short aptamers into the genome of dengue virus, and they are currently working to identify an optimal position for incorporation of the aptamer sequences into a Zika virus genome. This work is supported by an NIH-funded pilot study. To determine whether Zika virus genome can persist in human cells, Iwona has submitted a follow-up grant. Her research will answer questions about how long Zika virus genomes can persist in certain cells, and which cellular organelles support the persistence of Zika virus RNA. 



Iwona Buskiewicz, Ph.D., with Andreas Koenig, Ph.D., and Theresa Montgomery, B.Sc.

## Publication Highlights

Mutagenicity monitoring following battlefield exposures: Longitudinal study of HPRT mutations in Gulf War I veterans exposed to depleted uranium. **ALBERTINI RJ**, Vacek PM, Carter EW, Nicklas JA, Squibb KS, Gucer PW, Engelhardt SM, McDiarmid MA. *Environ Mol Mutagen*. 2015 Aug;56(7):581-93. doi: 10.1002/em.21955. PubMed PMID: 25914368.

Disseminated cutaneous *Curvularia* infection in an immunocompromised host; diagnostic challenges and experience with voriconazole. **BALLA A**, Pierson J, Hugh J, **WOJEWODA C**, **GIBSON P**, **GREENE L**. *J Cutan Pathol*. 2016 Apr;43(4):383-387. PubMed PMID: 26531188.

Fetal Tissue Procurement for Karyotype Analysis: Clinician or Pathologist - Which

is Better? **CONANT JL**, **TANG ME**, **WATERS BL**. *J Assoc Genet Technol*. 2016;42(1):15-8. PubMed PMID: 27183009.

Antisecretory medication is associated with decreased *Helicobacter pylori* detection in gastric marginal zone lymphoma. Schaberg KB, **EVANS MF**, **WILCOX R**, **LEWIS MR**. *Ann Diagn Pathol*. 2015 Dec;19(6):397-402. PubMed PMID: 26615705.

## Publication Highlights

Human papillomavirus type distribution A synthetic cell-penetrating dominant-negative ATF5 peptide exerts anti-cancer activity against a broad spectrum of treatment resistant cancers. Karpel-Massler G, Horst BA, Shu C, Chau L, Tsujiuchi T, Bruce JN, Canoll P, **GREENE LA**, Angelastro JM, Siegelin MD. *Clin Cancer Res*. 2016 Apr 28. PubMed PMID: 27126996.

Airway epithelial dual oxidase 1 mediates allergen-induced IL-33 secretion and activation of type 2 immune responses. Hristova M, Habibovic A, Veith C, **JANSSEN-HEININGER YM**, Dixon AE, Geiszt M, **VAN DER VLIET A**. *The Journal of allergy and clinical immunology*. 2016; 137(5):1545-1556.e11. PMID: PMC4860024.

Associations of Serum 25-Hydroxyvitamin D With Hemostatic and Inflammatory Biomarkers in the Multi-Ethnic Study of Atherosclerosis. Blondon M, Cushman M, **JENNY N**, Michos ED, Smith NL, Kestenbaum B, de Boer IH. *The Journal of clinical endocrinology and metabolism*. 2016; 101(6):2348-57. PMID: PMC4891795.

Plasma Levels of Soluble Interleukin-2 Receptor  $\alpha$ : Associations With Clinical Cardiovascular Events and Genome-Wide Association Scan. Durda P, Sabourin J, Lange EM, Nalls MA, Mychaleckyj JC, **JENNY NS**, Li J, Walston J, Harris TB, Psaty BM, Valdar W, Liu Y, Cushman M, Reiner AP, **TRACY RP**, Lange LA. *Arteriosclerosis, thrombosis, and vascular biology*. 2015; 35(10):2246-53. PMID:26293465.

The Cancer Genomics Resource List 2014. Zutter MM, Bloom KJ, Cheng L, Hagemann IS, Kaufman JH, Krasinskas AM, Lazar AJ, **LEONARD DG**, Lindeman NI, Moyer AM, Nikiforova MN, Nowak JA, Pfeifer JD, Sepulveda AR, Willis JE, Yohe SL. *Arch Pathol Lab Med*. 2015 Aug;139(8):989-1008. PubMed PMID: 25436904.

Effect of Two-Year Caloric Restriction on Bone Metabolism and Bone Mineral Density in Non-Obese Younger Adults: A Randomized Clinical Trial. Villareal DT, Fontana L, Das SK, Redman L, Smith SR, Saltzman E, Bales C, Rochon J, Pieper C, Huang M, **LEWIS M**, Schwartz AV. *Journal of bone and mineral research: the official journal of the American Society for Bone and Mineral Research*. 2016; 31(1):40-51. PMID: PMC4834845.

Recent Advances in Preventing Adverse Reactions to Transfusion. F1000Res. 2015 Dec 17;4. pii: F1000 Faculty Rev-1469. PubMed Central PMID: PMC4815612. **ROGERS TS, FUNG MK, HARM SK**.

Have the 2006 American Society for Colposcopy and Cervical Pathology (ASCCP) guidelines enriched the yield of high-grade squamous intraepithelial lesions? **SAUTER JL**, Powlovich L, **ST JOHN T, LEIMAN G**. *Diagn Cytopathol*. 2015 Aug;43(8):673-5. PubMed PMID: 25351451.

Increased utilization, verification, and clinical implications of immunocytochemistry: Experience in a northern New England hospital. **SAUTER JL, AMBAYE AB, MOUNT SL**. *Diagn Cytopathol*. 2015 Sep;43(9):688-95. PubMed PMID: 26138744.

Differential Susceptibility of Human Pleural and Peritoneal Mesothelial Cells to Asbestos Exposure. Dragon J, Thompson J, MacPherson M, **SHUKLA A**. *Journal of cellular biochemistry*. 2015; 116(8):1540-52. PMID: PMC4698803.

Comprehensive validation of cytology samples for downstream clinical next generation sequencing. **SIDIROPOULOS N, HAMPEL KJ, ANDERSON SR**, Schwartz M, **GIBSON PC, GIROUX S**, Leiman G, Balla A. *J Mol Diagn*. 2015 November; 17:844-5.

### BY THE NUMBERS

**141**  
Peer reviewed  
papers

**15**  
Textbook  
chapters

**87**  
Abstracts

**1**  
Textbook

Attenuation of lung fibrosis in mice with a clinically relevant inhibitor of glutathione-S-transferase  $\pi$ . McMillan DH, **VAN DER VELDEN JL**, Lahue KG, Qian X, Schneider RW, Iberg MS, Nolin JD, Abdalla S, Casey DT, Tew KD, Townsend DM, Henderson CJ, Wolf CR, **BUTNOR KJ, TAATJES DJ**, Budd RC, Irvin CG, **VAN DER VLIET A**, Flemer S, **ANATHY V, JANSSEN-HEININGER YM**. *JCI Insight*. 2016 Jun 2;1(8). PubMed Central PMID: PMC4922427.

Evaluation of 12 strategies for obtaining second opinions to improve interpretation of breast histopathology: simulation study. Elmore JG, Tosteson AN, Pepe MS, Longton GM, Nelson HD, Geller B, Carney PA, Onega T, Allison KH, Jackson SL, **WEAVER DL**. *BMJ*. 2016 Jun 22;353:i3069. PubMed Central PMID: PMC4916777.

Variability in Pathologists' Interpretations of Individual Breast Biopsy Slides: A Population Perspective. Elmore JG, Nelson HD, Pepe MS, Longton GM, Tosteson AN, Geller B, Onega T, Carney PA, Jackson SL, Allison KH, **WEAVER DL**. *Ann Intern Med*. 2016 May 17;164(10):649-55. PubMed PMID: 26999810.

# New Pathology Grant Awards 2016

Total FY '15 Grants: \$7,222,743

Principal Investigator	Project Title	Sponsor Name
<b>Margaret Doyle, Ph.D.</b>	Innate and Adaptive Immunity in HIV-Associated Impaired Glucose Tolerance and Diabetes	Vanderbilt University - NIH National Institute of Diabetes, Digestive and Kidney Disease
<b>Yvonne Janssen-Heininger, Ph.D.</b>	Preclinical Development of Inhalable Glutaredoxin-1 for Treatment of IPF	Celdara Medical, LLC
<b>Nancy Jenny, Ph.D.</b>	Measurement of sPLA2-IIA Protein Levels and Assessment of Associations with Cardiovascular Disease	ZEUS Scientific
<b>Nels Olson, Ph.D.</b>	Immune Activation and Immunosenescence Biomarkers and Cardiovascular Disease Risk	National Heart, Lung, and Blood Institute/NIH/DHHS
<b>Arti Shukla, Ph.D.</b>	Splice Variants in Asbestos-Exposed Mesothelial Cells	LCCRO Bioinformatics Funding
<b>Nikoletta Sidiropoulos, M.D.</b>	Molecular response of B cells to a breast cancer using next generation sequencing	UVM Cancer Center/Lake Champlain Cancer Research Organization
<b>Russell Tracy, Ph.D.</b>	Multi-Ethnic Study of Atherosclerosis (MESA). Task Order O2: Cohort Exam 6	University of Washington - NIH National Heart, Lung, and Blood Institute
<b>Russell Tracy, Ph.D.</b>	Multi-Ethnic Study of Atherosclerosis (MESA) Task 1 and 3	University of Washington - NIH National Heart, Lung, and Blood Institute
<b>Russell Tracy, Ph.D.</b>	Transition for Risk Factors to Heart Failure: Prevalence, Pathogenesis, and Phenomics	Wake Forest University Health Sciences - NIH National Heart, Lung, and Blood Institute
<b>Russell Tracy, Ph.D.</b>	ENRGISE (Enabling Reduction of Low-Grade Inflammation in Seniors)	University of Florida - NIH National Institute on Aging
<b>Russell Tracy, Ph.D.</b>	Support Services for the CHS Biospecimen Repository	National Heart, Lung, and Blood Institute/NIH/DHHS
<b>Adrianus van der Velden, Ph.D.</b>	A Novel Translational System for Testing and Development of Therapeutics for Advanced Lung Cancer	UVM Cancer Center/Lake Champlain Cancer Research Organization Program Grant
<b>Albert van der Vliet, Ph.D.</b>	DUOX1 Silencing in Lung Cancer	UVM Cancer Center/Lake Champlain Cancer Research Organization J. Walter Juckett Scholar
<b>Christina Wassel, Ph.D.</b>	Genetic Epidemiology of Causal Variant Across the Life Course (CALiCo) II	University of North Carolina - NIH National Human Genome Research Institute
<b>Christina Wassel, Ph.D.</b>	Role of Femoral Atherosclerosis in Functional Status, CVD Events, and Mortality	National Heart, Lung, and Blood Institute/NIH/DHHS
<b>Rebecca Wilcox, M.D.</b>	Targeted expansion and integration of genetics and genomics throughout the Vermont Integrated Curriculum (VIC)	Frymoyer Award

## College of American Pathologists Accreditation

The Department of Pathology and Laboratory Medicine received reaccreditation from the College of American Pathologists in 2016. Nineteen inspectors from Beth Israel Deaconess Medical Center spent a busy day performing the inspection and had many positive comments about our Clinical Laboratories at the summation, including:

- “Flow Cytometry is well organized and has a high attention to detail; they have zero deficiencies and we have zero recommendations.”

- “The Autopsy Service is excellent, clean, well-organized. Great people; Don Dukette was very helpful.”
- “Histology was a clean, well run and organized lab with strong focus on safety using the barcoding system. Staff was very helpful in explaining their tasks as they were performing them. Slides were ‘gorgeous’ from the H&E to IHC.”

This great outcome reflects our outstanding team and the high reliability of patient care we provide every day.

## New Hematology Instrumentation

We are excited about our new Hematology Analyzer, the Sysmex XN-9000. This automated Hematology instrument performs hemagrams, automated differentials, reticulocyte counts and non-CSF body fluid cell counts. The analyzer runs as an integrated work cell; samples are loaded onto an input queue that transports them using a conveyor system directly to the cell counters. The new analyzer has a more efficient slidemaker and stainer and provides a secondary testing method for platelet counts using a fluorescent dye that will be used when the primary method is challenged by unusual patterns. The new conveyer system has increased our capacity by 50 percent, while the more efficient slidemaker/stainer and the secondary method for platelet counting has decreased our turnaround times.



Hematology Medical Laboratory Scientists  
Lisa Reste and Rachel Perkins working on the  
Sysmex XN 9000.

## Department Showcases Quality Projects at Forum

Pathology and Laboratory Medicine presented two projects at the 13th annual Jeffords Institute Quality Forum May 3, demonstrating the department’s outstanding commitment to improving quality and safety. Presenters included:

### **Valerie Rogers, Clinical Laboratory Outreach Specialist, MT (ASCP), MS**

Laboratory Outreach Staff analyze non-conforming event data regularly. Two months of data identified one clinic with an average no orders rate of 19 percent. Investigation of the errors identified “No Orders” as the event contributing to increased wait times for patients at phlebotomy areas. Upon presentation of the data to the clinic and in collaboration with the PRISM EHR team, the event was identified as a systems error. An outdated dictionary with invalid codes caused order failures. The error was resolved and the error rate dropped to below

five percent. The lesson learned was “Don’t assume human error: Analyze, Identify, Take Action.”

### **Angela Patterson, Laboratory Technical Specialist POCT, MT (ASCP)**

Abbott PXP Glucometers are used to scan patients’ wristbands to confirm the identity of the patient prior to testing. Difficulties with scanning wristbands led to many manual entries of patient identification information which increased patient misidentification. The Point-of-Care Testing Team requested that all flawed barcode labels be sent to them. In working with the wristband barcode vendor and a collaborative work group including Angela Patterson, LIS, Field Services, IS, Registration, Patient Safety and Nurse Educators, the Point-of-Care Testing Team was able to design and implement the use of larger barcodes on patient wristbands with 100 percent scanning success rate.

## Pathology Trainees Garner Alumni Awards

The Medical Alumni Association has, for four decades, honored the accomplishments of its members for their work caring for patients, creating new advances in the laboratory, and contributing to their communities. Two of our past trainees were recognized with 2016 UVM Medical Alumni Awards.



**BOBBI PRITT, M.D. '01** received the Early Achievement Award. She is Associate Professor of Pathology and Laboratory Medicine in the Division of Clinical Microbiology at the Mayo Clinic in Rochester, Minn., and is also director of the Clinical Parasitology and Microbiology Initial Processing and Media Laboratories. Dr. Pritt has authored more than 90 publications, including recent research in which she and her team describe two new causes of human tick-borne disease.



**KRISTEN ATKINS, M.D. '96** received the Distinguished Academic Achievement Award. She is Associate Professor and Pathology Residency Program Director at the University of Virginia School of Medicine in Charlottesville, Virginia. A world-renowned pathologist, she is a co-author of a textbook on breast pathology, and is conducting leading edge research on radiology and pathology correlations to aid in better triaging women with indeterminant risk breast lesions for surgery or observation.

## Graduating Residents and Fellows

Congratulations to our graduating class of residents and fellows. All four of our graduating residents are pursuing subspecialty fellowships.

### Residents

**JAMEN BARTLETT, M.D.**, Surgical Pathology Fellowship followed by Dermatopathology Fellowship, University of Vermont Medical Center

**JOANNA CONANT, M.D.**, Hematopathology Fellowship and Molecular Genetic Pathology Fellowship, University of New Mexico

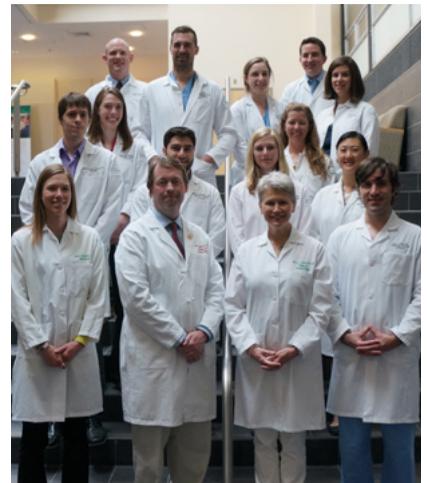
**JESSICA CROTHERS, M.D.**, Gastrointestinal Pathology Fellowship, Massachusetts General Hospital

### Fellows

Dermatopathology: **JAMES DEKAY, M.D.**, Pathology Associates in Augusta, Maine

Cytopathology: **KIRSTEN THRELKELD, M.D.**, University of Vermont Medical Center

Surgical Pathology: **UYEN PHOUNG VIETJE, M.D.**, University of Vermont Medical Center



## UVM Pathology Student Fellows

The pathology student fellowship is entering its 60th year! **LAURIE GRIESINGER '17** and **RICHARD SMITH '17** recently completed their fellowship year. We welcome our three new student fellows: **TAYLOR GOLLER '18**, **CHRISTINA LITSAKOS '18**, and **REBEKAH WIELAND '18**.

## Graduate Students

**ROBERT BAUER** completed his M.S. degree and is currently in the Pathology Assistant program at Duke University.

### VIKAS ANATHY, Ph.D.

**Nicolas Chamberlain** (3rd year)  
**Sierra Bruno** (2nd year)

### YVONNE JANSSEN-HEININGER, Ph.D.

**Shi Biao Chia (Wyatt)** (3rd year)  
**Evan Elko** (2nd year)

### ARTI SHUKLA, Ph.D.

**Phillip Munson** (3rd year)  
**Joyce Thompson** (5th year)

### ALBERT VAN DER VLIET, Ph.D.

**Christopher Dustin** (3rd year)  
**Andrew Little** (5th year)

## FACULTY PROMOTIONS

**SCOTT ANDERSON, M.D.**,  
to Director of Cytopathology

**KELLY BUTNOR, M.D.**,  
to Professor

**MARGARET DOYLE, Ph.D.**,  
to Assistant Professor

**SUZANNE TUCKER, M.D.**,  
to Director of Autopsy Service

## Education Awards/Recognition



Nicholas Heintz, Ph.D.

**NICHOLAS HEINTZ, PH.D.**, professor emeritus of Pathology and Laboratory Medicine, is the recipient of the 2016 President's Distinguished University Citizenship and Service Award. This annual award honors members of the UVM faculty who have established a consistent and – over time – outstanding record of service to the university. A notable leader in graduate education at UVM, Heintz served as the director of the Cellular, Molecular and Biomedical Sciences Graduate Program, the largest interdisciplinary graduate program in the biosciences at UVM, from 2013 to 2015. In addition to numerous graduate education committees, Heintz also served as associate director of the Environmental Pathology Training Program for several years.

**PAMELA GIBSON, M.D.**, was named the Ernest Hiram Buttles Chair in Pathology.

**SARAH HARM, M.D.**, received the 2016 Attending of the Year Award as part of the UVM Medical Center Resident Teaching Awards.

**PHILLIP MUNSON** and **JOYCE THOMPSON** received second and third prizes (respectively) in the College of Medicine Research Day Talk Awards. They also each received a UVM Graduate College Travel Award.

**MARIA RAMOS** received the UVM Medical Center Mary Breen Teaching Award.

**JOYCE THOMPSON** plans to attend the American Association for Cancer Research meeting in New Orleans, Louisiana.

**RUSSELL TRACY, Ph.D.**, received the Distinguished Scientist Award from the American Heart Association.

**REBECCA WILCOX, M.D.**, received the UVM Medical Group Graduate Medical Education Teacher of the Year Award.

*(continued on p. 12)*

# Department Notes

## The Passing of Dr. Robert (Bob) Coon, Past Department Chair

It is with sadness that we note the passing of Dr. Robert (Bob) Coon, who served as our department chair for eighteen years, from 1955 to 1973. He passed away on December 12, 2015, at the Vermont Respite House, surrounded by his family. Below is an excerpt from his obituary in the *Burlington Free Press*:

*Bob brought lessons learned as a farm boy to his way of life. Think and observe with commitment. Bring patience and grit to your challenges. Do your work with honesty and fairness. Work day by day. His career in medicine; as a teacher, clinician and administrator, reflected these lessons and his deeply held values for service and excellence. Many will remember him by academic titles. For eighteen years, starting in 1955, he was Professor and*



*Chairman of the Dept. of Pathology, University of Vermont. When he retired in 1985, he was Vice President for Health Sciences and Dean of the School of Medicine, Marshall University, Huntington, WV. Between the bookends of those appointments, he held additional, often concurrent, titles for service or contribution to his profession. He held positions linked to comprehensive medical and health education and delivery of healthcare.*

*Others will remember him as the retired "doc" who gave so much as a volunteer to community organizations such as SCORE, AARP, American Red Cross and his condo association. Bob was a seer and a doer. He gave his hand and heart to his family, friends and community with generosity, grace and humor.*

### AWARDS/RECOGNITION *(continued)*

**AGNES BALLA, M.D.**, was elected to the Medical Executive Committee of the UVM Medical Center.

**SANDY GIROUX** was elected to American Society of Cytopathology Executive Board.

**YVONNE JANSSEN-HEININGER, PH.D.**, was elected vice chair of the Gordon Conference on Oxygen Radicals.

**LABORATORY CUSTOMER SERVICE AND PHLEBOTOMY TEAMS** received the Becoming One Team Award from UVM Medical Center for supporting New American families.

**SHARON MOUNT, M.D.**, was recognized by the *Journal of Cancer Cytopathology* for her work on their editorial advisory board.

**PHILLIP MUNSON** plans to attend the Circulating Biomarkers World Congress in Boston, Mass.

**ANGELA PATTERSON** received a UVM Medical Center Good Catch Award.

**LAUREN PEARSON, D.O.**, was named one of the Top Five Junior Abstracts Award Program from the College of American Pathologists.

**NIKOLETTA SIDIROPOULOS, M.D.**, received the UVM Medical Group Junior Investigator Award.

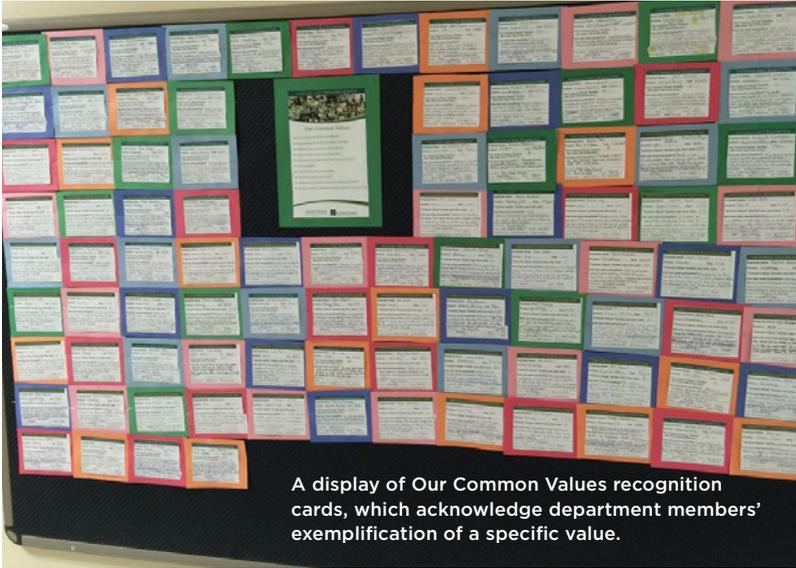
**DOUG TAATJES, PH.D.**, was appointed editor-in-chief for the *Americas for Histochemistry and Cell Biology*.

**FRED WESTENFELD** (Microbiology) received the Medtech Training Award.

## Departmental Research Review Committee Highlights

In 2014, the department established a formalized Research Review Committee to consider research proposals from faculty seeking departmental funds. The committee, co-chaired by **ALLISON CIOLINO, M.D.**, and **DOUG TAATJES, PH.D.**, represents clinical and basic research faculty. Current members include **IWONA BUSKIEWICZ, M.D.**, **GLADYN LEIMAN, MBBCH**, and **MARYAM**

**ZENALI, M.D.** Although many funded projects are not yet complete, three resulting manuscripts have been accepted for publication in pathology-related journals with **JOANNA CONANT, M.D.**, **MARYAM ZENALI, M.D.**, **KELLY BUTNOR, M.D.**, **BRENDA WATERS, M.D.**, and **MARY TANG, M.D.**, having served as principal investigators. Several other projects are in the manuscript preparation phase.



A display of Our Common Values recognition cards, which acknowledge department members' exemplification of a specific value.

## Our Common Values

The Department of Pathology and Laboratory Medicine's Our Common Values are not merely written words; they live in our DNA. We work collaboratively in a culture that strives for innovation and excellence, personal integrity and accountability, open and honest communication, respect, and inclusion. Inspired by both personal and organizational beliefs, our faculty, staff, and trainees are working to create a workplace nationally recognized as one of the great academic pathology departments. Individual employees and teams are rewarded for their embodiment of Our Common Values by co-workers, receiving recognition in departmental announcements and gift cards. Some recent recognitions include:

- A faculty member who is "always encouraging lab members to work together. This way we publish together, learning the merits of collaborating."
- A group of phlebotomists for their efforts in helping a New American Family who had no food, no diapers, and very little to drink during a time when temperatures soared to 90 degrees. As a team, they provided the immediate support needed and connected the family with ongoing resources.
- An attending pathologist who came in on a Saturday to help with an autopsy so that funeral arrangements would not be delayed.
- A staff member who created script in dictation software that will save time for physician, resident, fellow and staff users.
- An employee who stayed late to cover a CT-guided fine needle aspiration because another staff member was already assisting the on-call resident.

Beyond recognizing employees who truly live and exemplify the department's values, the Our Common Values Committee has rolled out several other initiatives to promote awareness of the values, such as a display by the Specimen Receiving team in which members identified the words in our values that resonate with them personally. Other reminders included highlighter pens with one of our values printed on the pen barrel, and framed posters and magnets that can be found throughout the department.

## WHO KNEW?



Kristin Lundy and her granddaughter, Braxton, showing off their medals from RUNYOURCANOFF!, a trail run held at the Gilbrook Natural Area in Winooski as a "Foodraiser" for the Winooski food shelf.

Technical specialist and ultramarathoner **KRISTIN LUNDY** ran her first fifty mile race in 2010, and says "everybody can do it." "Consistency is key," she explains, and while never easy, the feeling that comes from pushing herself and going further each time makes it all worth it. Ultramarathoners, also known as ultrarunners, run up to and beyond 100-mile distances at a time, and while in training run 40 to 90 miles per week, (20 to 30 miles on a weekend day). While pursuing the sport she has met amazing people from all over the world, in the Italian Alps, the Cascade Mountains of British Columbia, and at home running her favorite endurance race, the Vermont 100. The next 100 mile race Kristin hopes to run is in France next summer. Good luck Kristin!



## Meet the **PHYSICIAN-EDUCATOR**

“Teaching is what keeps it exciting for me,” says **REBECCA WILCOX, M.D.**, associate professor of Pathology and Laboratory Medicine, and director of Gastrointestinal and Liver Pathology. “In my daily practice I am constantly learning and then using this knowledge to teach the next generation of clinicians.” As a Teaching Academy Master Teacher and director of the eight-week first-year medical student course titled Nutrition, Metabolism and the GI Tract, she’s at the front lines of medical education. She’s also a leader in her field. Just some of her recent activities focused on elevating the art of teaching: In July of 2016, she was co-leader of a session called “Leadership Opportunities in Pathology Education in the Era of Integrated Curricula” at the Annual Meeting of the Association of Pathology Chairs in San Diego; and at the 2016 International Association of Medical Science Educators (IAMSE) Annual Meeting in Leiden, The Netherlands, she presented a workshop titled “Meeting the Genomics Education Challenge Head-on.” This workshop was based on work she’s doing as a Frymoyer Scholar to create an active learning-based genetics/genomics medical education curriculum at the Larner College of Medicine.