

V E R M O N T

# medicine

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE

## *move*Mountains

The Campaign for The University of Vermont

- ▶ CAMPAIGN PRIORITIES AT THE COLLEGE
- ▶ FULFILLING OUR MISSIONS
- ▶ DEPARTMENT AND CENTER ACCOMPLISHMENTS
- ▶ PHILANTHROPY REPORT





## FROM THE DEAN

We have much to recognize and celebrate from this past year. We could not possibly point out every significant moment in this report, but instead have recognized a few representative examples of the important work going on at the College.

This year we launched our new Teaching Academy to recognize the quality of our faculty, and nurture excellence in teaching and the scholarship of medical education. The Academy proudly inducted 53 inaugural members, and we were glad to welcome Kathryn Huggett, Ph.D., from Creighton University, as the new Teaching Academy director in the fall. We also welcomed a number of other new leaders at the College, including Mitchell Norotsky, M.D., as Chair of Surgery; Beth Kirkpatrick, M.D., as Interim Associate Dean for Clinical Research; and Mark Levine, M.D., as Associate Dean for Graduate Medical Education. We also announced a new Senior Associate Dean for Research, Gordon Jensen, M.D., Ph.D., from Penn State, who joins us as 2016 begins. In addition, we are actively recruiting for department chairs in Anesthesiology and Microbiology & Molecular Genetics.

Our research enterprise continues to hold its own in a difficult funding climate, with over \$81 million in awards last year. Recent milestone grants like the \$18.5 million from the Patient-Centered Outcomes Research Institute (PCORI) to Benjamin Littenberg, M.D., and colleagues, and \$3.6 million from the National Institute on Child Health and Human Development awarded to the Vermont Center on Behavior and Health, show that the College is continuing on this successful pathway.

The creation of our clinical network, and the rebranding of our longstanding hospital partner under the University of Vermont name was a very notable event. I'm pleased that our interdependence and aligned missions have now been clarified, as reflected in the new affiliation agreement between our institutions. A little farther afield, our clinical education affiliate The Western Connecticut Health Network (WCHN) has expanded to include Norwalk Hospital, in addition to Danbury and New Milford Hospitals. In the year ahead, we'll be working to create a formalized clinical campus with WCHN.

All of our efforts are underpinned by the continuing support of our philanthropic donors. This year UVM fundraising reached a record in excess of \$60.5 million, and giving to the College of Medicine represented a substantial portion of that amount. We continue to benefit from an extremely engaged body of alumni and friends.

So we have many reasons to feel proud of our work, and I appreciate all the work of our faculty, staff, students and friends who make our College of Medicine such an outstanding place to work and learn.

**Frederick C. Morin III, M.D.**  
Dean, University of Vermont College of Medicine

# VERMONT medicine

2015 YEAR IN REVIEW  
PUBLISHED JANUARY 2016

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The University of Vermont  
COLLEGE OF MEDICINE

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Printing: Queen City Printers Inc., Burlington Vt.

2015 YEAR IN REVIEW






### WebXtras in this issue:

- View videos of white coat recipients expressing their appreciation for alumni support, as well as full coverage of the White Coat Ceremony.
- View the Move Mountains video overview of the UVM campaign.



Go to: [uvm.edu/medicine/vtmedicine](http://uvm.edu/medicine/vtmedicine)

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   The College of Medicine is on Facebook, Twitter, and Instagram. Check in to see what's happening today!

VERMONT  
medicine  
UVM COLLEGE OF MEDICINE MAGAZINE

# UVM SET TO *move* Mountains WITH ITS COMPREHENSIVE CAMPAIGN

This October, UVM announced its largest and most ambitious fundraising campaign ever, a **\$500 million** initiative that will transform and reshape the University.

Nearly 60 percent of the \$500 million goal is focused on faculty and students. *Move Mountains: The Campaign for The University of Vermont* will make new investments in endowed faculty positions designed to recruit and retain top scholars to teach and conduct research, as well as new scholarships and graduate fellowships aimed at making a UVM education financially accessible for all qualified students.

The *Move Mountains* campaign will also make strategic investments to advance UVM's strongest programs — in human health, the environment, the humanities, and STEM, among others. Significant

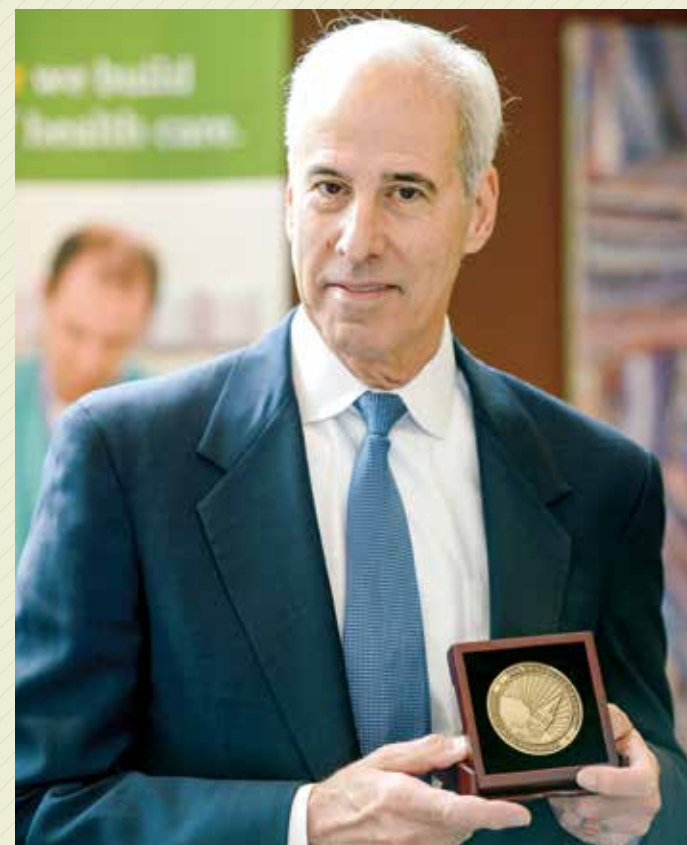
upgrades to selected facilities on campus are planned as well, such as the STEM Complex now under construction, the Alumni House on Summit Street and the UVM Medical Center's new Inpatient Building.

"The time has come for UVM to move forward, to pursue excellence with even greater confidence and to assert our position among the nation's finest public research universities," said UVM President Tom Sullivan. "To move mountains is to change lives. This is our passion and our calling."

As of the October announcement, the University had already, in the "silent phase" of the campaign since 2011, raised over \$247 million of the \$500 million goal. The October 2 announcement gala capped a two-day "crescendo of giving" that added more than \$40 million in new gifts touching nearly every corner of campus.

At the College of Medicine, the major gift announcement was the \$9 million gift

from Robert Larner, M.D.'42 and his wife, Helen Larner, of Woodland Hills, Calif. The Larners' generous gift, which will be directed to the existing Larner Endowed Medical Education Fund, will largely help medical students by supporting initiatives to expand the use of technology and innovative teaching methods at the College, said Dean Rick Morin. The gift announcement was followed by a special Investiture ceremony during which UVM President Tom Sullivan presented new College of Medicine Teaching Academy Director Kathryn Huggett, Ph.D., as the inaugural Robert Larner, M.D.'42 Endowed Professor in Medical Education.



College of Medicine faculty, staff, and students showcased the work of the College during the gala celebration of the Move Mountains campaign on October 2. At top, Professor of Psychiatry James Hudziak, M.D., spoke about his concussion research; at center, Clinical Simulation Laboratory technician Jim Court demonstrated a patient simulator used in education and training; above, Gary Hahn holds the medallion honoring the creation of the Larner Professor of Medical Education endowed by his father, Robert Larner, M.D.'42.

## CAMPAIGN GOALS AT THE COLLEGE OF MEDICINE

The Move Mountains campaign presents the College of Medicine with a landmark opportunity to increase support for the students and faculty that are at the heart of its mission.

For Students: **\$56 million**

**OUR GOAL** ▶ Raise \$35 million in medical student aid and \$21 million in endowed fellowships to enroll the best students and minimize our graduates' educational debt.

For Faculty: **\$53 million**

**OUR GOAL** ▶ Create endowed professorships, chairs, and director positions to attract and retain the best faculty and fuel their innovative work without limitation.

For Research and Innovation: **\$9 million**

**OUR GOAL** ▶ Advance our interdisciplinary education and research programs across the biomedical sciences, including neuroscience and health behaviors, and expand research and education on health care delivery.



View a video on the *Move Mountains* campaign. Go to: [uvm.edu/medicine/vtmedicine](http://uvm.edu/medicine/vtmedicine)



# FACTS + FIGURES

A C A D E M I C Y E A R 2 0 1 5

## 3.68

MEDIAN UNDERGRADUATE GPA

### Student Body

#### Academic Year 2014–15

Total Medical Students	457
Ph.D. & Masters Students	129
Residents & Fellows	307

Medical students at the College come from **23** states across the U.S.

## 6,054

APPLICATIONS RECEIVED FOR THE 114 SEATS IN THE CLASS OF 2019

#### Class of 2019

The College received nearly 6,054 applications for the 114 positions in the Class of 2019, who began their first year in August 2015.

Median undergraduate GPA	3.68
Median MCAT — Verbal	10.0
Median MCAT — Biological Science	11.0
Median MCAT — Physical Science	10.0

## 4,507

NUMBER OF LIVING ALUMNI OF THE COLLEGE

### Alumni/Graduates

#### Alumni

Number of living alumni of the College	4,507
Percentage of alumni who practice in New England	44%
Approximate Percentage of Vermont physicians educated or trained at the University of Vermont College of Medicine and/or University of Vermont Medical Center	38%
Percentage of alumni who contribute philanthropically	32%

#### Class of 2015

Medical Graduates of 2015 went on to residencies at 69 institutions across the nation, including Brown University, Case Western University Hospitals, Children's Hospital Boston, Danbury Hospital, Duke University Medical Center, Einstein/Montefiore Medical Center, Johns Hopkins Hospital, Kaiser Permanente Los Angeles, Massachusetts General Hospital, New York Presbyterian/Weill Cornell Medical Center, Oregon Health & Science University, San Antonio Uniformed Services, Stanford University, UCLA Medical Center, University of Washington, University of Vermont Medical Center, and Yale-New Haven Hospital.

## 32%

PERCENTAGE OF ALUMNI WHO CONTRIBUTE PHILANTHROPICALLY

### UVM College of Medicine Mission Statement

The Vision of the University of Vermont (UVM) is to be among the nation's premier small research universities, preeminent in our comprehensive commitment to liberal education, environment, health, and public service.

In support of this vision, the Mission of the UVM College of Medicine is to educate a diverse group of dedicated physicians and biomedical scientists to serve across all the disciplines of medicine; to bring hope to patients by advancing medical knowledge through research; to integrate education and research to advance the quality and accessibility of patient care; and to engage with our communities to benefit Vermont and the world.

THE COLLEGE OF MEDICINE BY-THE-NUMBERS

## \$12.4 million

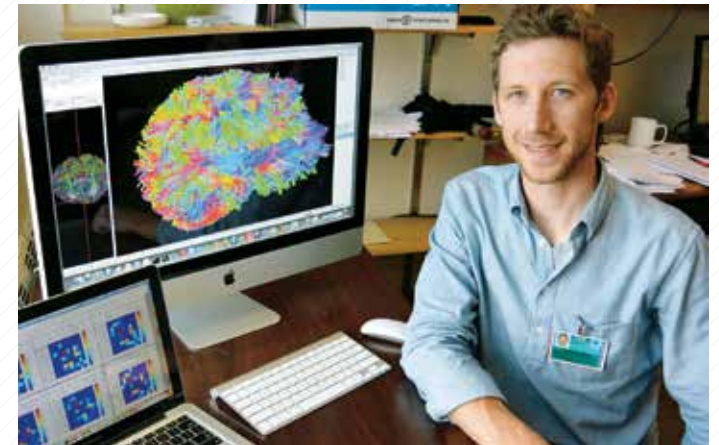
PRIVATE PHILANTHROPY

## \$81.4 million

EXTERNAL RESEARCH SUPPORT

## 294

ACTIVE RESEARCH PROJECTS



### Endowment (as of June 30, 2015)

Faculty & Department Support	\$85,258,380
Scholarship Giving	\$30,218,271
Total Endowment Value	\$115,476,652

### Private Gift Revenues

Philanthropic giving to support the missions of the College of Medicine totaled \$12.4 million for Fiscal Year 2015 (July 1, 2014–June 30, 2015). For more detailed information about philanthropy, see page 42.

### Research Support

Total Dollars, Fiscal Year 2015: **\$81.1 million**

A total of 294 research projects were active at the College in 2015. College of Medicine funding represents nearly 62% of total UVM research funding. The National Institutes of Health supported four Centers of Biomedical Research Excellence (COBRE) at UVM during 2015; these focused on neuroscience, immunology, lung biology, and human behavior and health.

### Faculty & Staff

Total Salaried Faculty	702
Volunteer Faculty (Vt., Conn., Fla., Maine, N.Y.)	1,485
Staff	423

### Departments

Basic Science	4	Clinical	11
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### Facilities / Physical Plant

Total Area	566,500 sq. ft.
Given Building	196,000 sq. ft.
Health Science Research Facility	110,000 sq. ft.
Courtyard at Given	31,000 sq. ft.
Larner Medical Education Center	44,000 sq. ft.
Stafford Hall	70,000 sq. ft.
Colchester Research Facility	72,000 sq. ft.
DeGoesbriand Unit	20,000 sq. ft.
Others	23,500 sq. ft.

# EDUCATION

Each year, about 114 new medical students and two dozen new graduate students begin their studies in the classrooms and laboratories of the school, and clinical settings in Vermont, Connecticut, Maine, and Florida. The College is dedicated to educating these students, as well as members of its local and national communities.



Kathryn Huggett, Ph.D., speaks at her formal investiture as the Larner Professor of Medical Education and Director of the Teaching Academy.

## Teaching Academy Welcomes Inaugural Director

**Kathryn Huggett, Ph.D.**, joined the College of Medicine faculty in 2015 as the inaugural director of the Teaching Academy. Huggett came to UVM as a professor of medicine and pathology and associate dean and was formally invested this fall as the first Robert Larner, M.D.'42 Endowed Professor in Medical Education.

Huggett succeeded **Ann Guillot, M.D.**, professor of pediatrics and director of pediatric nephrology, who served as

interim director of the Teaching Academy since July 2014.

The assistant dean for medical education at Creighton University School of Medicine in Omaha, Neb., since 2010, Huggett had also served as director of medical education development and assessment since 2004. She now directs the Academy and its support of education and educators at the College of Medicine, and organizes the development and implementation of Teaching Academy programs. She provides educational expertise and collaborates across the academic medical center to facilitate high quality educational programs, medical education research, and faculty development.



The Teaching Academy at the UVM College of Medicine was launched in December 2014, with a mission to foster a scholarly approach to medical education, nurture faculty development, and guide curricular innovation. Charter members inducted in March 2015 include 53 faculty from across the College who were honored as either Distinguished Educators, Master Teachers or Members. More members were added in December, along with a new "Protégé" category for residents.



Students recite The Oath for the first time at the 2015 White Coat Ceremony.

## Class of 2019 Marks Their First Milestone with White Coat Ceremony

Dealing with challenges, varying emotions and general stress is consistent with becoming and being a physician. These challenges were recognized in October as the Class of 2019 marked their entry into clinical education with the College's annual White Coat Ceremony at UVM's Ira Allen Chapel. This annual ceremony or a similar rite now takes place for first-year medical students at about 90 percent of schools of medicine and osteopathy in the United States, and is supported by the Arnold P. Gold Foundation

The ceremony opened with welcome remarks from Senior Associate Dean for Medical Education **William Jeffries, Ph.D.**, **Dean Rick Morin**, and UVM Medical Group Board of Directors Chair **Claude Nichols, M.D.**, who is also professor and chair of orthopaedics and rehabilitation. **Alicia Veit, M.D.**, assistant professor of pediatrics and the 2015 UVM faculty recipient of the Leonard Tow Humanism in Medicine Award, delivered the keynote address.

Recalling her own first white coat that she donned in her first year of medical

school, Veit said that, as a nervous student, "It felt really big. I wasn't sure I could fit into all the expectations that came with that white coat."

But, Veit noted, the responsibility of a physician is something one inevitably must accommodate oneself to. She quoted surgeon and author Atul Gawande's thoughts: "To live as a doctor is to live so that one's life is bound up in others' and in science and in the messy, complicated connection between the two. It is to live a life of responsibility. The question then, is not whether one accepts the responsibility. Just by doing this work, one has. The question is, having accepted the responsibility, how one does such work well."

## College Honors Distinguished Graduate Alumnus Wong, Showcases Student Research

**Patrick Wong, Ph.D.'75**, received the University of Vermont College of Medicine's 2015 Medical Alumni Association Distinguished Graduate Alumni Award at the Annual Graduate Student Research Showcase

Presentation and Reception in October. A professor emeritus of pharmacology at New York Medical College and chair and CEO of BioProst Pharmaceuticals, Wong is a pioneer in elucidating the role of prostaglandins in inflammation, cardiovascular disease, and cancer.

The annual Graduate Student Research Showcase included graduate student research talks, a research poster session, and a keynote lecture by Wong, titled "Transitioning from Academia to Industry."

Wong was mentored by former UVM associate professor of biochemistry and lipid biochemist **Roy Wuthier, Ph.D.**, while a doctoral student at the College of Medicine. It was while working with Wuthier that Wong discovered a class of lipids now known as prostaglandins. In addition to his long-held positions at New York Medical College and BioProst Pharmaceuticals, Wong has served twice as a Fogarty Senior International Research Fellow and Visiting Professor working with Nobel Laureate Professor Bengt Samuelsson at the Karolinska Institute in Stockholm, Sweden.

The Distinguished Graduate Alumni Award is presented every year to an alumnus/a from the College of Medicine's Ph.D. or M.S. programs who has demonstrated outstanding achievement in basic, clinical or applied research; education; industry; public service/humanitarianism; and/or outstanding commitment to the College of Medicine community. The graduate award recipient is selected in the spring and invited to return to campus the following fall to speak to current graduate students.



Patrick Wong, Ph.D.'75 converses with Dean Rick Morin and UVM President Tom Sullivan during the 2015 Graduate Student Research Showcase.

## Excellence in Teaching Recognized with Kroepsch-Maurice Award

College of Medicine faculty member **Maria Mercedes Avila, Ph.D.**, was among the recipients of the 2015 Kroepsch-Maurice Excellence in Teaching Awards. The annual awards recognize UVM professors for excellent quality of instruction (including learning experiences outside the traditional classroom); their capacity to animate students and engage them in the pursuit of knowledge and understanding; their innovation in teaching methods and/or curriculum development; their demonstrated commitment to cultural diversity; their ability to motivate and challenge students, and for evidence of excellent advising.

Dr. Avila is assistant professor in the Department of Pediatrics. Since joining the department, she has been involved in several federal programs, including: SAMHSA Youth Suicide Prevention, HRSA Health Careers Opportunity Program, MCH Leadership Education in Neurodevelopmental Disabilities, and Vermont Department of Health's State Implementation Grant for Improving Services for Children and Youth with Autism Spectrum Disorders and other Developmental Disabilities. In addition, she provides consultation on cultural and linguistic competency to the Department of Mental Health's Vermont Child Mental



Kroepsch-Maurice Award winner Maria Mercedes Avila, Ph.D.

Health Initiative, and has trained more than 1,500 providers. She is Adjunct Assistant Professor in the College of Nursing and Health Sciences.

In 2014, Dr. Avila received the Edith D. Hendley award recognizing a woman who has demonstrated excellence in research, scholarship and teaching, and who has performed dedicated service to women and the community. She was furthermore nominated for the 2014 Association of University Centers on Disabilities National Multicultural Council Award for Leadership in Diversity.

The Kroepsch-Maurice awards memorialize Robert H. and Ruth M. Kroepsch and her parents, Walter C. and Mary L. Maurice. Robert H. Kroepsch served as registrar and dean of administration at UVM from 1946–56. His wife, Ruth, graduated from UVM in 1938 and her father, Walter Maurice, graduated from UVM in 1909. All four family members were teachers.

## UVM Announces New Master of Medical Science Degree Program

Starting in fall 2015, UVM began offering a new medical science master's program for students with a limited background in science and those whose undergraduate grades do not reflect their true academic ability.

UVM's Master of Medical Science degree is a 30-credit, one-year, on-campus program, which includes a cohesive set of core courses that cover the major biomedical disciplines and provides a foundation of understanding how the human body works. In addition to biochemistry, cell biology, and physiology, the core curriculum includes a six-credit human anatomy course, something not offered in many similar programs across the country, and also covers the fundamentals of pharmacology and biostatistics.

"This is a competitive, robust biomedical master's program designed to help students who may not have



Associate Professor of Molecular Physiology and Biophysics Chris Berger, Ph.D., is program director of the new Masters of Medical Science Program.

considered medical school in their undergraduate years and are now refocusing their careers," says Program Director **Chris Berger, Ph.D.**, associate professor of molecular physiology and biophysics at the UVM College of Medicine.

Geared toward students whose undergraduate grades are not an accurate reflection of their potential in the medical sciences field, the program gives students the tools they need to not only be successful medical school candidates, but to succeed in a rigorous medical school curriculum once they are admitted.

"Most medical schools now integrate a fair amount of pathology and clinical skills with the basic science curriculum during the first year of study," Berger says. "Students who already have a strong foundation in the basic biomedical sciences, including anatomy, will have a significant advantage in their preparation for medical school coursework and boards."

The program complements the academic offerings of the UVM College of Medicine, providing a master's degree program that prepares bright and motivated students who lack needed coursework in the basic biomedical sciences for admission to medical school. The new program directly supports the College of Medicine's mission to educate a diverse group of dedicated physicians and biomedical scientists to serve across all the disciplines of medicine. It follows on the establishment in 2014 of an online Master of Public Health program.

## Teaching the Intersection of Art and Science at Cold Hollow Sculpture Park

Professor of Medicine **Jason Bates, Ph.D.**, develops computer models and devices to help better understand and improve lung function. Nationally-known artist **David Stromeyer** creates soaring sculptures out of steel. Although they work in vastly different fields, the two men hosted a conversation this past autumn at Cold Hollow Sculpture Park in Enosburg Falls about the ways in which their work in science and art frequently intersects.

The Walking Conversations at Cold Hollow Sculpture Park series brought to the park a variety of experts, and paired them with sculptor David Stromeyer for a talk and a stroll through more than 50 sculptures, all conceived and created by Stromeyer, on display in the rolling fields

outside Enosburg Falls. Previous guests for the Walking Conversations series have included a composer, poet, and museum curator. One of the goals for the series, said Program Developer Rosie Branson Gill is to invite guests to see the park in different ways, and to think about the creative process from multiple angles.

For Bates and Stromeyer, the conversation touched on the creative process and more. They also discussed the genesis of an idea and how it develops, delved into questions of motivation for artists and scientists, and considered questions about how modeling plays into their work.

Bates, a bioengineer who holds multiple patents, characterized the computer models he develops as much more than "abstract equations."

"You have to have a picture in your mind," he says. "The model is your hypothesis."

For Stromeyer, models of his sculptures are built on the scale of one inch to one foot, allowing him to visualize the sculpture in space. At this stage, he

says he rules out questions about material and transport, and focuses on the vision. He'll put the models on a Lazy Susan to see it as viewers would as they walk around it. Like Bates, he says there is an element of visualization to his work, to the point that his state of mind can be almost subconscious or "half asleep" as he brings shape to an idea.

The two men started with a strong interest in the other's chosen field: Bates trained as a classical pianist and had a "keen interest in composing." Stromeyer considered majoring in mathematics. This brought up questions of vocation, and how science and art may draw out similar qualities in their practitioners.

"There's a space of unknown out there," Bates said of his work as a scientist. "I'm trying to pick out pieces."

"My progress is not necessarily linear, but it is connected," said Stromeyer of his more than four decades as a sculptor. "My style — I hope — keeps moving and changing."



Professor of Medicine Jason Bates, Ph.D., and sculptor David Stromeyer relate their creative experiences to fellow participants in a "walking conversation" at Cold Hollow Sculpture Park in Enosburg Falls.

## RESEARCH

Researchers at the College of Medicine are driven by the need to discover, and the need to apply those discoveries. In all their efforts, they seek to understand the basic sciences, use their findings to improve care for patients, and translate those discoveries into further improvements in the years ahead.



Professor of Medicine Mercedes Rincon, Ph.D., presents on UVM's initiative at the first SPARK International Conference in Taipei, Taiwan.

## SPARK-VT Spurs Research Innovation at UVM

With proposals ranging from low-cost ground-penetrating radar to a lung sealant derived from seaweed, six research teams from the University of Vermont pitched their ideas to a panel of experts at the first university-wide SPARK-VT session in June 2015, all hoping to receive a seed grant to help move their innovative work one step closer to the marketplace.

Launched in 2013 by the Department of Medicine, SPARK-VT aims to support

researchers as they navigate the tricky terrain between developing an idea for a new device or therapy and making it a reality. Its premise hinges on feedback from outside of the university: A panel of 12 leaders from biotech, pharmaceutical, business, engineering, finance, and legal fields are invited to listen to presentations from top researchers. Panel members ask questions, challenge presenters on the details of their plans and ultimately offer suggestions for next steps. All participants get tips and suggestions, but the winners receive seed funding from UVM's Office of the Vice President for Research.

SPARK is part of a global initiative. Professor of Medicine **Mercedes Rincon,**

**Ph.D.,** represented the UVM SPARK-VT program at the first SPARK International Conference in Taipei, Taiwan, in August of 2015. She was invited to give a talk along with seven other representatives from SPARK programs around the world, with a goal to share information and create a global SPARK program that supports researchers as they move their work from bench to bedside.

This year, after two successful years at the College of Medicine, UVM's Provost and Office of the Vice-President for Research broadened the program's reach, resulting in 13 teams from a variety of UVM colleges submitting proposals. After a selection process, the six teams invited to

present this year included faculty from the UVM College of Medicine, the College of Engineering and Mathematical Sciences, and the College of Arts and Sciences.

Among the four successful proposals were two initiatives involving College of Medicine faculty:

- An innovative easy-to-use, non-toxic, lung sealant patch/band-aid that could be used for lung surgeries or other emergency sealant needs developed by Assistant Professor of Mechanical Engineering **Rachael Oldinski, Ph.D.,** and Professor of Medicine **Daniel Weiss, M.D., Ph.D.** SPARK-VT funds will aid the team in testing the long-term durability and reliability of the innovative alginate material in animal models, before later moving on to humans.
- A proposal by **Jon Ramsey, Ph.D.,** a research associate in the Department of Biochemistry, Professor of Medicine **Claire Verschraegen, M.D.,** and Professor Emeritus of Chemistry **William Geiger, Ph.D.,** regarding a new family of compounds called cymanquines that disrupt autophagy, a process cancer cells use to develop drug resistance. The SPARK-VT funds will be used to test a cymanquine compound in animal models of metastatic melanoma, as well as in other cancers.

## Vaccine Testing Center Works to Prevent Dengue Fever

No matter whether it is the “dog days” of summer or the frozen depths of winter, mosquitoes, and — more accurately — the diseases they can transmit, are on the minds of College of Medicine vaccine researchers **Sean Diehl, Ph.D.,** and **Beth Kirkpatrick, M.D.,** of the UVM Vaccine Testing Center (VTC). They and UVM colleagues **Jon Boyson, Ph.D.,** and **Jason Botten, Ph.D.,** received a three-year, \$2.2 million grant this year from the Bill and Melinda Gates Foundation to study the immunological basis of protection from dengue fever, a mosquito-borne viral disease that affects as many as 400 million people annually.

A reported 40 percent of the world's population — 2.5 billion people — are at risk for dengue infection, with a rising number of home-grown cases occurring in the U.S. over the past decade. However, no directed therapeutic options or licensed vaccines exist, says Diehl, an assistant professor of medicine. Currently there is no dengue virus circulating in Vermont.

In addition to UVM VTC investigators, the team includes researchers

from the Johns Hopkins Bloomberg School of Public Health, the National Institute of Allergy and Infectious Disease (NIAID), the La Jolla Institute for Allergy and Immunology, the University of North Carolina, and Atreca, Inc.

Kirkpatrick, a UVM professor of medicine and VTC director, Diehl, and their colleagues are conducting and coordinating research that examines how the immune system recognizes dengue virus in an effort to confirm the protective effects of new vaccines in development. The new award builds on nine years of collaboration between the team at the UVM VTC and Johns Hopkins' Center for Immunization Research, led by Associate Professor of International Health **Anna Durbin, M.D.,** and the National Institute of Allergy and Infectious Diseases' **Stephen Whitehead, Ph.D.,** to test new candidate dengue vaccines. Whitehead designed the vaccine candidates.

Dengue infection is caused by any of four related viruses and can cause fever, headache, intense joint and muscle pain, and rash. Although some infections are asymptomatic, severe infections can cause hemorrhagic fever and dengue shock syndrome, and have a higher risk of complications and death.

Like all infections, dengue activates the immune system and that's the goal for the dengue vaccines as well: to build up the body's immunity to completely prevent the disease. A major focus of this new study is the antibodies and T-cell responses produced in the blood in response to the dengue.

“We are so excited to have this wonderful group of collaborators,” says Durbin, who adds that the focus of the new study originated from an idea she, Diehl, and Kirkpatrick developed. “We are well positioned to tackle these questions about dengue immunology and hope that by gaining a greater understanding of dengue, we can help develop the most effective vaccines possible.”

UVM's effort to understand the dengue immune response will be bolstered by Botten, an assistant professor of medicine, and Boyson, an associate professor of surgery, who will investigate the role of T cells, another type of immune cell, with colleagues from the La Jolla Institute for Allergy and Immunology.



Left to right: Sean Diehl, Ph.D., Jason Botten, Ph.D., Jon Boyson, Ph.D., and Beth Kirkpatrick, M.D. of the UVM Vaccine Testing Center.

“This work will help fill important knowledge gaps that will help drive vaccine development and implementation and will advance diagnostics for both dengue disease and to gauge vaccine effectiveness,” Diehl says.

## Borden Creates “Atlas” of the Human Brain

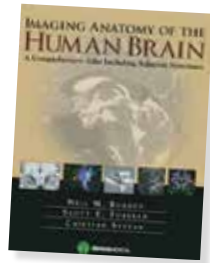
One wall of **Neil Borden’s** office at the University of Vermont Medical Center is lined with dozens of books showing images of the brain. Some show cerebral slices. Others contain unlabeled images, but none is a comprehensive, all-encompassing reference of a full variety of cranial views.

During his more than 30 years of practice, Borden, a UVM associate professor of radiology and former endovascular neurosurgeon, came to realize that no single book illustrated the brain in its entirety or provided the encyclopedic breadth of everything from the hippocampus to the vascular structure. So he decided to publish one himself.

Titled *Imaging Anatomy of the Human Brain: A Comprehensive Atlas Including Adjacent Structures*, Borden’s book was released by Demos Medical Publishing in 2015. He calls it “a very detailed anatomic atlas of the brain.”

“This is something I’ve wanted to do for a long time,” says Borden, who started outlining the project with two colleagues (his coauthors) while still at the Medical College of Georgia. It wasn’t until he arrived at the College of Medicine in early 2013 that he began the arduous process of pulling together all the images for the book.

With the help of Associate Professor of Radiology **Richard Watts, Ph.D.**, director of the MRI Center for Biomedical Imaging, and Scott Hipko, a senior research technologist, he was able to assemble images taken by the UVM research magnet.



**Alastair Moore, M.D.**, a radiology resident, provided 3-D modeling for the book.

Board-certified in diagnostic radiology and neuroradiology, Borden has published two other textbooks in the field of neuroradiology, including *3D Angiographic Atlas of Neurovascular Anatomy and Pathology* (Cambridge University Press, 2006), *Pattern Recognition Neuroradiology* (Cambridge University Press, 2011). With this latest volume, he applied his decades of experience to give students and future radiologists exactly what they’ll need to know in practice. Borden completed another book later in the year titled *Imaging Anatomy of the Human Spine*, which was released in December.

## Study Finds Blood Type and Memory Loss Link

People with blood type AB may be more likely to develop memory loss in later years than people with other blood types, according to a study published in *Neurology*, the medical journal of the American Academy of Neurology, by **Kristine Alexander, Ph.D.**, postdoctoral fellow in medicine, **Mary Cushman, M.D., M.Sc.**, professor of medicine, and their colleagues.

AB is the least common blood type, found in only about four percent of the U.S. population. The study found that people with AB blood were 82 percent more likely to develop the thinking and memory problems that can lead to dementia than people with other blood types. Previous studies have shown that people with type O blood have a lower risk of heart disease and stroke, factors that can increase the risk of memory loss and dementia.

The study was part of a larger study (the REasons for Geographic And Racial Differences in Stroke, or REGARDS Study) of more than 30,000 people followed for an average of 3.4 years.

“Our study looks at blood type and risk of cognitive impairment, but several studies have shown that factors such as high blood pressure, high cholesterol and diabetes increase the risk of cognitive impairment and dementia,” says Alexander.



Postdoctoral fellow in medicine Kristine Alexander, Ph.D., was first author of the study linking blood type and memory loss.

“Blood type is also related to other vascular conditions like stroke, so the findings highlight the connections between vascular issues and brain health. More research is needed to confirm these results.”

In the *Neurology* study, researchers also looked at blood levels of factor VIII, a protein that helps blood to clot. High levels of factor VIII were related to higher risk of cognitive impairment. People in this study with higher levels of factor VIII were 24 percent more likely to develop thinking and memory problems than people with lower levels of the protein. People with AB blood had a higher average level of factor VIII than people with other blood types.

Another recent study that also looked at this association was published in the *Journal of Thrombosis and Haemostasis* by **Neil Zakai, M.D.**, associate professor of medicine, and colleagues including Cushman. Also using the REGARDS study, those researchers reported that blood type AB was associated with increased stroke risk.

## Medical Student is First Author of Mesothelioma Treatment Study

University of Vermont College of Medicine student **Mutlay Sayan '16** was first author this year on a study that takes an important step forward in understanding and developing a potential therapy for malignant mesothelioma (MM), a type



Medical student Mutlay Sayan '16 led a study that points toward new therapy for mesothelioma.

of lung cancer that has been notoriously difficult to treat.

MM, caused by exposure to asbestos or similar carcinogens, is relatively rare but carries a high mortality rate. According to the American Cancer Society, about 3,000 new cases are diagnosed in the U.S. annually, with a five-year survival rate of between five and 10 percent. Sayan and a team of co-authors in the Department of Pathology and Laboratory Medicine studied human cell lines from two histological forms of MM: epithelioid (HMESO), the most common type of MM, and sarcomatoid (H2373), the most aggressive form of the cancer and the most resistant to treatment. Their paper, published online in the *American Journal of Respiratory Cell and Molecular Biology*, identifies two novel cell survival/resistance pathways — ERK5, and cAMP response element binding protein (CREB) — that are inhibited by a combination of two therapies.

This is the first time these pathways have been shown to interact with these drugs in a way that reduces the proliferation of MM cells, Sayan says, noting that the initial goal was to “come up with different drug combinations to tackle this disease.” This novel finding may be an alternative approach to treat MM.

Next steps will include applying this work done with human cell lines to animal models, with the eventual goal of conducting clinical trials. A recent increase in the number of mesothelioma deaths in Sayan’s home country of Turkey adds extra urgency to this work. The high number of cases — about 600 to 800 times higher than the world average, according to some reports

— in the Cappadocia region is believed to be caused by a mineral native to rock in the area that has been used in construction.

Sayan’s work in the lab pre-dates his entrance to medical school; he has been conducting research in the lab of UVM Distinguished Professor of Pathology **Brooke Mossman, Ph.D.'77**, a co-author on the study, since his undergraduate years at UVM. “It has been a privilege to work with her,” Sayan says, as Mossman is one of the pre-eminent researchers in the MM field. Second author of the study is Associate Professor of Pathology **Arti Shukla, Ph.D.**, who is well known for her work on CREB pathway, and has been a great contributor in this project, Sayan says. Other co-authors include **Maximillian Brian MacPherson; Sherrill L. Macura, Ph.D.; Jedd M. Hillegass, Ph.D.; Timothy N. Perkins, Ph.D.; Joyce K. Thompson; Stacie L. Beuschel;** and **Jill M. Miller, M.D.** — all affiliated with the UVM Department of Pathology.

## Scholarly Projects Showcase Breadth of Research from Class of 2015

When do emergency first responders in Vermont decide to turn on lights and sirens? Can narrative medicine help curb physician burnout? How do disadvantaged

students fare during the admissions process for medical school? These are just some of the questions explored by fourth-year students at the College of Medicine through their scholarly projects. Students work with a faculty mentor to identify a topic and carry out the research.

**Tyler Lemay, M.D.'15**, a Vermont native with extensive experience as an Emergency Medical Technician, focused his scholarly project on the use of lights and sirens during ambulance transport. Since there’s growing consensus about the dangers of using them when not necessary — and no established protocol in Vermont regarding their use — it’s an issue ripe for further study.

Lemay partnered with **Kalev Freeman, M.D., Ph.D.**, assistant professor of surgery and emergency medicine specialist, and a team of undergraduates enrolled in a surgery course Freeman teaches for the Institutional Review Board-approved study. The students, whose course participation includes staffing the UVM Medical Center Emergency Department in shifts 16 hours per day, asked emergency first responders to complete a survey related to when they turn on lights and sirens. Their responses have provided a nuanced look at how Emergency Medical Technicians in Vermont make decisions about transport.

“What we’re hoping is that it will identify targets to reduce the use of lights and sirens,” Lemay says. “Nobody has really looked at why they’re being used.”



Elyse Goveia '15 presents her scholarly project during a poster session in May.



# PATIENT CARE

The patient is at the core of our education of future physicians, from the first days in the lecture hall and anatomy lab to that moment four years later when those new physicians head into residency. And in research, our faculty and graduate students always work toward results that improved patient care.



Associate Professor of Medicine Majid Sadigh, M.D., in full protective gear at the clinic in Liberia where he treated Ebola patients.

## Fighting Ebola on the Frontlines

In late 2014, **Margaret Tandoh, M.D.**, and **Majid Sadigh, M.D.**, traveled to Liberia to treat Ebola patients at the height of the epidemic in West Africa. They spent countless hours in the Ebola treatment units hastily set up to handle the influx of people seeking care, tending to the sickest patients despite a lack of basic resources. For their efforts, they were part of the group named by *Time Magazine* as 2014 People of the Year.

Tandoh, an assistant professor of surgery and associate dean for diversity and inclusion, and Sadigh, a UVM associate

professor of medicine and director of the Global Health Program at UVM and clinical teaching partner Danbury Hospital/Western Connecticut Health Network, both had experience with dire situations prior to traveling to Liberia. As a trauma surgeon and infectious disease expert respectively, they took a certain amount of knowledge and understanding with them to Buchanan, a port city where they helped to set up a treatment unit. Still, the devastating impact of the epidemic challenged them in ways they had not experienced before.

“With the backing of decades’ worth of medical knowledge crafted by scientists and health care workers internationally

on the subject of Ebola, we are all of us still in training, trying to grasp the totality of our roles,” said Sadigh in a blog post reflecting on his time in Liberia. “For one,



Margaret Tandoh, M.D., speaks with Liberian children.

Courtesy Majid Sadigh, Margaret Tandoh

we are not only physicians and health care workers charged with the task of providing care to the sick, but we are public health officers who must preserve the health of the community.”

Tandoh also struggled with the gravity of the situation. “It was very difficult to see the sicker patients because there was nothing you could do,” Tandoh wrote in an email from Brussels, Belgium, where she stayed during a quarantine period after she left Liberia. “You knew they were going to die. As a surgical intensivist, I’m trained to place large IV lines, provide intubation and all kinds of medications to save a patient’s life. In this situation, you cannot offer any of those.”

Despite the many challenges, Tandoh and Sadigh left a lasting impact: The Ebola treatment unit they helped to set up had 151 national staff shortly after they left the country, and much more of the fundamental equipment necessary for treatment. Still, they have said they deserve no glory for their work. Sadigh credited those fighting the disease in their home countries while losing family members and living in poverty with the true hero status.

“I admire the resiliency of the West Africans,” said Sadigh shortly after his return. “Despite being at the epicenter of Ebola, their life continues. I learned so much from that nation.”

Tandoh, a native Liberian, has been equally humble. “People are willing to do what it takes to see their fellow human get better,” she said during a local television interview after her arrival back in Vermont.

## Improving Care for Children in Vermont

As the proverb goes, “It takes a whole village to raise a child.” Associate Professor of Pediatrics **Judith Shaw, Ed.D., M.P.H., R.N.**, has been working tirelessly for over 15 years to make sure Vermont — and the nation — has that village at the ready. On behalf of the National Improvement Partnership Network (NIPN), a multi-state coalition of child health care programs that she leads, she accepted the 2015 Health Care Delivery Award from the American Pediatric Association. Housed

COM Design & Photography



Judith Shaw, Ed.D., M.P.H., R.N., addresses the NIPN conference at UVM in November 2015.

at UVM, NIPN works to advance quality and transform healthcare for children and their families by establishing partnerships between public and private entities, focusing on issues like immunizations, obesity, asthma, and others. Since 1999, Shaw has also been executive director of the Vermont Child Health Improvement Program (VCHIP), an organization that in 2015 garnered the Outstanding Collaboration Award from the KidSafe Collaborative of Chittenden County. The collaborative noted VCHIP’s varied efforts, including initiatives to prevent suicide, lead poisoning, and abusive head trauma, and to promote safe sleep, gun safety and a protective environment. VCHIP has become the “go-to” resource for any efforts to improve pediatric care in Vermont, says Shaw. She spends much

of her time bringing together various entities invested in the well-being of Vermont’s youth — state health officials, physicians, UVM researchers and faculty, Medicaid representatives and potential funding sources — and figuring out ways to enhance their care of children. “Doctors don’t get paid to stop and measure how they’re doing and think about how to improve it,” she explains. “What we do in VCHIP is help the physicians look at the systems obstacles that stand in the way.”

## New Family Medicine Residency Program in Upstate New York

For physicians looking for leading edge training while practicing medicine in a close-knit community, there’s a new opportunity just a short ferry ride across Lake Champlain from Burlington, Vt. This year marked the launch of a new family medicine residency training program at UVM Health Network — Champlain Valley Physicians Hospital in Plattsburgh, N.Y. The program received accreditation July 1, 2015, and the first four residents begin their training in June of 2016. The three-year curriculum includes rotations in a variety of specialties, including emergency medicine, sports medicine, and surgery,



UVM President Tom Sullivan and UVM Health Network President and CEO John Brumsted, M.D., at the network rebranding announcement, at which the new Family Medicine residency effort was also announced.

in addition to adult family medicine and women and children family medicine. Residents will have opportunities to focus on areas on special interest through several longitudinal curriculum options, including health systems management, behavioral science, maternal-child health, and others. CVPH, one of four hospitals in the UVM Health Network, serves patients in northern New York and Vermont. Plattsburgh, a city of about 20,000, is located on the shores of Lake Champlain about 20 miles south of the Canadian border.



The UVM PCORI team: (left to right) Constance Van Eeghen, Dr.P.H., Assistant Professor of Medicine, Benjamin Littenberg, M.D., Henry and Carleen Tufo Chair in General Internal Medicine, and Rodger Kessler, Ph.D., Associate Professor of Family Medicine.

## Integrating Behavioral and Medical Care

What are the benefits of fully integrating behavioral health care with medical care? How are patient outcomes affected? Those are the questions a team of College of Medicine researchers led by **Benjamin Littenberg, M.D.**, the Henry and Carleen Tufo chair in general internal medicine, are exploring after receiving \$18.5 million in funding from the Patient-Centered Outcomes Research Institute (PCORI), a Washington D.C.-based non-profit organization. The five-year research project, titled “Integrating Behavioral Health and Primary Care,” was selected as one of four out of 124 original applications to receive

funding. Littenberg’s UVM colleagues **Rodger Kessler, Ph.D.**, associate professor of family medicine, and **Constance Van Eeghen, Dr.P.H.**, assistant professor of medicine, will help lead the project as co-principal investigator and project director respectively. The goal is to study whether patients with both medical and behavioral problems do better when their primary care physicians work in combination with behavioral health professionals including psychologists and social workers. This means going beyond co-locating in a space to full integration, which may include sharing notes, nursing and support staff, and even coordinating their appointment and billing offices. The researchers propose to include 30 practices nationwide and as many as 60 patients at each, for a total of 1,800 cases. The group will compare the integrated practices to those using the co-located model. The project team also includes three patients who will serve as funded co-investigators — not just as consultants or advisors — and who have dealt with their own or a family member’s chronic illness and behavioral health problems. The patients, who all live in Vermont, will sit alongside medical and academic professionals in guiding the study’s progress. “At every turn, we want to be able to get their input,” Littenberg says. “We need them to keep us focused on what’s important to the patients all along. To do that, they need to be at the table as we’re making decisions.” Because of its



Professor of Medicine Peter Spector, M.D., (center) is recognized for his recent patented work at UVM’s Invention to Venture Conference. With him is Provost David Rosowsky, Ph.D., (right) and Vice President for Research Richard Galbraith, M.D., Ph.D.

patient-oriented mission, the inclusion of patients on the investigation team isn’t unusual for studies funded by PCORI. However, it is a new concept for health research in general. “This study is among those that are really leading the way and demonstrating how the patients can be partners and not just subjects,” says Christine Stencel, the institute’s associate director of media relations. To measure the integrated systems, Littenberg’s team will rely on the patients themselves: how they’re doing; how successfully they get treatment for their problems, and how much those problems, their daily lives, and their health improve. If the study can help remove some hurdles for these hard-to-treat patients, it could provide insights into ways to increase efficiency, cut costs and improve patient outcomes across the entire health care system. “The question here is really about how to design the systems for better care,” says Littenberg.

## Curing a Common Heart Rhythm Disorder

UVM cardiologist, heart rhythm specialist, and Professor of Medicine **Peter Spector, M.D.**, has described atrial fibrillation (AF) — a common heart rhythm disorder affecting millions of Americans — as a “tornado” of disorganized electricity that spreads

through the heart, causing anxiety and in some cases life-threatening complications. By harnessing the power of computer modeling, and aided by a \$1 million grant from Vermont residents Tom and Mary Evslin, Spector is on the path to curing the disorder. Past treatments for AF have been ‘one size fits all’ ventures — either medication or catheter ablation, a procedure that creates scar tissue in the heart to stop the errant electricity in AF from spreading. Sometimes the procedure works, sometimes it doesn’t, in part because there hasn’t been a reliable method to pinpoint specific areas of the heart to treat on a patient-by-patient basis. Until now: Spector and colleagues have developed a computer model of the heart’s electrical activity, using this to help identify what they believe is responsible for perpetuating AF. The modeling has led to the creation of a patient-specific target tool — catheters and a mapping system capable of locating the sites responsible for AF. Although not yet ready for human trials, animal model studies have shown promising results. “If our therapy is even 10 percent more effective, it will help an enormous number of people,” says Spector.

Spector’s work has led to creation of an impressive intellectual property portfolio. Over the past nearly three years, Spector has worked with the UVM Office of Technology Commercialization to develop a patent portfolio of both U.S. and international patent applications covering the catheters, signal processing algorithms and other aspects of his research. He was awarded the first of these U.S. patents in November 2014, and as of January 2015, a second patent application has been allowed. UVM has separately entered a collaborative research agreement with California-based Biosense Webster, Inc., the global leader in developing medical technology for the diagnosis and treatment of heart rhythm disorders. Spector’s research is also yielding new ways to teach the next generation of physicians about the inner workings of the human heart. He’s founded a private company — Visible Electrophysiology, LLC — which focuses on the development of educational tools that use interactive modeling to enhance learning of clinical electrophysiology.



Ryan Nichols '17 chats with a resident of Starr Farm Nursing Home during a trip to the Burlington facility as part of the Generations course in the Vermont Integrated Curriculum.

## Introducing Medical Students to Elder Care

The Generations course — part of Level 1 of the Vermont Integrated Curriculum — introduces medical students to the complexity of the human lifespan. Coursework covers human life cycle development, the male and female reproductive system, age related illnesses, and diversity with respect to LGBTQ health and disability. When it comes to elder care, students leave the classroom behind to get a first-hand look

at the options available to seniors. During Generations, students fan out to a dozen locations in the Burlington, Vt. area to meet with residents of skilled nursing and assisted living facilities, and visit participants in adult day care programs. They also tour facilities, and have the opportunity to meet staff members. Generations Course Director and Associate Professor of Family Medicine **Charlotte Reback, M.D.**, says the elder care facilities event is designed to introduce students — prior to clerkships — to this growing patient population, as well as get them thinking about the varying needs of this group and the different levels of care available.

# COMMUNITY

Engaging young people in learning, volunteering time to important civic activities, making connections with state decision makers to impact health policy: All are part of the College mission to foster strong, healthy communities in Vermont and around the world.



Clinical Simulation Laboratory staff member Jim Court demonstrates an ultrasound procedure during Girls Science Discovery Day.

## Girls Gain a Deeper Understanding of Science

From conducting blood coagulation experiments to trying out tools like a tongue depressor and stethoscope, more than 90 middle-school aged girls had the chance to play the role of scientist and physician during Girls Science Discovery Day in May. Sponsored by the UVM chapter of the American Medical Women's Association, the event brought seventh and eighth grade girls from 29 Vermont schools to campus for a day filled with workshops

and events. Medical students served as hosts, showing students around campus and taking a break mid-day to have lunch with the group. And the day was busy: The "Parts is Parts" workshop — led by **Ellen Black, Ph.D.**, **Lauren Arms, Ph.D.**, and **Diane Jaworski, Ph.D.**, anatomy professors from the department of neurological sciences — featured hands-on activities with real anatomical specimens in the Gross Anatomy Lab. Medical students taught the "Say 'Ahhh'" workshop, which focused on practicing simple physical exam skills and using the skills on a patient. "Lessons from the Dead" with **Rebecca Wilcox, M.D.**, associate professor of pathology and **Pamela Gibson, M.D.**, associate professor

of pathology and director of anatomic pathology, used pathology specimens to teach attendees about pathologic changes that play a role in a patient's life and death. The middle-schoolers saw first-hand how medical students are trained with a tour of the Clinical Simulation Laboratory's virtual hospital, where they had an opportunity to work with the "Hal" Family — full-body mannequins that breathe and talk — in a safe teaching environment. The student groups also had an opportunity to conduct a blood-clotting experiment with **Paula Tracy, Ph.D.**, professor of biochemistry, and **Beth Bouchard, Ph.D.**, assistant professor of biochemistry, and join in a lunchtime discussion and tour of the UVM College

of Medicine and UVM Medical Center campus. The event — now hosted annually for 15 years — has made an impact in that time on girls' career choices. "This event not only provides role models to Vermont girls already interested in careers in science, but also exposes girls from more rural areas, perhaps with limited science experience, to the challenging and diverse field of science," says UVM Professor of Pathology **Sharon Mount, M.D.**, AMWA faculty advisor. "How rewarding to see several young women who attended Girls in Science Day when they were in eighth grade now enrolled in medical school! Other girls have gone on to pursue majors and careers in basic sciences."

## Guiding High School Interest in Medical Careers

Medical students deep in the throes of lectures, labs, and exams have had the chance to try on the role of teacher and mentor through a partnership with Essex High School's STEM Academy (where students focus on science, technology, engineering, and mathematics). Led by the Med Mentors Student Interest Group (SIG), the program matches high school seniors who have expressed an interest in a career in medicine with medical student mentors to embark on a semester-long research project. The STEM Academy enrolls students after their first year of

high school, providing opportunities to dig deeper into a science or engineering field of interest as they get ready for college. The Med Mentor partnership serves as the senior capstone project for those in the medical track. This year, the six pairs have been meeting via Skype to talk about the research project — which for each student focuses on a disease of their choice — as well as get to know each other and swap stories about science and medicine. "In some ways, we are in the same shoes as the high school students," says **Ethan Harlow '18**, one of the SIG's student organizers. "This is helping us get comfortable with teaching, and the mentors have thrived in this role." **Lloyd Patashnick '19** says he hopes his perspective — as someone who came to medicine after graduating college as a history major — can help his mentee appreciate the value in the many different types of intelligence people possess. "Med mentors is a starting point to engage young people and reach out to others who might not have thought about medicine," he says. "Recruiting as much diversity as possible can only enhance the profession." For **Kristen Bartlett '19**, Med Mentors is an opportunity to pass on some of the knowledge she's accumulated. "As many of us can appreciate, the journey to medical school can be overwhelming, so I would like to aid in navigating and encouraging my mentee's progression in any way I can," she says. After their research projects are complete, the Essex STEM Academy

students are learning how to communicate science to different audiences through a presentation to a group of their peers, teachers, and other staff. Students also have the opportunity to shadow a physician at the UVM Medical Center, and visit the College of Medicine in the spring as part of a larger county-wide medical exploration day. Med Mentors expanded their reach to different high schools over the winter by hosting panel discussions about the college application process, college life, and the journey to med school.

## Learning and Making a Difference Across the Globe

**Alexandra Miller '18** arrived in Kampala, Uganda, as a first-year medical student in the summer of 2015 unsure of her role alongside more experienced physicians and health professionals. But after a six-week global health elective, she found herself a valued member of the team, gaining clinical skills, making connections with patients and their families, and coming away with a new understanding of how empathy and good listening skills can go a long way in patient care. "...In the high risk labor and delivery suite, I found that there were many things I could do. I soon realized that at Mulago Hospital, the simplest things can make the biggest difference," she wrote in a reflection for the UVM College of Medicine's Global Health Diaries blog.

Students like Miller are fanning out to locations around the world through the burgeoning Global Health Program, a partnership between the College of Medicine and clinical affiliate Danbury Hospital/Western Connecticut Health Network. First and fourth-year students, along with faculty from both institutions, are completing elective rotations at affiliate sites in the Dominican Republic, Vietnam, Russia, Uganda, and Zimbabwe. First-year students fulfill their clinical component by carrying out research projects, while senior medical students and residents complete a clinical rotation in



Medical student Daniel Lambert, a member of the Class of 2019, works with a student from Essex High School's STEM Academy as a part of the Med Mentors program.

addition to optional research. Students are given a rich cultural experience through a variety of historical and language seminars, field trips, and the host family program.

Health professionals from partner institutions are also visiting the United States for training and capacity building opportunities at Danbury Hospital. The second group of Global Health Scholars — including the new site director for the Dominican Republic satellite program — completed training in the U.S. in the past year. The program is receiving recognition on an international level: In December 2014, the WCHN/UVM program was accepted as a member of the Consortium of Universities for Global Health, based in Washington, D.C., a worldwide organization of 130 academic institutions and other groups working to address global health challenges. Students and faculty presented five posters at the 2015 annual conference in Boston.

As College of Medicine students continue to complete electives at the different affiliate sites, they promise to help bring home a new understanding of the role physicians and other professionals can play in fostering a truly global health care community.

“Until next time Mulago — and thank you to all the wonderful resilient people that make this such a special place,” wrote Miller of her time in Uganda.



UVM medical students with staff members of the Mulago Hospital in Uganda in the summer of 2015.



Members of the medical student public health project who worked with Vermont CARES to gain funding for a Hepatitis C case management project.

## Public Health Project Helps Vermont CARES Gain Funding

The Public Health Projects — a five-month course in the Foundations level of the Vermont Integrated Curriculum — has for over ten years been matching student groups with community agencies to embark on projects that meet a particular need. Through the course students learn the tenets of population health, and gain experience in advocacy work and community action. For one group of students in the Class of 2017, their work helped lead to significant funding for Vermont CARES — the state’s largest and longest-serving AIDS Service

Organization — to start a Vermont Hepatitis C case management pilot project. Vermont CARES was one of only eight programs nationwide that received this \$40,000 in funding from Janssen Therapeutics.

“We absolutely could not have successfully written this proposal without [the students’] steadfast support and thoughtful research,” says Peter Jacobsen, executive director of Vermont CARES. “It was definitely the backbone of our application.”

Titled “Improving Care and Treatment for People Who Inject Drugs (PWID) Living with HIV and/or Hepatitis C,” the grant funds a staff position, peer outreach workers and a web-based information clearinghouse. In Vermont, there are an estimated 1.63 cases of hepatitis C (HCV) per 1,000 people, according to the report on the “Living with Hepatitis C: A Vermont Needs Assessment” public health project, which was conducted in collaboration with Jacobsen and Vermont CARES. Many HCV patients “are aware of their status, but do not seek treatment because of the demands of poverty and ineligibility due to IV drug use,” the students state in their project introduction.

The students created a 20 question survey to assess demographics and the applicability of existing services at VT CARES, which was completed by HCV patients at seven sites throughout Vermont. Based on their findings, the students — who included Class of ’17 members Alexandra Brown, Justin Genziano, Julia Powers, Samy Ramadan, Amy Schumer, Matthew Shear and Katherine Wang — recommended that Vermont CARES expand their services to include clients with HCV. UVM Professor of Pediatrics Jerry

Larrabee, M.D., was the faculty advisor.

“This new grant, made possible by the students’ research, allows us to expand care and support options for those with hepatitis C, and this is a huge next step for Vermont,” says Jacobsen. “The College’s commitment to local connections and impact really pays health dividends, and this is a great example of a strong connection.”

## Med Students Give Back: Serving the Community

Life as a medical student can be busy — with studying, labs, lectures, team-based learning sessions, and more studying — but College of Medicine students still manage to find time to give back to the community. This year alone, they have participated in dozens of events and activities, from trail work with the Green Mountain Club to food drives to benefit local community agencies to cooking meals for residents at the Ronald McDonald House in Burlington. COM Cares — an organization that grew out of a student-led Schweitzer Fellows project in 2007 — now sponsors many community initiatives for students, faculty and staff, in cooperation with the Office of Diversity and Inclusion. And the College’s many and varied Student Interest Groups host a legion of events that offer opportunities to give back. A few examples: The student-led Microscope Exchange works to place microscopes and other supplies in resource poor areas around the world, and hosts local fundraisers to help offset transportation costs. Students in Smile DOCS visit area elementary schools to teach children using real pathology specimens, models, and interactive learning activities. The Running Student Interest Group raises money every year for a deserving cause through organizing a team to participate in the Vermont City Marathon. The event draws dozens of faculty, staff and students, and rallies the College around a common goal: In 2015 the team raised money for Steps to Wellness, the oncology rehabilitation program sponsored by the University of Vermont Cancer Center. And then there are the smaller activities throughout the year



Amy Schumer '16 and Karl Kristiansen '16 (in background) pack up surplus microscopes to donate to medical personnel in poorer parts of the world through the Microscope Exchange Program spearheaded by medical students.

that stand to have a big impact, like the Pediatric Student Interest Group gathering one afternoon to make fleece blankets for the University of Vermont Children’s Hospital. It all adds up to a stronger community and physicians who understand first-hand the value of giving back.

## Graphic Storytelling for Better Reflection

You may not often hear ‘medical school’ and ‘comics’ in the same sentence, but a two-day workshop held at the College of Medicine in late 2014 brought those two worlds together, inviting participants to explore identity



Cartoonist and Marsh Professor-at-Large Alison Bechdel works with Matthew Shear '18 and Leah Cipri '18 during the graphic storytelling workshop.

in the context of healthcare. Hosted by UVM James Marsh Professor-at-Large and acclaimed graphic novelist **Alison Bechdel**, the workshop introduced faculty, staff and students to the burgeoning field of graphic medicine. The approach uses storytelling — in the form of pictures — to help healthcare providers better understand patients and themselves. The value of storytelling has increasingly been recognized in medical education as a way for physicians to develop empathy, explore difficult situations and emotions, and prevent burn-out. The workshop, co-sponsored by the College’s offices of diversity and inclusion and medical student education, took this as a jumping-off point to focus on LGBTQ identity as related to the healthcare field. Participants walked away with a 12-panel comic that explored an experience or interaction, offering the opportunity to reflect on its meaning and impact. Bechdel proved to be an insightful and encouraging guide for medical students and faculty who may not have ‘drawing’ at the top of their skill set. Bechdel’s work, including *Fun Home* (which has been adapted into an award-winning Broadway play), and *Are You My Mother?* earned her a MacArthur Genius grant. She chatted with students about their storylines, offered tips to develop a strong narrative, and provided examples from her own work that helped to underscore the impact storytelling can have.

# DEPARTMENTS & CENTERS

Brief reports on the activities of the basic science and clinical departments and major centers at the College of Medicine during 2015

Faculty in the Department of Anesthesiology have been active in all areas of the mission, with several main themes developing in research and education, including anesthetic neurotoxicity in children, perioperative and practice management, multicenter perioperative outcomes, and medical simulation.

Robert Williams, M.D., has initiated a second major investigation into the cognitive impact of anesthetic drugs administered during infancy. This large-scale, multi-year study will examine the effect of multiple anesthetic exposures in childhood.

The scope of projects by Mitchell Tsai, M.D., M.M.M., includes application of time-driven activity-based costing to look for savings in various surgical procedures, including interventional cardiac procedures with Jacob Martin, M.D.; multi-state surveys of how hospitals govern their operating rooms; and the effectiveness of a web-based tutorial to train anesthesia residents in perioperative management. Dr. Tsai also offers a popular reading elective on medical leadership to fourth-year medical students. This one-month course is designed to expand students' understanding

of conceptual frameworks of leadership, management, and organizational change, aiming to foster growth in critical analytic skills.

Another popular course is the Perioperative Bridge Week, taught by Kathleen MacDonald, M.D. This program combines clinical simulation and hands-on experiences to give third-year medical students an exposure to acute care medical skills such as airway management, invasive and non-invasive monitoring, and cardiovascular support, as well as communication and teamwork skills that will be useful in any medical discipline. Vincent Miller, M.D., continues his work as associate director of anesthesia simulation for UVM's Clinical Simulation Laboratory, where he is developing an operating room simulator as well as establishing an ultrasound curriculum.

Interim Chair David Adams, M.D., with colleagues from the Departments of Psychiatry and Obstetrics, Gynecology, and Reproductive Sciences, have developed an educational project to improve our learning environment for residents and medical students as well as faculty, allied practitioners, and staff. The team created a professional-quality film, background

materials, and a discussion guide, presenting them at well-received grand rounds lectures in 13 departments over the past year. The film and related materials are available on MedEdPortal.

## SELECTED HIGHLIGHTS

- Faculty published in such journals as *Journal of Clinical Monitoring and Computing*, *Critical Care Medicine*, *British Journal of Anaesthesia*, *JAMA Pediatrics*, and *American Journal of Surgery*.
- Department faculty serve on editorial boards for *Critical Care Medicine*, *Journal of Critical Care*, *Medical Acupuncture Journal*, *British Journal of Anaesthesia*, *Survey of Anesthesiology*, *Regional Anesthesia and Pain Medicine*, and *Anesthesiology*.
- Faculty serve on 15 study sections and committees for national organizations including the American Society of Anesthesiologists, the Society for Education in Anesthesia, the American Board of Anesthesiology, and the Society for Critical Care Medicine.



Associate Professor Mitchell Tsai, M.D.



Associate Professor of Biochemistry Kathleen Brummel-Ziedins, Ph.D.

The Department of Biochemistry is providing transformative advances in biomedical research and education. Faculty and students are collaborating with colleagues throughout the College of Medicine, the University and The University of Vermont Medical Center to conduct leading edge research and educate the next generation of scientists.

In education, Paula Tracy, Ph.D., and Stephen Everse, Ph.D., have been instrumental in developing a team-based, interactive learning curriculum for medical students. Christopher Francklyn, Ph.D., Beth Bouchard, Ph.D., Jay Silveira, Ph.D., Rob Hondal, Ph.D., and Scott Morrical, Ph.D., have aligned the Biochemistry undergraduate and graduate programs with expanding dimensions and perspectives in mechanistic and application-based biochemistry. Janet Stein, Ph.D., and Jane Lian,

Ph.D., in collaboration with basic science and clinical colleagues throughout the University, presented a cancer biology course that was attended by undergraduate and graduate students as well as postdoctoral and clinical fellows. A Biochemistry Master's Program has been initiated.

Biochemistry faculty, students and staff are pursuing cutting edge cancer and cardiovascular research. A National Institutes of Health (NIH) research grant was awarded to Dr. Francklyn. Dr. Janet Stein, Brian Sprague, Ph.D. and a colleague in the Department of Pathology, Donald Weaver, M.D., received an NIH grant for collaborative initiatives, as did Kenneth Mann, Ph.D., Kathleen Brummel-Ziedins, Ph.D., Dr. Lian and Gary Stein, Ph.D. An American Cancer Society grant was awarded to fund partnerships of scientists and physician

investigators who are initiating collaborative cancer research programs.

Biochemistry investigators are making prominent contributions to the mechanistic understanding and clinical treatment of cancer and cardiovascular disease, providing breakthroughs in genetic and epigenetic parameters of cell cycle and growth control, characterization of stem cells, the biology and pathology of coagulation and thrombosis, cancer metastasis to bone, genomic instability, and metabolic regulation.

The Department of Biochemistry is actively engaged in community education and advocacy for cancer and cardiovascular disease prevention, early detection, treatment and survivorship. Service to the national and international biomedical research communities includes leadership for NIH and disease-based foundation research grant review panels, membership on executive committees for professional organizations, membership on editorial boards for biomedical research journals, and service on scientific advisory boards for cancer centers as well as for the biotechnology and pharmaceutical industries. Biochemistry faculty are science policy advisors for foreign governments, and serve on editorial boards for major biomedical research journals.

SELECTED HIGHLIGHTS

- Gary Stein, Ph.D., was awarded an honorary professorship at the University Andres Bello in Chile.
- Many Biochemistry faculty have been awarded NIH funding for their research, including Christopher Francklyn, Ph.D., Janet Stein, Ph.D., Brian Sprague, Ph.D., Kenneth Mann, Ph.D., Kathleen Brummel-Ziedins, Ph.D., Jane Lian, Ph.D., and Gary Stein, Ph.D.
- The Department of Biochemistry has successfully launched a Biochemistry Master's Program, providing students both a theoretical and practical knowledge of fundamental biochemical concepts while preparing students for careers in research.

The Department of Family Medicine continues to thrive in all areas of our mission.

Our medical student education programs consistently receive excellent evaluations from students. Faculty are dedicated to teaching medical students on campus, at their practice sites, and in the hospital, with over 150 Family Medicine physicians, residents and allied health professionals participating in Foundations, Clerkship, and Advanced Integration Level activities. Family Medicine faculty are education leaders at all levels of the medical curriculum, and provide leadership with interprofessional education. Newer faculty include Jennifer Bamford, M.D., Katherine Mariani, M.D., Megan Malgeri, M.D., and Patricia Whitney, M.D.

The Family Medicine TOPMed curriculum (Team-Oriented, Patient-Centered Medical Education), supported by a five-year Health Resources and Services Administration grant, has been integrated in all four years at the College, inspiring students to appreciate and practice TOPMed principles. Students, residents and faculty regularly present their scholarly work at regional and national conferences, and participate on national curricular boards.

Our clerkship and our regional affiliations have created opportunities for innovation

and enhanced curricular elements. Within the clerkship, we have developed an effective skill and knowledge building week to prepare students to be engaged and competent at their preceptor sites. The clerkship allows students to appreciate two key aspects of Family Medicine — comprehensiveness and continuity. Our residency thrives with innovations in quality improvement curriculum, and the adoption of competency-based Family Medicine Milestones. We began the implementation of the first inpatient Accountable Care Unit this fall at The University of Vermont Medical Center. Family Medicine established a second family medicine residency in northern New York in conjunction with The University of Vermont Health Network. The first four residents are expected in June 2016. Residents present regionally and nationally on sports medicine, men's health, and quality improvement initiatives. The department continues to develop the palliative care service and division to support clinical care, education, workforce development, and scholarship.

Family Medicine Continuing Medical Education (CME) includes the Family Medicine Review Course, Cultural Awareness Workshop, Sports Medicine Conference, regional CME and academic detailing presentations, and the Bridging the Divide collaborative care conference.

SELECTED HIGHLIGHTS

- For three years, students have selected the Family Medicine Clerkship as the Best Clerkship in Vermont and Maine.
- Family Medicine faculty receiving recognition this year include: Nellie Wirsing, M.D., as the Faculty Teacher of the Year; and Clara Keegan, M.D., and Caroline Slimovitch, M.D., as Residency Preceptors of the Year. Rodger Kessler, Ph.D., Nellie Wirsing, M.D., and Omar Khan, M.D., were promoted to Associate Professor. Allyson Bolduc, M.D., received the College of Medicine Alumni Association Service to Medicine and Community Award. David Little, M.D., was the Vermont Medical Society's "Physician of the Year."
- Rodger Kessler, Ph.D., and his colleagues in internal medicine secured a major, five-year Patient Centered Outcome Research Institute (PCORI) contract to investigate behavioral health collaborative integration with primary care practices across the country. (Ben Littenberg, M.D., Primary Investigator, Internal Medicine)

Family medicine faculty scholarship includes projects in the delivery of behavioral medicine, nutrition, promotion of breastfeeding, pediatric obesity, motivational strategies for chronic disease, community wellness, and screening brief intervention and referral to treatment for alcohol and substance abuse.

Our Transforming Primary Care results have been presented at the UVM Medical Center Quality Forum, at the Conference on Practice Improvement, as well as at the University Health Consortium.

Faculty and staff support the community through free clinics, wilderness rescue, boards and foundations service, and invited lectures and articles on topics from lactation medicine to palliative care medicine. The department's five patient-centered medical homes practices have maintained National Committee for Quality Assurance Level 3 recognition. Our Urgent Care has gone through a Quality Improvement Process, resulting in dramatic reductions in visit duration. Family Medicine directs the UVM Office of Health Promotion Research, which focuses on cancer registry research.



Associate Professor and Vice-chair for Clinical Operations Alicia Jacobs, M.D., speaks with a patient.

The Department of Medicine had another excellent year with significant contributions in all areas of our mission. To support all of those missions we continue to grow. This year, we welcomed new faculty in Cardiology, Dermatology, Hematology/Oncology, Immunobiology, and Primary Care Internal Medicine, new residents in Internal Medicine and Dermatology, fellows in all of our subspecialty areas, and graduate students and post-doctoral trainees in our laboratories.

The department expanded its clinical practice to include our University of Vermont Health Network partners in Cardiology, Critical Care, Hematology/Oncology, and Bone Metabolism, and we expanded our partnership with the Burlington veteran's administration clinic to include Dermatology. New clinical programs at The University of Vermont Medical Center include several multidisciplinary clinics, an interventional pulmonary program, and a multi-disciplinary lung cancer screening program. The Diabetes Care Pathway, created by the faculty in Endocrinology and Primary Care, was extended to all of the Medical Home sites. Faculty in Pulmonary and Primary Care are developing similar initiatives (focused on asthma and COPD). Dermatology faculty and residents volunteer at the Community Health Center Free Clinic, and hosted a teledermatology rural hospital outreach program. The UVM High Value Care (previously known as Choosing Wisely) Initiative continues to expand.

This year, Danbury and Norwalk Hospitals joined to form the Western Connecticut Health Network with an acting clerkship in Medicine serving as the first new opportunity for our students in Norwalk. The College of Medicine celebrated the establishment of the Teaching Academy, with department faculty well-represented. Jan Carney, M.D., M.P.H., Mark Levine, M.D. and Charles Irvin, Ph.D., were inducted as Distinguished Educators; Dennis Beatty, M.D., Laurie Leclair, M.D., and Patricia King, M.D., were named Master Teachers; and Maura Barry, M.D., Jason Bartsch, M.D., Shaden Eldakar-Hein, M.D., and Alan Rubin, M.D., became Members. The Outpatient Medicine Clerkship, directed by Roberta O'Brien, M.D., received the Best Clerkship Award from the College of Medicine Class of 2016. The



Associate Professor Markus Meyer, M.D., was among department members securing NIH R01 funding this year.

Cardiovascular, Respiratory & Renal Systems course, directed by Dr. Leclair, won the award for Outstanding Foundations Course. William Hopkins, M.D., received the Silver Stethoscope Award, and Lynn Pesta, M.D., a third-year resident, received the Gold Honor Society Humanism and Excellence in Teaching Award from the UVM College of Medicine Class of 2016.

In aggregate, members of the department, including students, residents, and fellows (M.D. and Ph.D.), continue to publish more than 300 manuscripts, reviews, chapters and books annually. Faculty are invited from around the world to present at scientific meetings and to be visiting professors, and they are elected to leadership in national societies.

The SPARK VT program, initiated in the Department of Medicine to encourage the translation of novel ideas into therapies and diagnostics, was expanded to the entire UVM campus with the support of UVM Provost David Rosowsky, Ph.D. With the continued support of an exceptional panel of community consultants, the program included a series of educational workshops. Four new projects received funding, including two with investigators from the Department of Medicine, Claire Verschraegen, M.D., and Daniel Weiss, M.D., Ph.D. Although research funding continues to be a challenge, funding to the department significantly increased this year. Highlights this year include a large federal subcontract from Johns Hopkins

The Department of Microbiology and Molecular Genetics and its 16 faculty members play important roles in the research and educational missions of the College and the University. The department has a vibrant graduate program with 15 Cell and Molecular Biology doctoral students, teaches medical students in the Vermont Integrated Curriculum, and offers two undergraduate degrees, one in microbiology and the other in molecular genetics, with a total of 134 students.

The department has three principal research foci, microbiology and microbial pathogenesis, where faculty interact with adjunct MMG faculty from Infectious Diseases and work together in the Immunology and Infectious Disease COBRE Program; Protein-Nucleic Acid Transactions, where faculty interact with adjunct MMG faculty from Biochemistry

and are nucleated by a National Cancer Institute-funded Program Project; and Computational Biology, which has a small but growing group of faculty whose research underpins, interfaces with, and supports the research of the bench scientists in the department and the College.

Faculty are members of over a dozen editorial boards including such prestigious journals as *Structure*, *PLOS Biology*, *Molecular Oral Microbiology*, *Journal of Virology*, *Journal of Bacteriology*, and *Eukaryotic Cell*. Gregory Gilmartin, Ph.D., is an associate editor of *WIREs RNA*; Markus Thali, Ph.D., is an academic editor of *PLOS One*; and Susan Wallace, Ph.D., is an associate editor of *DNA Repair*. Gary Ward, Ph.D., is the co-director of the Biology of Parasitism course at Woods Hole.

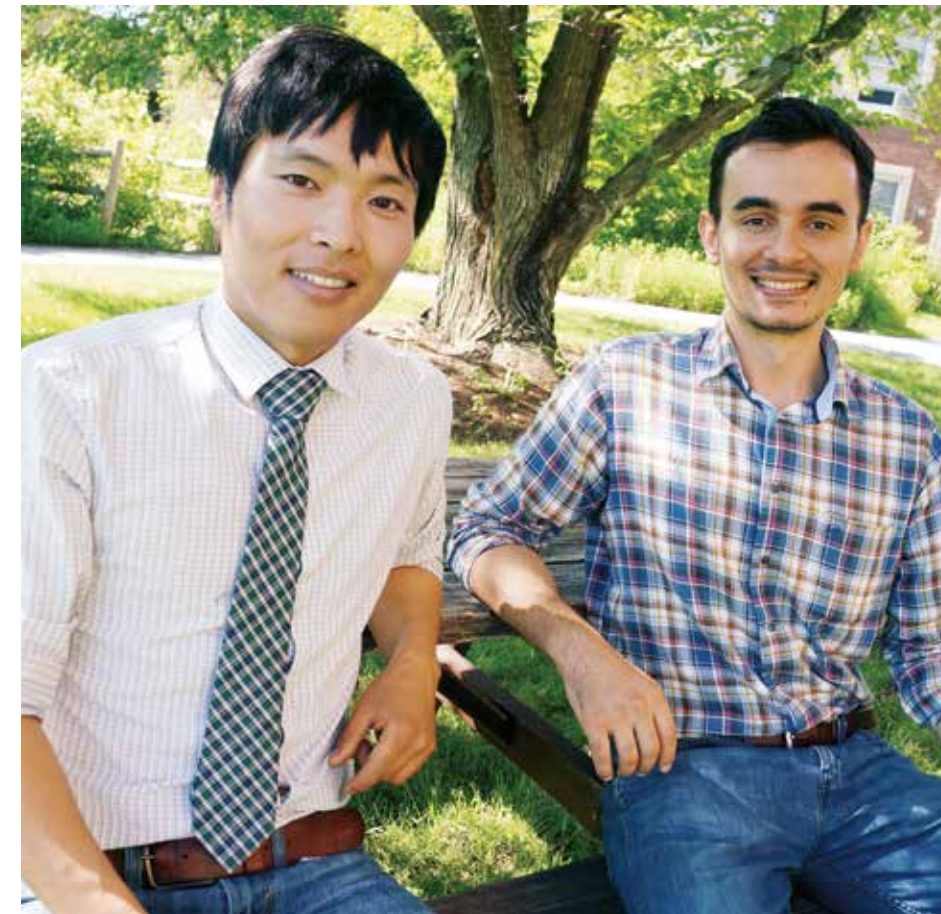
MMG faculty have given numerous presentations at national and international

meetings and at universities all over the world. Aimee Shen, Ph.D., was an invited speaker at the Annual Society for General Microbiology Meeting in Birmingham, England; Sylvie Doublie, Ph.D., was an invited speaker at the Pew Scholars Reunion; Matthew Wargo, Ph.D., was chair of the Host-Pathogen Interaction Session of the American Society for Microbiology Pseudomonas Conference; Dr. Thali was an invited speaker at the Vanderbilt Cancer Center Conference on Tetraspanins; and Dr. Wallace was an invited speaker at the International Conference on Radiation Research in Kyoto, Japan.

MMG faculty also serve as frequent *ad hoc* reviewers on NIH and NSF panels, over 15 this year. Dr. Thali is a permanent member of the NIH AIDS Molecular and Cellular Biology Study Section, while Dr. Doublie is a permanent member of the NIH Molecular Genetics A Study Section. Dr. Wallace served as a reviewer on the first NCI Outstanding Investigator Award Review Panel.

SELECTED HIGHLIGHTS

- Members of the department published research in such journals as the *Journal of Infectious Disease*, *New England Journal of Medicine*, *Journal of Allergy and Clinical Immunology*, and *FASEB Journal*.
- Faculty continue to hold leadership roles with many study sections, national associations, and federal advisory boards, including the American College of Mohs Surgery, NIH Hepatitis B Research Network, American Heart Association Council on Epidemiology and Prevention, American Society of Tropical Medicine and Hygiene, and American Thoracic Society.
- In recognition of their contributions to resident education, William Hopkins, M.D., received the E.L. Amidon, M.D., Award for Subspecialty Medicine, and Florian Foerg, M.D., received the William Osler, M.D., Award for General Internal Medicine.



Assistant Professor Dawei Li, Ph.D., left, and cellular, molecular and biomedical sciences doctoral student Arvis Sulovari.

SELECTED HIGHLIGHTS

- This year, MMG faculty have published over 45 papers in high profile journals including *Nature Structural and Molecular Microbiology*, *Science Translational Medicine*, *PLOS One*, *PLOS Genetics*, *PLOS Pathogens*, *Proceedings of the National Academy of Sciences*, *Human Genetics*, *Molecular Biology of the Cell*, *Molecular Microbiology*, *Nucleic Acids Research*, *Molecular Oral Microbiology*, *Journal of Virology*, *Journal of Biological Chemistry* and *DNA Repair*.
- A paper from Dawei Li, Ph.D., in the *American Journal of Medical Genetics*, received national press attention including coverage by ABC, CBS, WCAX, WPTZ and the *Huffington Post*, among others. The study linked risk of alcohol dependence with blue eye color.
- Notable grants to department faculty include: Keith Mintz, Ph.D., received an NIH/DHHS grant for "Interactions of the oral pathogen, *A. actinomycetemcomitans*, with collagen;" Aimee Shen, Ph.D., received an NIH/DHHS grant for "Proteolytic regulation of spore germination in *Clostridium difficile*;" and Markus Thali, Ph.D., received an NIH/NIGMS grant for "Multiscale analysis of HIV-1 assembly, release, and cell-to-cell transmission."

The Department of Molecular Physiology & Biophysics continues to garner international recognition and success in the areas of cardiovascular research, cell division, and protein structure and function. A common research focus is directed at understanding the molecular basis of cellular movement, whether associated with cell division or muscle contraction. By studying genetic alterations in cellular movement, special emphasis is directed at defining normal and diseased contractile function of the heart, blood vessels, and processes associated with cell division, e.g. chromosome segregation during mitosis. The department is considered the premier center of muscle and non-muscle cell motility research in the United States. An additional research focus is on protein molecular structure, with expertise in high resolution three-dimensional electron microscopy.

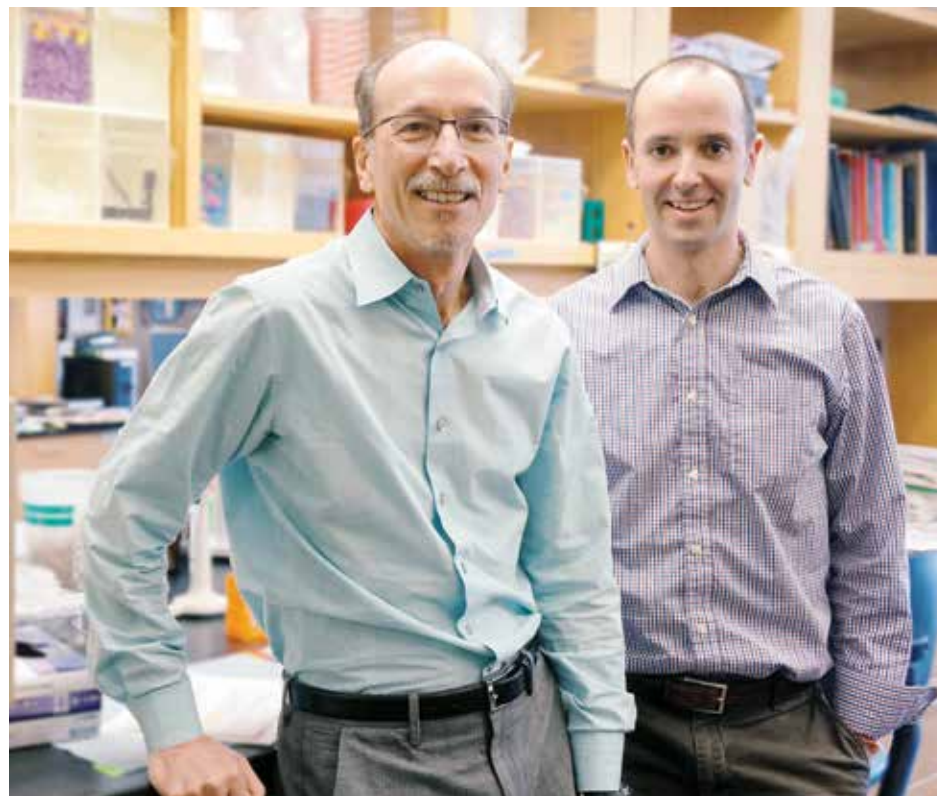
The department faculty is involved with two highly prestigious NIH Program Project Grants to study genetic forms of heart failure and aortic aneurysms. These multi-investigator grants serve as the foundation for collaborative efforts within the department and across institutions (Johns Hopkins, UMass, Univ. Cincinnati, UTSouthwestern, and UPenn). Kathleen Trybus, Ph.D., was awarded a new NIH R21 award to study the molecular basis of malaria parasite movement and cell invasion, while Michael Previs, Ph.D., received a much sought after NIH K99/R00 award for junior investigators to investigate the molecular basis of genetic forms of cardiomyopathies. During this fiscally

## SELECTED HIGHLIGHTS

- Faculty published numerous articles in prestigious journals such as the *Journal of Biological Chemistry*, *Science Advances*, *Molecular Oral Microbiology*, *Cytoskeleton*, and *Molecular Biology of the Cell*.
- Christopher Berger, Ph.D., was honored as a Whitman Research Fellow of the Marine Biological Laboratory in Woods Hole, Mass.
- Michael Previs, Ph.D., received a much sought after NIH K99/R00 award for junior investigators to investigate the molecular basis of genetic forms of cardiomyopathies.

challenging time, the department continues to compete effectively for limited extramural funds, with all tenure-track faculty being funded. The faculty published numerous articles in prestigious journals such as *Proceedings of the National Academy of Science*, *Molecular Biology of the Cell*, and the *Journal of Biological Chemistry*, as well as serving on editorial boards for several journals.

Faculty have been honored as organizers and invited speakers at prestigious international meetings such as Dr. Trybus, who co-chaired the Gordon Research Conference at Mt. Snow, Vermont, on Muscle and Molecular Motors, at which Jason Stumpff, Ph.D., and David Warshaw, Ph.D., were invited speakers. Matthew Lord, Ph.D., presented at the Gordon Research Conference on "Plant and Microbial Cytoskeleton" in Amherst, N.H. Aoife Heaslip, Ph.D., was a speaker at the Wellcome Trust Center Symposium of Molecular Parasitology in Glasgow, Scotland. Christopher Berger, Ph.D., spoke at the World Congress of Biomechanics



Professor and Chair David Warshaw, Ph.D., and Assistant Professor Michael Previs, Ph.D.

in Boston. Michael Radermacher, Ph.D., and Teresa Ruiz, Ph.D., organized a symposium at the Microscopy & Microanalysis Meeting in Hartford, Conn. Dr. Stumpff spoke at the International Dynamic Kinetochore Workshop in Copenhagen, Denmark. Faculty play key service roles on review panels for the NIH and National Science Foundation. Dr. Berger was honored as a Whitman Research Fellow of the Marine Biological Laboratory in Woods Hole, Mass.

In education, faculty contribute substantially to both medical and graduate programs, and have been nominated for teaching awards in the medical school curriculum. Dr. Berger serves as Director of Graduate Education for the College of Medicine and was instrumental in the successful launch of the new Master of Medical Science Degree Program. Drs. Radermacher and Ruiz continue to offer a "Practical Course on Three-dimensional Cryo Electron Microscopy of Single Particles" that attracts over 20 international scientists.



Professor Margaret Vizzard, Ph.D., in her laboratory.

The Department of Neurological Sciences is devoted to becoming one of the best translational research departments in the country through integration of the basic neurosciences with the clinical neurosciences in each of our three missions: research, teaching and clinical care. To this end we continue to foster collaborative interactions between basic scientists and clinicians with shared interests in understanding neurological functions in health and disease. Two areas of investigation have emerged from these interactions involving the study of gastrointestinal symptoms associated with common neurological disorders — specifically, multiple sclerosis (MS) and migraine. Gary Mawe, Ph.D., who studies the enteric nervous system, has teamed up with MS specialist Angela Applebee, M.D., and headache/migraine specialist Robert Shapiro, M.D., Ph.D.,

to initiate new translational studies addressing gastrointestinal symptoms in MS and in migraine.

In fiscal year 2015, Neurological Sciences faculty continued to seek out grant funding with a strong record of success, including a new R01 from the NIH to Marilyn Cipolla, Ph.D., entitled "Targeting Parenchymal Arterioles in Acute Stroke Treatment." Similarly, Margaret Vizzard, Ph.D., was awarded a competing renewal to her R01 from the NIH entitled "Developmental Plasticity of Micturition Reflexes," while Andrew Solomon, M.D., likewise received a renewal of his National Multiple Sclerosis Society pilot project "Misdiagnosis in MS: A Multicenter Database Pilot Study." Rodney Scott, M.D., Ph.D., received additional funding from the NIH in the form of an R25 award entitled "Summer Research Experience in Neuroscience for Undergraduates."

## SELECTED HIGHLIGHTS

- Neurological Sciences faculty published a total of 74 articles in high impact general (*The Lancet*) and specialty (e.g. *Journal of Cerebral Blood Flow and Metabolism*, *Neurobiology of Disease*) journals and served on 40 editorial boards and review committees.
- Faculty members currently oversee 25 active clinical trials relating to the treatment of multiple sclerosis, neuromuscular disorders, epilepsy, myasthenia gravis and movement disorders.

Understanding the basic underpinnings of neurological disorders remains central to our educational and clinical missions. Our clinical programs at the University of Vermont Medical Center continued to provide excellent neurological care to patients throughout FY 2015 while Neurological Sciences faculty remained active in clinical trials.

Dr. Cipolla was chosen as one of four University Scholars for 2015–2016. The University Scholars program recognizes distinguished UVM faculty members for sustained excellence in research, creative, and scholarly activities. Dr. Cipolla has made significant scientific discoveries and contributions to the field of smooth muscle biology encompassing the disciplines of cell biology, pharmacology, and physiology. Her contributions to our understanding of smooth muscle physiology have been applied to the medical disciplines of neurology, including obstetrics and gynecology, where she has made contributions to our understanding of cerebral arteries in stroke and preeclampsia.

Finally, in FY 2015, the department welcomed new educator pathway faculty members Sean Flynn, Ph.D., Liana Merrill, Ph.D., and Sarah McCarthy, Ph.D. as well as new clinical faculty members Argirios Moustakas, M.D. (General Neurology and Neuro-Oncology), Danilo Vitorovic, M.D. (Epilepsy), Alissa Thomas, M.D. (Neuro-Oncology), and Deborah Hirtz, M.D. (Pediatric Neurology).





Assistant Professor and Frymoyer Scholar Anne Dougherty, M.D.

The Department of Obstetrics, Gynecology and Reproductive Sciences has seen a change in divisional leadership in the last year. Elisabeth Wegner, M.D., has taken over the Generalists division, replacing Robert Hayward, M.D., who served as interim director for two years.

Anne Dougherty, M.D., M.A., is in the second year of her Frymoyer Scholar Award focusing on developing a global women's health education program. Along with Marjorie Meyer, M.D., and Cheung Wong, M.D., they have been instrumental in developing the ultrasound and surgical skills of resident and junior attending physicians at Makerere University in Uganda. In June, Mulago National Referral Hospital in Kampala performed their first laparoscopic surgery for the treatment of an ectopic pregnancy under the direction of Drs. Dougherty and Wong. In addition Dr. Dougherty was appointed to the Association of Professors of Gynecology and Oncology Global Health Committee to work on development of national global women's health competencies for medical students. Elise Everett, M.D., organized the first Northern New England Regional Ob/Gyn

Bootcamp, a collaborative resident readiness program coordinating 38 faculty and 13 fourth-year medical students from three New England medical schools.

Stephen Brown, M.D., George Osol, Ph.D., and Ira Bernstein, M.D., all served on National Institutes of Health study sections this year, with Dr. Osol appointed as a regular member of the Pregnancy and Neonatology study section. Elizabeth Bonney, M.D., M.P.H., director of the division of Reproductive Investigation, served as an American Heart Association grant reviewer, and was appointed chair of the Society for Reproductive Investigation, Career Development and Diversity Committee. David Jones, M.D., director of the fetal diagnostic center, was chosen to serve as the vice-chair of the American Institute of Ultrasound in Medicine's Ultrasound Practice Accreditation Committee; Stephanie Mann, M.D., became a member of the Council on Resident Education in Obstetrics and Gynecology exam writing committee; and Nathalie Feldman, M.D., is an American Congress of Obstetricians and Gynecologists expert reviewer for Core Cases educational modules. Dr. Bernstein became a member of

the Preeclampsia Foundation medical advisory board, and the Vermont Oxford Neonatal Network Board of Directors. Dr. Hayward serves as vice-chair of the Vermont Board of Medical Practice.

In research and scholarship, Drs. Osol and Bonney both received new NIH research grant rewards examining venoarterial signaling in the uterine circulation and erythroid cell modulation of T cell function respectively. Drs. Wegner and Jones remain regular contributors to *UpToDate*.

#### SELECTED HIGHLIGHTS

- Faculty published in such journals as *Reproductive Sciences*, *American Journal of Obstetrics and Gynecology*, and *Journal of Vascular Research*.
- Anne Dougherty, M.D., was appointed to the Association of Professors of Gynecology and Oncology Global Health Committee to work on development of national global women's health competencies for medical students.
- Members of the department served on nine study sections or national committees.

The Department of Orthopaedics and Rehabilitation experienced a very productive academic year in 2015. Recruitments, promotions, and awarded grants reflect the ongoing excellence within the department.

David Halsey, M.D., and Adam Shafritz, M.D., were promoted to the rank of Professor in the Clinical Scholar Pathway. Jennifer Lisle, M.D., was promoted to Associate Professor in the Clinical Scholar Pathway. These individuals have distinguished themselves nationally, and

continue to focus a spotlight on the academic excellence of the department.

S. Elizabeth Ames, M.D., our Orthopaedic Surgery Residency Program Director, has assumed the post of chair of The American Orthopaedic Association's Council of Orthopaedic Residency Directors (CORD). This is a position that will significantly influence Orthopaedic Surgery Graduate Medical Education. Dr. Ames continues to refine the evolutionary first-year resident curriculum at The University of Vermont Medical Center. The residency program

continues to draw from a national pool of highly qualified candidates.

We have been fortunate to recruit two new junior faculty. Nathan Morrell, M.D., (hand and upper extremity) and Patrick Schottel, M.D., (orthopaedic trauma) will complement the growing cadre of young faculty members who represent the future of the department.

Timothy Tourville, Ph.D., was awarded a K08 award from the National Institutes of Health. Along with his co-investigators, Michael Toth, Ph.D., and Bruce Beynon, Ph.D., he will investigate skeletal muscle size after ACL injury. James Slauterbeck, M.D., was awarded a research grant from the Orthopaedic Research and Education Foundation (OREF) to evaluate the efficacy of the FIFA 11+ injury prevention program on lower extremity injuries in high school athletes.

Clinically, the Physical Medicine outpatient services have been consolidated with the Orthopaedic Surgery practices at the Orthopaedic and Rehabilitation Center in South Burlington. This move serves to further exploit the clinical synergies within the department.

The department is thriving. Educationally, we are on the cutting edge of resident education. Clinically, we anticipate working within the University of Vermont Health Network to define a strategy and tactics to optimize and coordinate care with our partners. We will continue to engage in inquiry to move the field ahead.

#### SELECTED HIGHLIGHTS

- Orthopaedics faculty published in such journals as *American Journal of Sports Medicine*, *Journal of Orthopaedic Research*, *Journal of Pediatric Orthopaedics*, and the *Journal of Arthroplasty*.
- Faculty serve on over 70 national associations and study sections in the field of orthopaedics.



Professor and Chair Claude E. Nichols III, M.D. at the 2015 White Coat Ceremony.

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

The Department of Pathology and Laboratory Medicine has had a productive year providing patient care at The University of Vermont Medical Center and regional hospitals; training graduate students, post-doctoral fellows, medical students, residents, and clinical fellows; conducting basic science and clinical research; and providing leadership through participation on local and national committees. Faculty have published 106 peer-reviewed papers, seven textbook chapters and one book, have given 68 presentations and 23 posters at conferences, submitted 42 funded grant applications, and taught 19 courses.

The department offers degree-granting research opportunities, a 12-month clinical training fellowship for UVM medical students (since 1956), a medical student and resident exchange program with four medical schools in Japan, and a research and education affiliation with the University of Maastricht.

Our department faculty and staff continue to receive accolades. Lin Kristiansen, MT (ASCP), received the UVM Medical Laboratory and Radiation Sciences Program Breen Award for excellence in medical technologist student teaching. The College of Medicine Class of 2017 recognized Rebecca Wilcox, M.D., with the Foundations Teaching Award, and Pamela

Gibson, M.D., with the American Medical Women's Association Gender Equity Award. Deborah Cook, M.D., was named the Connections Course Director, and Dr. Wilcox was named the Nutrition, Metabolism, Gastrointestinal System in Health and Disease Course Director. Dr. Wilcox and Tamara Williams, Ph.D., became Frymoyer Scholars for integrating genomics into the Vermont Integrated Curriculum. Department faculty comprise about a third of UVM College of Medicine Teaching Academy members, with Dr. Gibson and Doug Taatjes, Ph.D., inducted as Distinguished Educators, the highest level of achievement. Don Dukette from our Autopsy Service received a UVM Medical Center Vision Award for his care of our deceased patients and their families. Christina Wojewoda, M.D., was named an American Society for Clinical Pathology Top 40 Under 40 Pathologist. Russell Tracy, Ph.D., received the Distinguished Scientist Award from the American Heart Association. Finally, Debra Leonard, M.D., Ph.D., received the College of American Pathologists' Lifetime Achievement Award.

Our faculty has obtained over \$9 million in grant funding to study redox biology and pathology, asthma, pulmonary fibrosis, mesothelioma, breast cancer, thrombosis, cardiovascular disease, and improving

laboratory test utilization. Nationally, faculty serve on the American Council for Graduate Medical Education, American Association of Blood Banks, American Heart Association, American Society of Clinical Pathology, American Society of Cytopathology, College of American Pathologists, Institute of Medicine, NHLBI, and NIH committees.

## SELECTED HIGHLIGHTS

- Faculty published in such journals as the *New England Journal of Medicine*, *Journal of the American Medical Association*, *American Journal of Surgical Pathology*, *Diabetes Care*, and *Annals of Internal Medicine*.
- New extramural grants were received from the Department of Defense, the National Heart, Lung and Blood Institute, Vanderbilt University, and the University of Washington.
- Several faculty have received notable awards this year. Christina Wojewoda, M.D., was named an American Society for Clinical Pathology Top 40 Under 40 Pathologist; Russell Tracy, Ph.D., received the Distinguished Scientist Award from the American Heart Association; and Debra Leonard, M.D., Ph.D., received the College of American Pathologists' Lifetime Achievement Award.



Professor Russell Tracy, Ph.D., received the Distinguished Scientist Award from the American Heart Association in 2015.

Lewis R. First, M.D., Chair



Assistant Professor Alicia Viet, M.D., received the Gold Humanism Award and spoke at the 2015 White Coat Ceremony.

During the past year, the Department of Pediatrics and the University of Vermont Children's Hospital maintained and enhanced its academic mission of improving the health of children through clinical, research, educational, and service activities that make a difference for those living in our community, and in turn can be shared with others throughout the country and the world.

Educationally, our department continued to teach actively in all four years of the Vermont Integrated Curriculum. We were fortunate to have our department honored for the third year in a row by the graduating class as Clinical Department of the Year. It was wonderful to see three-fourths of our house staff and a number of our faculty be nominated for the Gold Humanism Award, and to see one of our house staff, Mark Shwayder, M.D., and a faculty member, Alicia Veit, M.D., receive this award. It was also nice to see a third of our house staff nominated for Clinical Resident Teacher of the Year, and again multiple faculty members be named finalists for Clinical Teacher of the Year with Chief of Pulmonology, Thomas Lahiri, M.D., receiving the Graduate Medical Education Teacher of the Year Award. We also awarded second-year resident, Aaron Burley, M.D., the Ann Guillot Prize in Resident Teaching, the first year this award has been given in honor of Dr. Guillot's superb quarter century of being our residency program director.

Executive Director, Judith Shaw, Ed.D., M.P.H., R.N., accepting the national Health Care Delivery Award from the Academic Pediatric Association on behalf of the National Improvement Partnership Network that she also oversees at a national level.

Advocacy efforts also thrived as faculty and house staff participated in numerous community service efforts to overcome food insecurity or improve health care access to immigrant populations arriving into Vermont. Students, residents, and faculty also worked in partnership with families to lobby the state legislature to remove the philosophical exemption on vaccines.

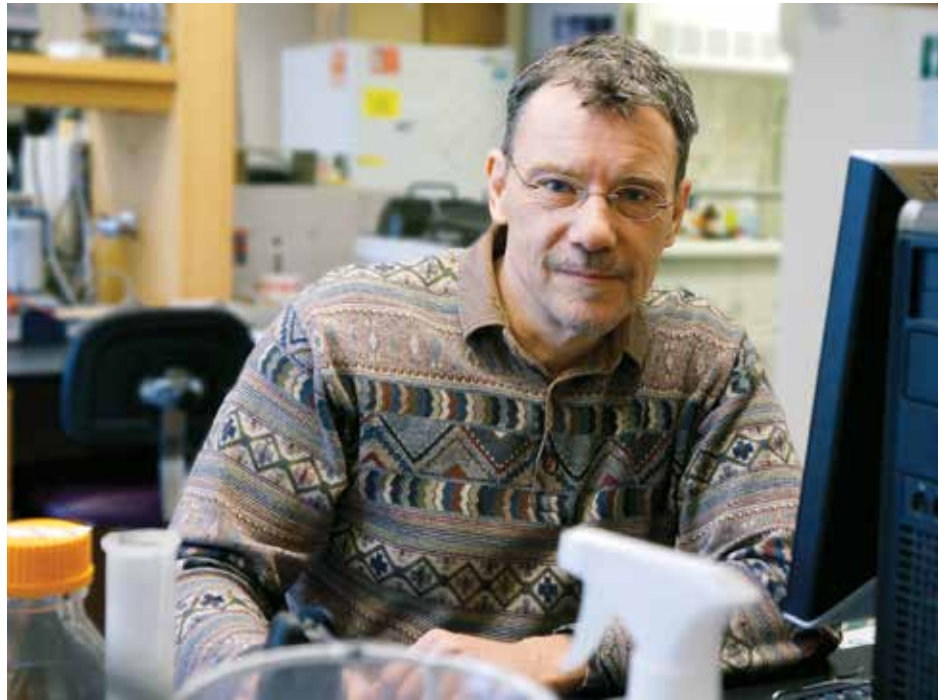
Inpatient and outpatient services demonstrated quality improvements in every clinical area. The initiation of 24/7 hospitalist coverage, combined with a strong emphasis in implementing new initiatives in patient- and family-centered care, led to record high levels of patient and faculty satisfaction, as well as improved quality metrics in our intensive care, inpatient, subspecialty, and primary care divisions.

The department welcomed eight new faculty in 2015, with new faculty joining us in the upcoming year in hematology-oncology, infectious diseases, neonatology, neurology, emergency medicine, pulmonology and quality sciences, and child psychiatry.

We look forward to continuing to foster our educational, research, clinical, and advocacy missions in 2015–2016.

## SELECTED HIGHLIGHTS

- Faculty published in such journals as *Pediatric Pulmonology*, *Palliative Medicine and Care*, and *Pediatrics*.
- Maria Avila, Ph.D., received the University of Vermont Kroepsch-Maurice Excellence in Teaching Award.
- Judith Shaw, Ed.D., M.P.H., R.N., executive director of the Vermont Child Health Improvement Program, was the recipient of a National Health Care Delivery Award from Academic Pediatric Association.



Professor Wolfgang Dostmann, Ph.D.

The Department of Pharmacology, with its international reputation in neurovascular research, continues to play important roles in the research and educational missions of the College of Medicine and the University. Faculty members have been invited to present at important international meetings and academic institutions around the world. The department hosted two international research meetings at UVM for the Fondation Leducq study of cerebral small vessel disease, co-led by Mark Nelson, Ph.D.

Research highlights included the identification of an enzyme, phosphodiesterase 9, by Wolfgang Dostmann, Ph.D., and collaborators from John Hopkins University as the missing culprit in the faulty molecular messaging system that leads to heart failure. A collaboration between Frances Carr, Ph.D., the UVM School of Engineering, the UVM Rubenstein School of Environmental Studies, and the Department of Surgery created a study of the incidence of thyroid cancer in a rural population, which was presented at the Annual Meeting of the Endocrine Society and published in the *Journal of the American Thyroid Association*.

Faculty published over 30 peer reviewed articles in top biomedical journals, and were cited nearly 3,000 times.

Dr. Nelson was honored as the Kaley Lecturer and awarded the American Physiological Society's Reviewer Award at Experimental Biology 2016. He was invited to speak at the National Heart, Lung and Blood Institute/National Institute of Neurological Disorders and Stroke workshop "Small Blood Vessels: Big Health Problems?" with a goal to foster nationwide interdisciplinary collaboration in the broad research area of small blood vessel biology in health and disease. Dr. Nelson became chair of the newly formed Steering Committee for the O'Brien Urology Cooperative Centers for the National Institutes of Health (NIH).

The department is committed to maintaining high quality teaching and mentoring for medical, graduate, advanced undergraduate students, and our many postdoctoral fellows. Faculty efforts include one-on-one research mentoring, didactic lectures in Pharmacology courses, including the Medical Summer Pharmacology, and virtually all courses in the

Foundations level of the Vermont Integrated Curriculum.

The addition of a new non-thesis based master's program and a new accelerated master's program generated significant interest, with twenty new master's students currently enrolled.

The minor in Pharmacology for undergraduates continues to grow with 15 graduates in May 2015 and 37 students currently enrolled including 20 seniors. The department fosters communication and collaboration with faculty and postdocs presenting current research in weekly journal clubs and monthly interactive research forums.

Committed to service, Pharmacology faculty serve on many grant review committees for the National Institutes of Health and the American Heart Association; peer review committees for the American Cancer Society and the American Heart Association; Program Committee for the American Thyroid Association; and on numerous editorial boards including the *Physiological Reviews*, *Journal of Cerebral Blood Flow and Metabolism*, *American Journal of Physiology*, and *Molecular Pharmacology*. Our faculty serve important roles on UVM committees including the Faculty Standards Committee, the Cellular, Molecular and Biomedical Sciences Graduate Recruitment Committee, and several committees for the University of Vermont Cancer Center.

#### SELECTED HIGHLIGHTS

- Mark Nelson, Ph.D., was honored as the Kaley Lecturer and awarded the American Physiological Society's Reviewer Award at Experimental Biology 2016.
- Pharmacology researchers published over 30 articles in top biomedical journals including *Thyroid*, *American Journal of Physiology Heart and Circulatory Physiology*, *Journal of Thrombosis and Haemostasis*, *Journal of Cerebral Blood Flow and Metabolism*, and *FASEB Journal*.
- William Jeffries, Ph.D., contributed two chapters to and was co-editor of the book *An Introduction to Medical Teaching*, 2nd Edition, Springer, 2014.

The past academic year saw the opening of the new Vermont Psychiatric Care Hospital (VPCH), under the medical directorship of Isabelle Desjardins, M.D. UVM psychiatrists are now staffing the UVM Medical Center, VPCH, and the Central Vermont Medical Center (CVMC). Justin Knapp, M.D., Jesse Ritvo, M.D., and David Mooney, M.D., all joined the faculty this year at CVMC.

Also joining the faculty were Elizabeth Jensen, M.D. for an expansion of the Seneca Intensive Outpatient Program; Sanchit Maruti, M.D., for the psychiatry inpatient service and addiction services; and Andrew Rosenfeld, M.D., for child psychiatry.

A new research grant was awarded to Hugh Garavan, Ph.D., to continue his work on functional imaging and genetic correlates of addiction. The neuroimaging group, which also includes Alexi Potter, Ph.D. and Julie Dumas, Ph.D., focuses on impulsivity, the aging brain, development of substance use in adolescents, and risk and resilience in children. Each laboratory has post-doctoral fellows, graduate students, and/or undergraduate students designing and carrying out their own projects utilizing the MRI Center. In addition, Psychiatry faculty continue to mentor junior faculty in other College of Medicine and UVM departments as they learn to apply MRI methods to their own research. Magdalena Naylor, M.D., Ph.D., and her graduate students published and presented extensively on intrinsic brain connectivity changes associated with chronic pain, and its treatment with cognitive behavioral therapy.

The Vermont Center for Children, Youth, and Families, under the direction of James Hudziak, M.D., launched a new residential life program, called the Wellness Environment program, for UVM undergraduate students. The program sponsors a healthy living environment and a set of undergraduate courses linking neuroscience and personal health. Scientists in the center, including Robert Althoff, M.D., Ph.D., and David Rettew, M.D., published 41 peer-reviewed papers covering genetics, epigenetics, neuroimaging, temperament, concussion, trauma, music, exercise, childhood dysregulation, positive child psychiatry, and health promotion and illness prevention.

A.Evan Eyler, M.D., received the Leonard Tow Humanism in Medicine Award presented by the Arnold P Gold Foundation. As the award recipient, he gave the address at the UVM College of Medicine White Coat Ceremony. The Vermont Center on Behavior and Health (VCBH), led by Stephen Higgins, Ph.D., published over 75 articles in scientific journals this year. Members include Diann Gaaelma, Ph.D., Sarah Heil, Ph.D., John Hughes, M.D., and Stacey Sigmon, Ph.D. Among the new grants is a study to help mothers stop smoking and reduce second-hand smoke exposure to children. The VCBH hosted its second annual interdisciplinary conference October 2-3, 2014, to discuss and share strategies for changing the personal behavior patterns that increase health risks and contribute to health disparity problems. More than 150 participants came to Burlington, Vermont from around the country to hear leading scholars share their research.

#### SELECTED HIGHLIGHTS

- Faculty published research in such journals as *Nature*, *American Journal of Geriatric Psychiatry*, *The American Journal of Psychiatry*, and *Pediatrics*.
- The Vermont Center for Children, Youth, and Families, under the direction of James Hudziak, M.D., launched a new residential life program, called the Wellness Environment program, for UVM undergraduate students.
- A.Evan Eyler, M.D., received the Leonard Tow Humanism in Medicine Award presented by the Arnold P. Gold Foundation. As the award recipient, he gave the address at the 2014 UVM College of Medicine White Coat Ceremony.



Associate Professor Stacey Sigmon, Ph.D.

The Department of Radiology continues to gain national and international prestige through cutting-edge quality improvement programs, clinical excellence, technological advancement, radiology educational innovation, and global health initiatives. The department represents the only 24/7 subspecialty radiology referral center in the region, staffed by fellowship trained board-certified radiologists in all of the subspecialties of radiology. Our radiologists participate in over 60 transdisciplinary conferences per month at our institution, serve in leadership roles on many internal and external committees, and during the past year have been invited speakers at numerous conferences. We have a strong and competitive residency training program with 24 residents. This year, we developed a plan with the Office of Medical Student Education to integrate radiology early in the medical student curriculum, with lectures in the Human Structure and Function course and hands-on imaging workshops in the Cardiovascular, Renal and Respiratory Systems course.

The department has expanded its imaging “high reliability” program. In addition to a computed tomography (CT) monitoring system that tracks the lifetime radiation dose for patients, the department is in the process of integrating a decision support software tool into the radiology test ordering process that helps providers know which radiology test is the most appropriate for the disease condition or clinical question being asked. New software in interventional radiology has reduced radiation exposure by up to 50 percent. The department is also using new processes to monitor outcomes for patients when a follow-up radiology test is recommended — all of these measures help to ensure the highest level of quality and safety.

The department has experienced clinical advancements in the last year. In breast imaging, we have increased the use of 3D mammography (tomosynthesis) for screening and diagnostic studies, with 85 percent of studies being performed with the new technique. This has helped reduce our “callback” mammography rate and increased the cancer detection rate. The 3D technology also helps to expedite the diagnostic workup, saving time, anxiety and cost for patients.

The UVM Radiology Lung Cancer Screening Program has provided a means for detection of early stage lung cancer with improved survival. The Lung Cancer Screening Program has been successfully coordinated with the UVM Lung Transdisciplinary Team, offering patients a wide array of treatment options and clinical trials for lung cancer. The UVM Department of Radiology was one of the first sites in the nation to receive the American College of Radiology Designated Lung Cancer Screening certification, which distinguishes this service to patients and providers as providing high quality lung cancer screening services. This service was extended to examinations performed at Central Vermont Medical Center.

Radiology faculty and residents are academically active, presenting abstracts at national and international meetings, co-authoring textbooks, and publishing widely in academic journals. Department faculty collaborated with the departments of Pediatrics, Neurology, Psychology, Psychiatry, Surgery, Anesthesia, and the University of Vermont Cancer Center. The UVM MRI Center was selected to be the lead Philips site for a large \$200 million NIH-funded multi-center study of “Adolescent Behavior and Cognitive



Clinical Instructor Alastair Moore, M.D., demonstrates the use of a new virtual anatomy table.

Development.” The study includes 10,000 children followed over a period of 10 years. Last summer, faculty members from Radiology and Cardiology collaborated to deliver an echocardiography program for detection of rheumatic heart disease to clinics in rural Uganda. As key thought leaders and scientists for industry partners, we inform state-of-the-art imaging technology and advance the field of radiology.

SELECTED HIGHLIGHTS

- Radiology faculty have been lead authors on peer-reviewed papers published in international journals such as *Radiology*, *Radiographics*, *the Journal of Magnetic Resonance Imaging*, and *the Journal of Nuclear Cardiology*.
- The UVM MRI Center was selected to be the lead Philips site for a large \$200 million NIH-funded multi-center study of “Adolescent Behavior and Cognitive Development.” The study includes 10,000 children followed over a period of ten years.
- Twenty-two faculty members serve on national committees or associations.

It has been an exciting and productive year for the Department of Surgery. We have welcomed new faculty in the divisions of Emergency Medicine, Cardiothoracic Surgery, Ophthalmology, Transplant, Urology, and General Surgery. In addition, we are pleased to announce the formation of our new Acute Care Surgery Division, with Division Chief Ajai Malhotra, M.D., overseeing the care of trauma patients, acutely ill general surgery patients, and surgical ICU patients. The newly formed division is designed to provide 24 hours per day/seven days per week in-house care in a timely manner for patients locally and throughout the University of Vermont Health Care Network.

The Transplant Division has developed a new program called The Vermont Antibody Working Group (VAWG). VAWG establishes a collaboration capable of bridging basic and clinical immunology, developing meaningful protocols that will impact clinical outcomes while contributing to the knowledge base of humoral immunity and transplantation.

The Department of Surgery continues to play an important role in the research and education missions of the College of Medicine and the University of Vermont. Surgery faculty published 69 peer-reviewed articles that span clinical, translational, and basic research. The significance of research being conducted in the department is underscored by the increasing level of extramural funding. Highlights this year include a \$3.9 million, multi-year National Institutes of Health (NIH) Collaborative Research Grant awarded to Brian Sprague, Ph.D.; a Komen Foundation and a Mary Kay Foundation Grant awarded to Tom Ahern, Ph.D.; a two-year NIH Exploratory/Developmental Research Grant awarded to Jon Boyson, Ph.D.; and a two-year NIH High Priority/Short Term Project Grant awarded to Peter Zvara, M.D., Ph.D. In addition, our clinical trials program is expanding with clinical trials awarded to Julie Adams, M.D., Daniel Bertges, M.D., Peter Cataldo, M.D., and Kalev Freeman, M.D., Ph.D. The Division of Surgical Research, led by Dr. Boyson, has implemented a new research curriculum this year, which includes bi-weekly seminars led by research professionals in the College of Medicine.



Professor Bruce Leavitt received the H. Gordon Page Surgery Clinical Award for 2015.

The Emergency Medicine Research Associate Program (EMRAP), run by Dr. Freeman, has expanded to include three courses that introduce UVM students to the Emergency Department of our level 1 trauma center. Students learn the basics of clinical research while providing an infrastructure to support ongoing research studies at UVM and the UVM Medical Center. Staff member and instructor Mike O’Keefe of the EMRAP program is the author of the book titled *Emergency Care*, which is on its 13th edition and widely used by EMT programs nationwide.

The Divisions of Neurosurgery and Otolaryngology held the annual Skull Base Dissection course, sponsored by the New England Neurosurgical Society, in January, 2015. Participants from all of the New England Neurosurgery Residency programs are invited, as well as neurosurgeons from the Dominican Republic. The course provides training in endoscopic and open Skull Base Surgery.

SELECTED HIGHLIGHTS

- The following faculty were honored with 2015 Department of Surgery Awards: Bruce Leavitt, M.D., received the H. Gordon Page Surgery Clinical Award; Mariah McNamara, M.D., was awarded the Jerome L. Abrams Teaching Award; Peter Weimersheimer, M.D., received the John H. Davis Service Award; and Brian Sprague, Ph.D., was awarded the James E. Demeules Surgical Research Award.
- Members of the department published research in such journals as the *Journal of the American Heart Association*, *Lancet Oncology*, *Annals of Internal Medicine*, and *the Journal of the National Cancer Institute*.



Professor Ted James, M.D., was selected for the 2015 ASCO Leadership Program.

## University of Vermont Cancer Center

**Gary Stein, Ph.D.,** Director

In the last year, University of Vermont Cancer Center accomplishments drew on the talents of faculty and staff across nearly every academic and clinical department at the UVM College of Medicine and UVM Medical Center, as well as across the University of Vermont and partnering institutions. The Center has grown in the last year from 125 members to just over 150 members — an interdisciplinary team working together to advance cancer research, education and patient care.

Extramural funding awarded to members exceeded \$25 million. The UVM Cancer Center also earned a prestigious American Cancer Society Research Grant (IRG) in 2015. With less than 10 percent of applications funded nationally, the grant is a notable recognition of the unique, team-science approach to cancer research happening at UVM.

Investments in infrastructure and administrative services include the recruitment of new administrative director Kate Webster, BA, CRA; a major restructuring of the clinical research and clinical trials enterprise aimed at meeting expectations of the National Cancer Institute; and growth of technology services such as a renewed Biobank Core Facility.

New clinical faculty were successfully recruited across many areas. In addition,

UVM Cancer Center Deputy Director Claire Verschraegen, M.D., was selected as clinical director for the new Cancer Service Line.

Expanded educational programming included the initiation of an annual Men's Health and Cancer Conference, which builds on nearly 20 years of success for the annual Women's Health and Breast Cancer Conference. A new community advisory board was also recruited to build awareness and support.

### SELECTED HIGHLIGHTS

- UVM Cancer Center members published more than 200 peer-reviewed articles in journals such as *JAMA*, *JAMA Oncology*, and *Journal of the National Cancer Institute*.
- Philanthropic efforts in 2015 included the establishment of an endowed fund for the UVM Cancer Center's oncology rehabilitation program, Steps to Wellness, and Victoria Buffum Endowment support for enhancing the hematology/oncology waiting area.
- Notable honors include: J. Chris Nunnink, M.D., elected to the board of the American Society of Clinical Oncology (ASCO); Ted James, M.D., selected for the ASCO Leadership Program; and Gary Stein, Ph.D., received an honorary degree from the Universidad Andres Bello in Chile.

## Center for Clinical and Translational Science

**Richard Galbraith, M.D., Ph.D.,** Director

The Center for Clinical and Translational Science (CCTS) is dedicated to the pursuit of transdisciplinary research that translates knowledge from the cellular and molecular level into interventions for individuals and populations. The center offers a Certificate, a Master of Science, or a Doctor of Philosophy degree under the auspices of the CCTS Educational Program led by Benjamin Littenberg, M.D. Four faculty members engage in research. They are Indra Neil Sarkar, Ph.D. and Elizabeth Chen, Ph.D., bioinformaticians; Christopher Jones, D.Phil., health care economist; and Thomas Simpatico, M.D., public psychiatry and medical director of the Vermont Medicaid Program. Combining their skills they have forged novel interdisciplinary interactions with others at the University, the UVM Medical Center and throughout the state.

Dr. Sarkar is an ad hoc member of five National Institutes of Health (NIH) study sections, and received three years of NIH funding for his grant "In Silico Identification of Phyto-Therapies." Dr. Chen is principal investigator on an NIH grant, "Leveraging the EHR to Collect and Analyze Social, Behavioral & Familial Factors," and is an ad hoc member on five NIH study

Benjamin Littenberg, M.D., the Henry and Carleen Tufo Chair in General Internal Medicine, heads the CCTS Educational Program.



sections. Dr. Jones is a pilot investigator on Dr. Higgins' Vermont Center on Behavior and Health grant. He reviews for the International Society for Pharmacoeconomics and Outcomes Research, and the Society for Medical Decision Making. Dr. Simpatico is principal investigator on a Department of Veterans Affairs grant, "Supportive Services for Veteran Families." These four investigators, along with Russell Tracy, Ph.D. who directs both the Laboratory for Clinical Biochemistry Research and Translational Technologies in the CCTS, also make their unique skills available to other investigators within the University.

In May of 2015, the UVM Board of Trustees approved the re-alignment of the CCTS to the Office of Clinical and Translational Science. Its mission remains the same.

### SELECTED HIGHLIGHTS

- Elizabeth Chen, Ph.D., et. al. published "The effect of a mobile health decision support system on diagnosis and management of obesity, tobacco use, and depression in adults and children" in *The Journal for Nurse Practitioners*.
- Indra Neil Sarkar, Ph.D., et. al. published "Managing interoperability and complexity in health systems" in *Methods of Information in Medicine*
- Christopher Jones, D.Phil., et. al. published "System Dynamics Modeling Can be Leveraged to Predict Critical Care Pathways and Costs for End Stage Renal Disease: US Population to 2020" in *Journal of Health Economics & Outcomes Research*.



Vermont Center on Behavior and Health faculty and staff members.

## Vermont Center on Behavior and Health

**Stephen T. Higgins, Ph.D.,** Director and Virginia H. Donaldson, M.D.'51 Professor in Translational Science

The Vermont Center on Behavior and Health (VCBH) is developing and sustaining a vibrant interdisciplinary center of research excellence focused on greater scientific understanding of the mechanisms underpinning risk behaviors, and more effective interventions to promote behavior change. Investigators approach these challenges from a behavioral economics conceptual framework through interdisciplinary collaborations within UVM and our community, as well as five other universities — Brown, Kentucky, Wisconsin, Brandeis and Johns Hopkins.

The VCBH, established in 2013, is sponsored in part by a Centers of Biomedical Research Excellence (COBRE) Award from the National Institute on General Medical Sciences, and a Centers of Tobacco Regulatory Science (TCORS) Award from the National Institute on Drug Abuse. VCBH was awarded two new grants this fiscal year, including a \$2.9 million R01 grant from the National Institute on Child Health and Human Development to study 250 women and their children to help mothers to quit smoking, and to decrease secondhand smoke exposure among their young children.

VCBH faculty published approximately 75 articles in scientific journals, and their

work was featured in several national media outlets. A letter to the editor from Stacey Sigmon, Ph.D., (in response to an article about heroin addiction in Vermont) was published in the *New York Times*.

The VCBH continued to host its annual national, interdisciplinary conference, with more than 150 attendees. U.S. Senator Patrick Leahy of Vermont sent a personal video message of support.

VCBH's Lecture Series brought eight speakers to campus. In late July 2014, VCBH trainees participated in a day-long retreat.

### SELECTED HIGHLIGHTS

- The VCBH published its second special supplemental issue of *Preventative Medicine* with 11 of the 19 articles authored by VCBH researchers.
- VCBH researchers published in such journals as *Addiction*, *Journal of the American Medical Association*, and *JAMA Psychiatry*.
- Philip Ades, M.D., VCBH associate director and professor of medicine, was named one of four 2015–2016 University Scholars at UVM.

## Center of Biomedical Research Excellence in Neuroscience

Rodney Parsons, Ph.D., Director

The Center of Biomedical Research Excellence (COBRE) in Neuroscience was created in 2001 by a grant from the NIH National Center of Research Resources to enhance neuroscience research and training infrastructure at the University of Vermont.

This grant supported the creation of two multi-user research cores: an Imaging/Physiology Core, which provides access to sophisticated imaging equipment dedicated to live imaging, and a Cell/Molecular Core, which provides personnel and access to sophisticated equipment required to complete cellular and molecular biology experiments.

The Neuroscience COBRE also created a Translational Core to facilitate interactions between clinical and basic neuroscientists and supported a summer undergraduate research program. During the first ten years of funding, the Neuroscience COBRE supported nine multi-year research projects and eight pilot projects for junior investigators. In 2011, five additional years of NIH support for the Neuroscience COBRE Center was obtained. This transitional COBRE grant provides continued support for the research cores created in the first ten years of COBRE funding and over the first three years, supported four one-year Pilot Projects

in the areas of stroke and neurovascular interactions or neural regulation of autonomic nervous system development, function and disorders.

A highlight of the fourth year was setting up a Yokogawa Spinning Disk confocal microscopy system, which was purchased in the third year through the award of a \$525,000 NIH Shared Instrument grant. This new confocal imaging system is housed in the COBRE Imaging Facility located in the Given Building, and adds a new dimension to imaging capabilities of this multi-user research core. This past year the Neuroscience COBRE provided funds to facilitate recruitment of a new Neurological Sciences faculty member, Matthew Weston, Ph.D. Dr. Weston is an outstanding young investigator who combines biophysical measurements, imaging, and molecular biology approaches to understand neuronal excitability under normal and disease conditions. In sum, the Neuroscience COBRE continues to support research cores that broaden faculty research capabilities, and access to these core facilities has significantly increased the competitiveness of neuroscience faculty for extramural funding.



Assistant Professor of Medicine Sean Diehl, Ph.D.

## Vermont Center for Immunology and Infectious Diseases

Ralph Budd, M.D., Director

The Vermont Center for Immunology and Infectious Diseases (VCIID) is a multidisciplinary team of scientists and clinicians elucidating microbial pathogenesis and the immune response to infections. Our goal is to devise new strategies for the detection, prevention, and treatment of infectious and inflammatory diseases. Our research is also highly relevant to other diseases, such as cancer, autoimmune disorders, and atherosclerosis. The VCIID comprises 26 faculty in eight departments in four UVM colleges who interact on a daily basis through weekly joint research-in-progress meetings. Recent breakthroughs include:

- Genes on the Y chromosome can affect susceptibility of female mice to a model of multiple sclerosis.
- Identification of genes critical for the sporulation of *Clostridium difficile*, a serious hospital-acquired infection.
- A novel protein known as MCJ regulates mitochondrial function that can affect several cell functions, including the immune response during infections.
- Identification of a subset of T lymphocytes known as NKT cells are important for control of lung infection with *Pseudomonas aeruginosa*.

Clinical investigations of infectious diseases are conducted through the College of Medicine's Division of Infectious Diseases, and for autoimmune and rheumatic diseases through the Division of Rheumatology and Clinical Immunology. An important development in 2015 was the opening of the new Vermont Department of Health Building at the UVM Colchester Research Facility, which includes a joint research laboratory with UVM investigators to study complicated infectious organisms.

The center's vibrant research training program for undergraduate and graduate students and postdoctoral fellows is supported by funds from a National Institutes of Health (NIH) COBRE Center of Biomedical Research Excellence (COBRE) Grant and an NIH Training Grant.

An active seminar series brings to campus outstanding investigators in immunology and microbiology. The center also supports core facilities in next-generation sequencing, microarray, bioinformatics, proteomics, cell imaging, and flow cytometry.

The VCIID is affiliated with the UVM Vaccine Testing Center (VTC), a research team committed to decreasing the global burden of infectious diseases. The VTC performs clinical trials of candidate vaccines and monitors the human immune response, and also conducts international field trials of vaccines and therapeutics for infectious diseases. Current vaccine research at the VTC focuses on Dengue, West Nile virus, rotavirus, polio, and cholera.

## Vermont Lung Center

Charles Irvin, Ph.D., Director

The Vermont Lung Center (VLC) at the University of Vermont College of Medicine was established in 1975. Funded by the National Institutes of Health (NIH), the VLC first focused on understanding the fibrotic scarring processes in the lung that leads to restrictive lung disorders and death. Fibrotic lung process is still a current theme of research interest of the center.

Today the center has a number of foci of research that include epithelial biology, immunology/immunity, cell signaling, regenerative medicine, microbial pathogenesis, lung cancer, medical communications, obesity and lung mechanics for which VLC researchers have developed a robust national and international reputation.

This past year has seen the VLC host two international meetings, "Stem Cell Conference" hosted by Dan Weiss M.D., Ph.D. and "Obesity and Metabolism: An Emerging Frontier in Lung Health and Disease" hosted by Anne Dixon, M.D. bring national and international investigators to Vermont.

Multiple members of the VLC serve on NIH review panels, with Charles Irvin, Ph.D., Yvonne Janssen-Heininger, Ph.D. and Albert van der Vliet, Ph.D. chairing study sections this year. Dr. Polly Parson finished her term on the Advisory Council for NHLBI at NIH. VLC

members published 93 peer-reviewed papers during 2015 in high impact journals.

The center's current NIH T32 training grant, that supports four predoctoral and three postdoctoral fellows, was recently renewed with a perfect score. Training grants are given to programs that provide outstanding training in developing a research career in pulmonary sciences and lung disease. Faculty continue to enjoy robust extramural research support from NIH and the private sector. The center's third and final funding cycle as a NIH NIGMS Center of Biomedical Research Excellence (COBRE) was successfully completed in 2015. The Center is now sustained by a robust portfolio of extramural support with 30 externally sponsored grants and nine internal grants plus philanthropy that established a visiting professor lecture seminar series. Eleven of the external grants are sponsored by foundations and 19 are sponsored by NIH or DOD. The grants from the NIH include: eight R01s and two R21s as well as a U13, R13, T32, F31, F32, and K99/R00. Lastly, we have a robust clinical research program with 56 open protocols that involves patients with asthma, COPD, acute lung injury, cystic fibrosis, idiopathic pulmonary fibrosis and lung cancer in cutting edge clinical trials to better understand lung disease pathogenesis and develop better treatments.



Neuroscience Graduate Program faculty member Assistant Professor of Surgery Kalev Freeman, M.D., Ph.D.



Professor of Medicine and VLC member Anne Dixon, M.D.

# 2015 PHILANTHROPY

FISCAL YEAR 2015  
PHILANTHROPIC  
SUPPORT

\$12.4  
million  
NEW GIFTS & PLEDGES  
FY 2015

5,360  
TOTAL DONORS  
FY 2015

The College of Medicine gratefully acknowledges private support received in fiscal year 2015 (July 1, 2014–June 30, 2015). In the event that any of the information presented in this report is incomplete or inaccurate, please accept our apologies and notify the UVM Foundation Medical Development & Alumni Relations office at (802) 656-4014.

The University publicly announced “Move Mountains: The Campaign for the University of Vermont” in early October, celebrating the more than \$247 million already raised in the campaign toward the goal of \$500 million.

Giving to the College of Medicine for fiscal 2015 totaled \$12.4 million, and represented a significant part of the University’s record-setting total of \$60.5 million. The College of Medicine received a total of nearly \$4.9 million in new gifts, more than \$2.1 million in new pledges, and more than \$5.3 million in new bequests.

A notable gift that helps the College fulfill its educational mission is the Department of Pathology and Laboratory Medicine Student Fellowship Endowment. Founded in 1956, it is one of the oldest programs of its kind in the country. More than \$540,000 has been raised to date, and, under the leadership of Chair of Pathology and Laboratory Medicine Debra Leonard, M.D., Ph.D., faculty of the department this year agreed to dedicate \$250,000 to the fellowship.

Thanks to our loyal graduates, the College continues to be among the top five medical schools in the nation for percentage of alumni support, with more than 32 percent of alumni participating in annual giving this year. Among the many notable alumni gifts were:

**UPTON FAMILY SCHOLARSHIP:** Assistant Professor of Psychiatry Michael Upton, M.D.’94, and members of his family — which includes four generations of College of Medicine graduates dating back to the 1890s — established this scholarship to help support the education of future Vermont medical students through gifts totaling \$200,000.

**VERMONT LUNG CENTER ENDOWMENT:** John Ouellette, M.D.’60 and Sally Ouellette established the Vermont Lung Center’s first endowment to support an annual lecture, which will bring nationally renowned respiratory and allergy specialists to campus to present on key topics and interact with researchers and clinicians.

**PAULINA P. CAIN ENDOWMENT:** To honor his mother, Paul Cain, M.D.’81 and Kathryn Cain established the first-ever endowment to support the Steps to Wellness Program at the UVM Cancer Center, a unique rehabilitation program designed specifically for oncology patients at a critical time in their recovery.

In an intensive fundraising “blitz” of less than three weeks, the first-ever “Match Day Challenge” raised more than \$100,000 from over 500 alumni donors to support the College of Medicine Fund and its work to foster student support programs. This was far in excess of the original goal of this drive, and one more indication that, when it comes to helping our students, our alumni are more than up to the challenge.



**Kevin McAteer**  
Chief Development Officer for Academic Health Sciences



Ira Allen’s statue on the UVM Green.

## Ira Allen Society

The Ira Allen Society recognizes UVM’s most loyal donors by acknowledging individuals whose cumulative lifetime gifts and commitments to UVM reach or exceed \$100,000, with special recognition given to donors of \$1 million or more.

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Timothy Stanford Colton, D.D.S.	Margaret Ireland	H. Gordon Page, M.D.’45 & Mary Jane Cahill	Michael Dodds Upton, M.D.’94
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	Samuel B. Labow, M.D. & Michelle Labow	Jeffrey J. Pomerance, M.D.’66	Melvyn H. Wolk, M.D.’60 & Marilyn Wolk
	Robert Lamer, M.D.’42 & Helen Lamer	Charlotte Vayda Poston	

\* indicates deceased











## Named Lectureships As of June 30, 2015.

**John Abajian, Jr.** — **John E. Mazuzan, Jr.**  
Endowed Lectureship in Anesthesiology

**Arnold H. Colodny, M.D.**  
Endowed Visiting Professorship in Pediatric Surgery

**John H. Davis, M.D.**  
Endowed Lectureship in Surgery

**E. Stanley Emery**  
Endowed Lectureship in Pediatric Neurology

**Stanley S. Fieber, M.D.'48**  
Annual Lecture in Surgery

**Bruce A. Gibbard, M.D.**  
Endowed Lectureship in Psychiatry

**Nathaniel Gould, M.D.'37**  
Endowed Foot and Ankle Lecture in Orthopaedics

**Vito D. Imbasciani, M.D.'85 and George DiSalvo**  
Endowed LGBTQ Lectureship

**Madison Jaurigue**  
Endowed Lectureship in Neurosurgery

**Samuel B. & Michelle D. Labow**  
Endowed Lectureship in Surgery

**Albert Mackay, M.D.'32 and H. Gordon Page, M.D.'45**  
Annual Lecture in Surgery

**Richard M. Narkewicz, M.D.'60**  
Endowed Lectureship in Pediatrics

**John J. Ouellette, M.D.'60 and Sally Ouellette**  
Endowed Lectureship in the Vermont Lung Center

**Hillel S. Panitch**  
Endowed Lectureship in Neurology

**George A. Schumacher, M.D.**  
Endowed Lectureship in Neurology

**Steven R. Shackford, M.D. — Samuel B. Labow, M.D.**  
Endowed Lectureship in Quality

**Norman J. Snow, M.D.'70**  
Annual Lecture in Thoracic Surgery

**Martin H. Wennar, M.D.**  
Lectureship in Professionalism



Rochelle Dicker, M.D.'95 delivered the 2015 Wennar Lectureship in Professionalism at the College of Medicine on October 21, 2015.

## Foundations Awards

Awarded by the Class of 2017 to departments, faculty, and staff.

**Above and Beyond Award**  
Ellen Black, Ph.D.

**American Medical Student Association Golden Apple Award**  
Ellen Black, Ph.D.

**American Medical Women's Association Gender Equity Award**  
Pamela Gibson, M.D.

**Best Support Staff**  
Michael Goedde, M.D.

**Wellness Award**  
I-Hsiang Shu'17

**Foundations Course Director of the Year**  
William Raszka, M.D.

**Foundations Teacher of the Year**  
Rebecca Wilcox, M.D.

**Outstanding Foundations Course**  
Cardiovascular, Respiratory and Renal Systems

**Outstanding Teaching Assistant**  
Albert Emery, M.D.

**The Silver Stethoscope Award**  
William Hopkins, M.D.

**Standardized Patient Award**  
Edward Stone

**The Leonard Tow Humanism in Medicine Award**  
Alicia Veit, M.D.

**The Dean Warshaw Integration Award**  
William Raszka, M.D.



Associate Professor of Pathology and Laboratory Medicine Rebecca Wilcox, M.D., was named the Foundations Teacher of the Year by the Class of 2017.

## Endowed Chairs & Professorships As of June 30, 2015 unless otherwise specified. Listed chronologically by year created.

**The Thayer Professorship in Anatomy (1910)**  
Gary Mawe, Ph.D.

**Elliot W. Shipman Professorship in Ophthalmology (1934)**  
Brian Kim, M.D.

**Ernest Hiram Buttles, M.D.'08 Chair in Pathology (1984)**  
John Lunde, M.D.  
*(Pamela Gibson, M.D., became the Buttles Professor in Oct. 2015.)*

**McClure Professorship in Musculoskeletal Research (1987)**  
Bruce Beynon, Ph.D.

**E.L. Amidon, M.D.'32 Chair in the Department of Medicine (1989)**  
Polly Parsons, M.D.

**Harry W. Wallace Professorship in Neonatology (1995)**  
Roger F. Soll, M.D.

**Henry and Carleen Tufo Chair in General Internal Medicine (1999)**  
Benjamin Littenberg, M.D.

**S.D. Ireland Family Professorship in Surgical Oncology (1999)**  
David N. Krag, M.D.

**Roger H. Allbee, M.D.'31 Professorship in Surgery (2000)**  
Jonathan Boyson, Ph.D.

**Robert B. and Genevieve B. Patrick Chair in Nephrology (2000)**  
Richard Solomon, M.D.

**John Van Sicken Maeck, M.D.'39 Chair in Obstetrics and Gynecology (2000)**  
Ira Bernstein, M.D.

**Stanley S. Fieber M.D.'48 Chair in Surgery (2002)**  
Mitchell Norotsky, M.D.

**Duncan W. Persons, M.D.'34 Green & Gold Professor in Ophthalmology (2003)**  
Vacant

**Cordell E. Gross, M.D. Green & Gold Professor in Neurosurgery (2005)**  
Bruce Tranmer, M.D.

**Mary Kay Davignon Green & Gold Professor (2005)**  
C. Lawrence Kien, M.D., Ph.D.

**John P. and Kathryn H. Tampas Green & Gold Professor in Radiology (2005)**  
Kristen DeStigter, M.D.

**Albert G. Mackay, M.D.'32 and H. Gordon Page, M.D.'45 Professor in Surgical Education (2005)**  
James Hebert, M.D.

**Michelle D. & Samuel B. Labow, M.D. Green & Gold Professor in Colon & Rectal Surgery (2005)**  
Peter Cataldo, MD

**A. Bradley Soule and John Tampas Green & Gold Professor in Radiology (2005)**  
Jeffrey Klein, M.D.

**R. James McKay Jr., M.D. Green & Gold Professor in Pediatrics (2005)**  
Marshall L. Land Jr., M.D.

**Jerold F. Lucey, M.D. Chair in Neonatal Medicine (2007)**  
Jeffrey Horbar, M.D.

**Thomas M. Achenbach Chair in Developmental Psychopathology (2007)**  
James J. Hudziak, M.D.

**Irwin H. Krakoff, M.D. Green & Gold Professor in the University of Vermont Cancer Center (2007)**  
Claire Verschraegen, M.D.

**Robert A. Pierattini, M.D. Green & Gold Professor (2008)**  
Vacant

**Roy Korson, M.D. and Lorraine Korson, M.S. Green & Gold Professor of Pathology (2011)**  
Vacant

**Frank P. Ittleman, M.D., Professor in Surgery (2013)**  
Frank P. Ittleman, M.D.

**Peter Weimersheimer, M.D., Professor in Emergency Medicine (2013)**  
Peter Weimersheimer, M.D.

**The Virginia H. Donaldson, M.D.'51 Professor (2014)**  
Stephen Higgins, Ph.D.

**Sarah Nichols Gruenig Green & Gold Professor (2014)**  
John Leahy, M.D.

**The Robert W. Hamill, M.D. Green & Gold Professor in Neurological Sciences (2014)**  
Vacant

**The Green & Gold Professor of Emergency Medicine (2014)**  
Vacant

**The Green & Gold Professor of General Surgery (2014)**  
Vacant

**The Green & Gold Professor of Neurosurgery (2014)**  
Vacant

**The Green & Gold Professor of Ophthalmology (2014)**  
Vacant

**The Green & Gold Professor of Otolaryngology — Head & Neck Surgery (2014)**  
Vacant

**The Green & Gold Professor of Pediatric Surgery (2014)**  
Vacant

**The Green & Gold Professor of Plastic Surgery (2014)**  
Vacant

**The Green & Gold Professor of Surgical Oncology (2014)**  
Vacant

**The Green & Gold Professor of Surgical Research (2014)**  
Vacant

**The Green & Gold Professor of Transplant Surgery and Immunology (2014)**  
Vacant

**The Green & Gold Professor of Trauma and Critical Care (2014)**  
Vacant

**The Green & Gold Professor of Urology (2014)**  
Vacant

**The Green & Gold Professor of Vascular Surgery (2014)**  
Vacant

**The Robert Larner, MD'42 Professor in Medical Education (2015)**  
Kathryn Huggett, Ph.D.

**The Arthur Jason Perelman, MD'52 Professorship in the University of Vermont Cancer Center (2015)**  
Vacant

## Class of 2015 Academic Awards and Honors

### The Alpha Omega Alpha Honor Medical Society

Students elected to this honor society, in the opinions of their classmates and the faculty, have given promise of becoming leaders in their profession.

Liz Abernathy  
Raymond Addante  
Kristopher Azevedo  
Kovi Bessoff  
Bryan Brown  
Christian Crannell  
Alison Frizzell  
Sarah Gardner  
Charlie Hackett  
Jason Hao

Ryan Hendrix  
Calvin Kagan  
Jessica Lane  
Matthew MacKinnon  
James McAvoy  
Nicole Meredyth  
Anisha Patel  
Amanda Peel  
Michelle VanHorne  
Hope Yu

### The Gold Humanism Honor Society

Students elected to this honor society are recognized for their demonstrated excellence in clinical care, leadership, compassion, and dedication to service.

Liz Abernathy  
Zoe Agoos  
Medhavi Bole  
Benjamin Brown  
Bryan Brown  
Bruno Cardoso  
Benjamin Clements  
Jessie Evangelista  
Charles Hackett  
Colleen Kerrigan

Colin King  
Elizabeth Landell  
Tyler Lemay  
James McAvoy  
Marissa Mendez  
Nicole Meredyth  
Anisha Patel  
Amanda Peel  
Kathleen Root  
Peter Wingfield

### The American Academy of Neurology Medical Student Prize

for excellence in Neurology  
Alison Woodhull Frizzell

**The Ellsworth Amidon Award** for outstanding proficiency in Internal Medicine  
Amanda Brooks Peel

**The David Babbott, M.D. Caring and Seeing Award**  
Kristopher Locke Azevedo

**\*The Dean William Eustis Brown Award** for broad cultural interests, and loyalty to the College of Medicine  
John Paul Kelada

**The Ernest H. Buttles Award** for excellence in Pathology  
James Christian McAvoy

**The Carbee Award** for academic excellence in Obstetrics, Gynecology and Reproductive Sciences  
Hayley Jane MacKinnon

### The James E. Demeules Surgical Research Prize

**First place:** Adam Nicholas Paine  
**Second place:** Ryan James Hendrix  
**Third place:** Nicole Alyssa Meredyth



John Paul Kelada, M.D.'15 accepting the Dean William Eustis Brown Award from Associate Dean for Students Christa Zehle, M.D.'99.

## Class of 2015 Academic Awards and Honors (continued)

### The Family Medicine John P. Fogarty, M.D. Leadership Award

Charles Stern Hackett

### The Edward E. Friedman Award for promise of excellence in the practice of Family Medicine

Zoe Alexandra Fiedler Agoos

### The Dr. & Mrs. Nathaniel Gould, M.D.'37 Prize for outstanding achievements in Orthopaedic Surgery

Bryan David Brown

### The Harry Howe, M.D.'52 Senior Student Award for excellence in Surgery

Nicole Alyssa Meredyth

### The Kerzner Family Prize for service to the community

Tamar Neshama Goldberg

### The Lamb Fellowship Award for best exemplifying concern care for the total patient\*

Medhavi Boleand

### The John V. Maeck, M.D.'39 Robe Recipient for overall excellence in Obstetrics, Gynecology and Reproductive Sciences

Emily Anne Schloff

### The Herbert Martin Sr., M.D. Award for excellence in Neurology

Jenna Lee Ford  
Kara Catherine Landry  
John Steele Taylor

### The John E. Mazuzan Jr., M.D.'54 Award for excellence in Anesthesiology

James Christian McAvoy

### The H. Gordon Page, M.D.'45 Award for excellence in Surgery

William Christian Crannell

### The Leonard Tow Humanism in Medicine Awards presented by The Arnold P. Gold Foundation for excellence in both compassionate patient care and scientific achievement.

**Faculty:** Alicia Veit, M.D.

**Student:** Jessie Elizabeth Evangelista

### The Pilcher Award for representing the qualities of Eleanor & Lewis Pilcher of devotion to family and patients, with a high regard for ethics and honesty

Elizabeth Landell

### The Radiology Achievement Award for excellence in Radiology

Jason Jiachen Hao

### The Mimi A. Reardon, M.D.'67 Award for service to the University of Vermont College of Medicine

Benjamin R. Clements  
Emily Anne Schloff

### The B. Albert Ring, M.D. Memorial Grant Award for best exemplifying compassion, humor, humility, devotion to family and friends, and intellectual curiosity

Benjamin Hanks Brown

### The Charles T. Schechtman, M.D.'26 Award for Clinical Excellence

**First place:** James Christian McAvoy

**Second place:** Alison Woodhull Frizell

**Third place:** Elizabeth Abernathy

**Fourth place:** Charles Stern Hackett

**Fifth place:** Amanda Brooks Peel

### The Durwood Smith Award for excellence in Pharmacology

James Christian McAvoy

### The Society for Academic Emergency Medicine Award for excellence in Emergency Medicine

Alison Woodhull Frizell

### Summer Research Fellowship Merit Awards

Medhavi Bole

Whitney Grace Creed

Adam Nicholas Paine

### The Ralph D. Sussman, M.D.'38/Medical Alumni Award for excellence in Pediatrics

Anisha Patel Srinivasan

### The William Sweetser Award for excellence in Psychiatry

Matthew William MacKinnon

### The Joseph B. Warshaw, M.D. Scholarship Award for M.D. – Ph.D. thesis excellence

Kovi Ethan Bessoff

### The Henry & Phyllis Wasserman Phorplus Prize for excellence in the Basic Sciences

Jason Jiachen Hao

James Christian McAvoy

### The Laura Weed, M.D. Award for qualities of excellence, service, and commitment in Internal Medicine

Calvin Maxim Kagan

### \*The Wellness Award from the Committee on Medical Student Wellbeing, for a peer-nominated student who has been an asset to his or her classmates and displayed sincere dedication to helping others during his or her medical education

Anisha Patel Srinivasan

### The Ephraim Woll Award for excellence in General Pathology

James Christian McAvoy

## Scholarship Support

Choosing to become a physician requires a love of medicine and a commitment to caring, and an investment in hard work, dedication and sacrifice. Philanthropic support of the students who make that commitment is not only an investment in the future, but an opportunity to share in their success as they make a difference with their patients, in their communities, and around the world. We are grateful to the supporters of the following scholarship and loan funds that provide assistance to medical students at the University of Vermont College of Medicine.

Benjamin Adams, M.D.1909 Fund  
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H. David Reines, M.D.'72 (center) and his wife, National Public Radio correspondent Nina Totenberg (right), who have established a scholarship fund in their name, join Dean Rick Morin and Tracy Morin at Commencement 2015. Nina Totenberg received an honorary degree from the University at Commencement.

Edith Kidder Fund  
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The Little Family Fund  
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Bruce R. MacKay, M.D.'57 and Phyllis Davis MacKay Fund  
John Van Sicklen Maeck, M.D.'39 Fund  
John E. Mazuzan, Jr., M.D.'54 Fund ●  
P.E. McSweeney Fund  
A. Rees Midgley, M.D.'58 and Jane Wilson Coon, Ph.D. Fund ●  
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Bartlett H. and Mable L. Stone Fund  
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University of Vermont Medical Alumni Association Fund  
Upton Family Fund  
Louis L. and Mary C. Vayda Fund ●  
Charles Flag Whitney, M.D.'42 & Joan Goddard Whitney Fund  
Morris S. Wineck, M.D.'15 Fund ●  
Winokur Family Fund  
Keith Wold, M.D.'51 and Elaine Wold Fund

● UVM Medical Alumni Association Challenge Scholarship



Mildred Reardon, M.D.'67 congratulates Class of 2015 members Emily Schloff and Benjamin Clements, recipients of the award named in honor of Dr. Reardon.

\* indicates awarded by vote of the class



October 23, 2015  
4:05 p.m.

Class of 2019 members who have just received their white coats make use of the “selfie zone” at the post-ceremony reception.

photograph by Andy Duback



View videos and photos of the White Coat Ceremony.  
Go to: [uvm.edu/medicine/vtmedicine](http://uvm.edu/medicine/vtmedicine)



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