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When I Grow Up

# Vitae:

The Magazine of  
The University of Massachusetts Medical School



'World-Class' Discovery



Making It Real

## Vital: the plural of life

The name of this magazine encompasses the lives of those who make up the University of Massachusetts Medical School community, for which it is published. They are students, faculty, staff, alumni, volunteers, benefactors and others who aspire to help this campus achieve national distinction in education, research and public service.

As you read about this dynamic community, you'll frequently come across references to partners and programs of UMass Medical School (UMMS), the Commonwealth of Massachusetts' only public medical school, educating physicians, scientists and advanced practice nurses to heal, discover, teach and care, compassionately.

### **Commonwealth Medicine**

UMass Medical School's innovative public service initiative that assists state agencies to enhance the value and quality of expenditures and improve access and delivery of care for at-risk and uninsured populations.

### **The Research Enterprise**

UMass Medical School's world-class investigators, who make discoveries in basic science and clinical research and attract over \$175 million in funding annually.

### **UMass Memorial Foundation**

The charitable entity that supports the academic and research enterprises of UMass Medical School and the clinical initiatives of UMass Memorial Health Care by forming vital partnerships between contributors and health care professionals, educators and researchers.  
[www.umassmed.edu/foundation](http://www.umassmed.edu/foundation)

### **UMass Memorial Health Care**

The clinical partner of UMass Medical School and the Central New England region's top health care provider and employer. [www.umassmemorial.org](http://www.umassmemorial.org)



# Vita<sub>a</sub>e: Contents

News and Notes	2
Features	7
Grants and Research	20
Alumni Report	22
The Last Word	28



## When I Grow Up

7

*Graduate School of Biomedical Sciences alumna Loree Griffin Burns, PhD '98, moved from practicing science to writing about it—for kids.*



## 'World-Class' Discovery

10

*UMass Cancer Center Director Dario Altieri, MD, receives a unique federal award to seamlessly guide a disease-killing compound from lab to clinic.*

## Making It Real

14

*At UMass Medical School, simulated patient experiences in medical education enjoy a healthy history—and a technological tomorrow.*

## UMMS Ranks Fourth in Nation in Primary Care Education



UMass Medical School repeated its fourth place ranking in primary care education among the nation's 125 accredited medical schools and 19 schools of osteopathic medicine in weekly news magazine *U.S. News & World Report's* annual review, "America's Best Graduate Schools."

"Through unparalleled service and education, our outstanding faculty has a lasting and profound impact on the health of the Commonwealth and the nation," said Chancellor and Dean Aaron Lazare. "It's greatly rewarding to

see public affirmation of our efforts to provide high quality, primary care education to tomorrow's physicians."

In the *U.S. News* listing of top PhD programs, UMMS ranked 51<sup>st</sup>, through its Graduate School of Biomedical Sciences, and in the category of top research schools—48<sup>th</sup>. Beyond its core mission of distinction in health sciences education, the past decade has seen UMMS explode onto the national scene as a major center for research.

"UMass has shown great successes in countless areas of public higher

education, thanks to the remarkable contributions of scores of the Commonwealth's most brilliant thinkers," said University of Massachusetts President Jack M. Wilson. "The Medical School is a vibrant and exciting institution that has built a stellar reputation as a magnet for the highest caliber leaders in medicine, research and public service. We applaud Dr. Lazare and his colleagues for setting the standard of quality in medical education." ©

## Antibody Shows Potential for Lung Cancer Therapy

While attempting to yield new data about receptors that control the development of the body's infection-fighting T-cells, researchers at UMass Medical School developed a monoclonal antibody, DMF 10, which they found is a likely treatment for lung cancer.

Created in the laboratory of Kenneth L. Rock, MD, professor and chair of pathology, DMF 10 destroys lung cancer cells by binding to the surface of tumor cells and initiating apoptosis, an internal cellular

mechanism that causes the cancer cells to self-destruct without affecting healthy tissue. The antibody also helps direct other natural immune mechanisms to target and kill the tumor cells, and it is particularly effective against human lung cancer cells.

"Lung cancer is a devastating disease and we sorely need better, more effective therapeutics for it," Dr. Rock said. "While we still have some important work ahead of us, I believe this antibody has excellent prospects to be developed

as a new therapy for lung cancer and perhaps other tumors."

To further the clinical development of the antibody, and to make the necessary modifications that will allow for DMF 10 to be tested in people, UMMS has partnered with EvoGenix, a leading antibody therapeutics company in Sydney, Australia. EvoGenix has licensed the rights to DMF 10 and Rock will join the company's scientific advisory board to help direct further development of the antibody. ©



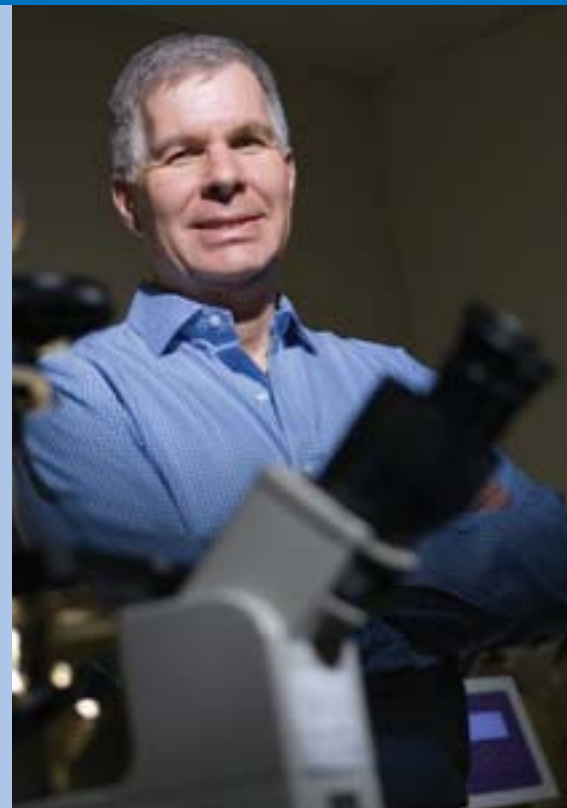
"Magnificent 7" (left) is one of over 140 teams whose members honor cancer survivors — as well as those lost to the disease — at the annual Walk to Cure Cancer on the UMMS campus. Thousands will join "The 7" to raise funds for cancer research on September 10, 2006, at noon. For information, visit [www.walktocurecancer.com](http://www.walktocurecancer.com).

## New Cancer Biology Program Offered to Students

The Graduate School of Biomedical Sciences and the Department of Cancer Biology are prepared to take cancer research at UMass Medical School to a new level with the establishment of the PhD Program in Cancer Biology. Working closely with physicians beginning early in their doctoral education, Cancer Biology students will conduct translational studies—basic scientific research with direct implications for improving clinical prevention, diagnosis and treatment of human cancers. “Exposing the next generation of cancer biologists to study of the disease itself early in their careers will lead to better scientific inquiries,” explained Arthur M. Mercurio, PhD, professor and vice chair of Cancer Biology and the new PhD program’s director. The innovative curriculum features a first-year foundational course covering

tumor pathology, cancer medicine and cancer biology, followed by advanced courses in these and other topics including biochemistry, genetics, and molecular and cell biology. Monthly conferences will bring together scientists, physicians and students to explore common interests and identify mutual goals for research, clinical trials and patient care.

Dr. Mercurio was recruited to UMMS in 2004 from Harvard Medical School and brings more than 20 years of experience in tumor cell biology to the new PhD program. His laboratory is currently studying the mechanisms that contribute to the metastasis, or spread, of solid tumors like breast and colon cancers. Metastasis causes most of the morbidity and mortality associated with cancer and is thus a key target of Cancer Biology’s translational research. ©



Professor and Vice Chair of Cancer Biology Arthur Mercurio, PhD, is the new program’s director.

## Achievements in Medicine, Nursing and Science Celebrated



School of Medicine graduate Lara Antkowiak checks on her fellow graduate Tobin Abraham before ceremonies begin. Abraham was the SOM class speaker; Destin Heilman spoke for the GSBS and Patricia MacCulloch for the GSN.

The University of Massachusetts Worcester awarded 160 degrees, including two honorary degrees, at its 33rd Commencement Exercises held at Mechanics Hall in Worcester on June 4. Graduates of the institution’s three schools—the School

of Medicine, the Graduate School of Biomedical Sciences and the Graduate School of Nursing—were inspired by keynote speaker Catherine D. DeAngelis, MD, MPH, editor-in-chief of *The Journal of the American Medical Association*, whose own career has included roles as a registered nurse, an early advocate of nurse practitioners, an epidemiological researcher, an academic and a practicing physician.

Dr. DeAngelis was recently recognized by the National Library of Medicine in its “Changing the Face of Medicine: Celebrating America’s Women Physicians” exhibition—recently on display in the UMMS Lamar Soutter library—that celebrates the lives and careers of some of America’s extraordinary women physicians from the

19th century to the present day. In her current role as editor-in-chief of *JAMA*, DeAngelis has made an effort to publish substantive scientific articles on women’s health issues.

Honorary degrees were awarded to Barbara R. Greenberg, a community leader in Central Massachusetts who has been a vital force for UMass Medical School and UMass Memorial Health Care as chair of the UMass Memorial Foundation Board of Directors, and Paul La Camera, general manager of WBUR, who began his relationship with UMMS in 1993 when his son, Peter, was a first-year student; that year, he and his wife, Mimi, established the UMass Medical School Parents Association. ©



Evgeny Rogaev, PhD, and colleagues found that the woolly mammoth and Asian elephant, sister species, diverged soon after their common ancestor split from the African elephant lineage.

With results supported by the oldest mitochondrial genome sequence determined to date from the remains of a mammoth that died approximately 33,000 years ago, Evgeny I. Rogaev, PhD, a professor of psychiatry at UMass Medical School and professor of genetics at the Russian Academy of Medical Sciences, and colleagues from the Brudnick Neuropsychiatric Research Institute, Russian Academy of Sciences, Moscow State University and the University of California-San Diego have weighed in on the debate over the genetic

## Scientists Report DNA Sequencing of Extinct Mammoth

relationships between woolly mammoths and elephants.

Dr. Rogaev and his collaborators reported the sequence of the complete mitochondrial genome of a woolly mammoth extracted from permafrost-preserved remains from the Pleistocene epoch, a period of time usually dated from between 1.6–1.9 million to about 10,000 years before present. Their study demonstrates that the woolly mammoth and the Asian elephant are a sister species that diverged soon after their common ancestor split from the lineage of the African elephant.

DNA in the cell's mitochondria offered Rogaev and colleagues valuable information on evolutionary development. Distinct from nuclear DNA, mitochon-

drial DNA possesses its own genome that exists outside of the cell nucleus and is inherited only from the mother, allowing for the tracing of a more direct genetic line.

“The reconstruction of an animal's evolutionary history based on complete mitochondrial sequence analysis is a powerful method to determine the relationship between closely related extinct and extant species,” said Rogaev. “However, data from both mitochondrial and nuclear DNA may offer further information on the development of a species. Given the unique quality of some specimens from mammoths found in Siberia, nuclear DNA may potentially be recovered and used for further confirmation of the results of this study.”

## WPC Celebrates Ten Years of Opportunity

This year marks the tenth anniversary of the Worcester Pipeline Collaborative (WPC), founded by UMass Medical School and local educational, community and business partners to provide minority and economically disadvantaged students the opportunity to gain the scientific and mathematic literacy necessary to thrive as members of the workforce, particularly in the health, science and biotechnology industries.

“This partnership serves as a national model of collaboration between local schools and an academic health sciences center that prepares a more diverse health care workforce,” said

Associate Vice Chancellor for School Services Deborah Harmon Hines, PhD. “It has been my privilege as well as my charge to develop and nurture the WPC with Dr. James Caradonio, the current Worcester Public Schools superintendent, and Robert Layne, my colleague at UMass Medical School and the program's director.”

One of the most successful collaborations is the Post-baccalaureate Program; since its inception in 1989, 66 percent of participating students have been admitted to UMMS. Within recent years, six participants have received degrees from the School of Medicine: Kathy

Hamblett '03, Ainex Baez '04, Jean Marcelin '05, Theo Matteos '05, Jackie Nkrumah '05 and Julie O'Brien '05. Currently, another six of the program's participants are enrolled at UMMS.

Other WPC programs have effectively piqued students' interests in a health care or science career. UMMS graduate Miguel Rodriguez, MD '01, and current third-year medical students Jose Abad and Rothsoyann Yong participated in the High School Health Careers Program, while Graduate School of Nursing student Joslyn Cortez and School of Medicine students Tuan Nguyen '07, Luis Asbrishamian-Garcia '08,

## The Promise of a West Nile Virus Vaccine

More than 19,000 cases of West Nile virus have been reported in the United States since the disease made its initial appearance in 1999, resulting in more than 750 fatalities. With the threat of continued epidemics looming, efforts to identify a vaccine for the virus have accelerated. Now, collaborative research between UMass Medical School's Center for Infectious Disease and Vaccine Research and leading vaccine developer Acambis Inc. reveals the promise of ChimeriVax-West Nile, a recombinant vaccine against the West Nile virus.

ChimeriVax-West Nile was constructed with Acambis's ChimeriVax technology, which uses a live yellow fever vaccine to create viruses composed of genetically different tissues. In this case, specific genes from the yellow fever virus that are

known to induce immunity in humans were replaced with the corresponding genes of the West Nile virus. The resultant immune response from infection-fighting white blood cells to the new vaccine was determined by the UMMS team—led by CIDVR's Sharone Green, MD, associate professor of medicine, and colleagues Francis A. Ennis, MD, professor of medicine and CIDVR director, and Jeff Kennedy, MD, assistant professor of medicine—and Acambis Chief Scientific Officer Thomas P. Monath, MD. The research suggests that ChimeriVax-West Nile is a promising candidate that warrants further evaluation to determine its safety and immunogenicity; Acambis has begun a Phase II clinical trial of the new vaccine, testing ChimeriVax-West Nile in healthy adult subjects. 🌐



Sharone Green, MD, published the findings with her collaborators in the *Proceedings of the National Academy of Sciences*; it represents the first published report of a West Nile virus vaccine candidate in humans.

and Miguel Concepción '09, attended the WPC's Summer Research Experience for Undergraduate Minority Students.

WPC's decade of success has laid the groundwork for the establishment of additional partnering initiatives, such as the Graduate School of Nursing's Worcester Nursing Pipeline Consortium and the Carnegie Foundation-funded Small Learning Communities.

"Teaching students to set high academic standards and expectations for themselves is at the heart of what we do and do well," said WPC Director Robert Layne, MEd. 🌐



**"Teaching students to set high academic standards and expectations for themselves is at the heart of what we do and do well."**

— WPC Director Robert Layne, MEd



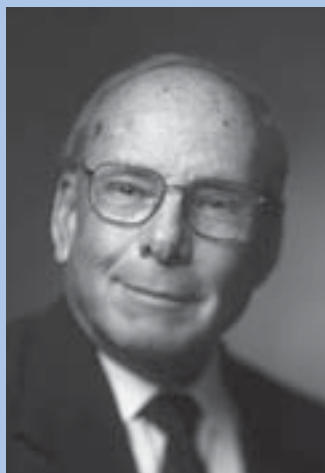
A view of the main entrance to the UMass Memorial Medical Center—University Campus and the Lakeside Wing, accessed via the Remillard Family Pavilion.

A \$1 million grant from The Kresge Foundation brings the UMass Memorial Foundation one step closer to the fund-raising goal for the Emergency Care Campaign, which supports the dramatic expansion of the hospital's emergency department and other urgent care areas at the University Campus.

The Kresge Foundation focuses on opportunities to strengthen leadership and giving through challenge grants for capital projects. Through the foundation's Capital Challenge Grants program, the UMass Memorial Foundation must raise the campaign's remaining balance by January 1, 2007, to receive the grant.

## In Memoriam

*Over the last year, the UMass Memorial Foundation and the institutions it supports through philanthropy—UMass Medical School and UMass Memorial Health Care—mourned the passing of two dedicated benefactors who were also inspiring leaders.*



### Morton H. Sigel

Supporter of biomedical research and honorary chair of the Worcester Foundation for Biomedical Research, Mort Sigel lost his three-year battle with Lou Gehrig's disease in February this year.

Mr. Sigel was driven by "an old-fashioned philosophy to do things for the community" and committed to the support of basic biomedical research

at UMass Medical School through the Worcester Foundation. He assumed the role of Foundation chairman in 1996 after serving as a trustee for nearly a decade, and one of his first accomplishments was assisting Chancellor and Dean Aaron Lazare in the facilitation of the successful 1997 merger of the Worcester Foundation with UMMS. Today, the Foundation retains its historic identity and legacy of achievement in developing a strong philanthropic foundation for UMMS research endeavors.

"Strategically brilliant but beautifully human, Mort was a man of uncommon generosity of spirit. He was an extraordinary man and friend to all of us and we are better people today for having known him," said Thoru Pederson, PhD, the Vitold Arnett Professor and scientific director of the Worcester Foundation for Biomedical Research.

### Penelope Booth Rockwell

A native of Worcester, Penelope Booth Rockwell learned at an early age the value of community involvement and volunteerism as well as the promise of basic biomedical research. Her



grandparents were friends of Dr. Hudson Hoagland, the Worcester Foundation's co-founder, and she was a schoolmate of a daughter of Dr. Gregory Pincus, Worcester Foundation scientist and co-inventor of the contraceptive pill. Mrs. Rockwell's spirit of exploration proved a natural complement to the Worcester Foundation's scientific investigations, and she first served as a trustee in

1990 and then as vice chair in 2003 and 2004. With her family deeply affected by the loss of her young nephew to muscular dystrophy, Mrs. Rockwell's commitment to basic biomedical research stemmed from the potential impact of such research on virtually all human illness, and she credited recent discoveries to the laboratory resources and collaborative environment fortified upon the 1997 merger of the Worcester Foundation with UMMS.

In addition to the gifts Mrs. Rockwell and her husband Sherburne Rockwell, who preceded her in death, made to research, her commitment to UMMS continued when she led the Hudson Hoagland Society from 1994 to 2000. Under her leadership, the society generated more than \$1 million in unrestricted funds for biomedical research, which assisted UMMS investigators as they pursued promising leads to uncover the causes of devastating illnesses. Mrs. Rockwell died from liver cancer in November 2005.





# When I Grow Up

*Graduate School of Biomedical Sciences alumna Loree Griffin Burns, PhD '98, moved from practicing science to writing about it—for kids.*

*Photo: Betty Jenewin*

**By Kelly A. Bishop**

**Once upon a time** there was a little girl who absolutely, positively loved books. Through books, she joined Nancy Drew in the quest to solve *The Mystery of the Brass-Bound Trunk* and urged on young Alec in his effort to befriend *The Black Stallion*. She explored distant lands—and not so distant ones—as she related to the plucky heroine who asked, *Are You There God? It's Me, Margaret*. Then one day, the not-so-little girl discovered that

she also absolutely, positively loved science. Through science, she could ask questions about all sorts of things. She could look through a microscope and explore cellular worlds and tiny creatures; she was hooked. And so began the story, still unfolding, of Loree Griffin Burns, PhD, the little girl who grew up to meld her two passions into the perfect career.

From her earliest memory, Dr. Loree Griffin Burns has been a lover of words and of books. Reflecting on her childhood, she fondly recalls the power that books had over her. “I devoured books and immersed myself in the stories. I thought I was Nancy Drew and even started my own detective agency.” With such natural curiosity and an engagement with learning, it’s no surprise that Burns—inspired by James Micarelli, her influential Everett (Massachusetts) High School teacher who made a dramatic impression in the classroom—was energized and excited by science. “Mr. Micarelli was a remarkable teacher. He taught us the scientific method and encouraged us to take on real research projects. With a nod to Nancy Drew, I studied the relationship of genetics and fingerprints.” While Mr. Micarelli taught his student how to think like a scientist, to ask questions, Burns knows that “most importantly, he made me feel like I was a good, decent kid with potential, and that gave me such a huge boost of confidence.”

Burns’ interest in science continued beyond high school and she completed her undergraduate degree in biology at Worcester Polytechnic Institute, where she cultivated her interest in books and writing, submitting stories and poems for the college’s publications. “I never gave up my literary life.”

In 1991, Burns decided to pursue her doctoral degree and, attracted by the quality of the program and its location, chose the UMMS Graduate School of Biomedical Sciences. She completed her thesis work on transcriptional regulation in yeast in the laboratory of Craig L. Peterson, PhD, professor of molecular medicine and biochemistry & molecular pharmacology, in 1997 and upon graduating in 1998 came to a crossroads of sorts with the birth of her twins (a third child would follow soon after). As she started to read with her children,

including those books that so captivated her as a youth, Burns again realized how much they enrich lives. She began to think about writing children’s books—books about science.

Serendipitously, a July 2003 Associated Press article gave Burns the inspiration for her first book. The article recounted the work of Curtis Ebbesmeyer, PhD, an oceanographer who



Photo: Betty Jenewin

**“Books truly give  
children experiences  
beyond their lives.”**

— Loree Griffin Burns, PhD

discovered that bathtub toys that fell from a container ship into the sea more than a decade earlier could offer scientists the ideal opportunity to study ocean currents. Intrigued by the science of currents and aware that those numerous colorful, bobbing rubber duckies would surely pique the interest of children, Burns wrote *Tracking Trash: Flotsam, Jetsam and the Science of Ocean Motion*. The book examines the work of Dr. Ebbesmeyer and his colleagues Jim Ingraham, who used Ebbesmeyer’s data to develop a computer modeling system that can accurately simulate ocean movement, and Captain Charles Moore, a marine conservationist who has worked tirelessly to quantify the extent of plastic pollution in the Pacific Ocean. The book, written for middle school-aged children,

will be published as part of Houghton Mifflin Company's "Scientists in the Field" series in spring 2007.

According to Burns, the process of writing the book was similar to how she conducted her research studies at UMMS—much more than would be expected by those outside both realms. "Scientists, by nature, are curious, and that natural curiosity coupled with healthy skepticism, serves me well as a writer and in the research that I do. I want evidence. And, I'm always verifying information to be sure that my words are accurate as well as interesting." Burns also learned at the graduate school that flexibility in the approach to research is vital. "In science, if something's not working you have to adjust your hypothesis and your methods. You have to do the same in writing."

Now that her first book is in production, Burns looks forward to working on additional projects that get children excited about science. "I want to write books that are honest, clearly written and, most importantly, that don't talk down to kids." The key, she says, to making science interesting to kids is explaining complex ideas in such a way that is relatable. "In *Tracking Trash*, for example, I have to describe the size of some drifting nets. Well, I can describe that in square feet, but that's difficult for a child to visualize. But if I say the net is the size of a school bus, they get it and understand why such a large net can be dangerous to fish and mammals."

As she continues to pursue a career as an author, Burns remains awed by the influence of books. "Now that I am a mother, I see that books offer children the opportunity to see that there is a lot more to the world than their home and school." She and her children are reading Roald Dahl's *Charlie and the*

*Chocolate Factory* and although the story has a happy ending, Burns says her children were disbelieving that a family could be as poor as Charlie's. "It was an opportunity to talk to them about poverty and hunger that wasn't overwhelming. Books truly give children experiences beyond their lives." Experiences that include tracking trash across a big, blue ocean. ©

For more information on Dr. Burns current and future projects, visit <http://www.loregriffinburns.com/>.

Burns and Captain Charles Moore aboard the ORV Algalita, an oceanographic research vessel chartered by the Algalita Marine Research Foundation. The Algalita collects debris samples for analysis of the presence of plastic and other pollutants.



Photo: Gerry Burns

On page 7, Burns interviews Oceanographer Curt Ebbesmeyer, PhD, on the beach at Ocean Shores, Wash. as part of the research she conducted for her book. Below, she records flotsam collected by a Washington State beachcomber named John Anderson.



Photo: Betty Jenewin

"Scientists, by nature, are curious, and that natural curiosity coupled with healthy skepticism, serves me well as a writer and in the research that I do."

— Loree Griffin Burns, PhD



# ‘World-Class’ Discovery

*UMass Cancer Center Director Dario Altieri, MD, receives a unique federal award to seamlessly guide a disease-killing compound from lab to clinic.*

By Lynn C. Borella



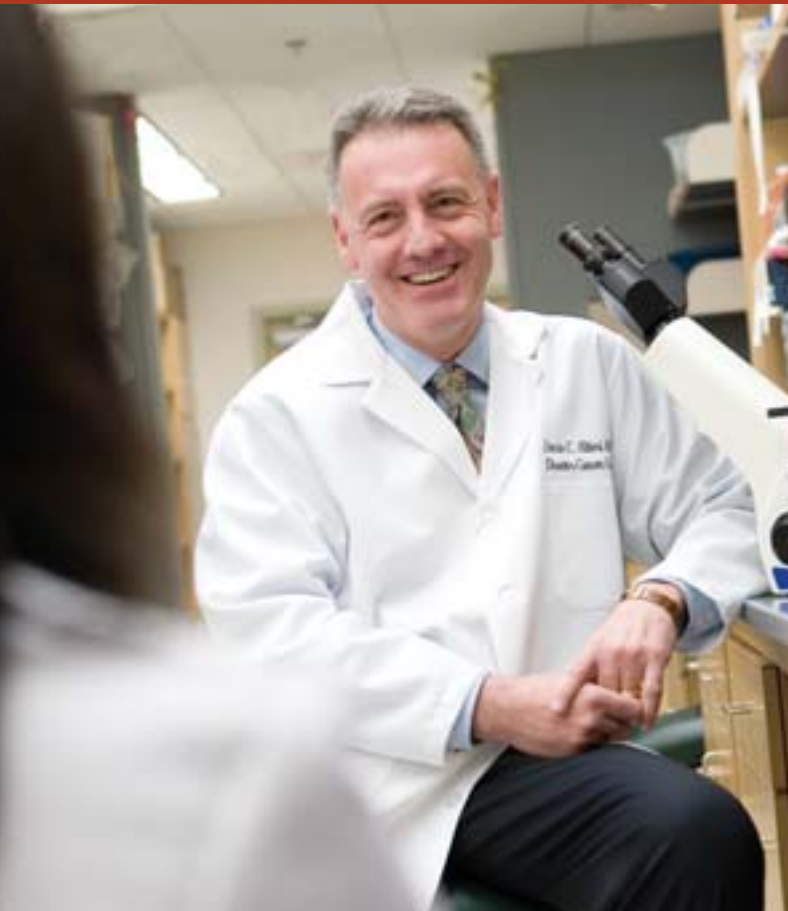
**Often uttered in hushed tones** or associated with the phrase “going to battle,” it’s a word that evokes fear in the hearts of most people. It identifies a disease characterized by an uncontrollable spread of abnormal cells in any organ or tissue of the body and one that comes in varied forms and affects any age, race or gender. No one is immune, and if surveyed, most people could name at least one individual they’ve known who has either survived or succumbed to the disease.

No doubt the word that springs to mind is “cancer.” Wouldn’t it be revolutionary if an anti-cancer agent could target and destroy cancerous cells just as precisely as our minds can conjure this distinctive disease? But how far away is such a cure? Investigators at the University of Massachusetts Medical School are hoping to answer “sooner than you think.”

A novel molecule called “shepherdin,” which selectively kills tumor cells while sparing normal cells nearby, was recently discovered in the laboratory of UMMS Professor and Chair of Cancer Biology Dario Altieri, MD, the Eleanor Eustis Farrington Chair in Cancer Research and the medical director of the UMass Cancer Center. For this breakthrough, which has proven to have an impact on a wide variety of cancers, regardless of their origin or genetic makeup, Dr. Altieri has received an exclusive award from the National Cancer Institute that will aid in moving this potential anti-cancer agent from bench to bedside for the benefit of cancer patients worldwide.

The evolution of shepherdin starts with a protein that Altieri, a nationally renowned hematologist, discovered in 1997. Called “survivin,” this molecule was not only found to be overabundant in tumor cells, but also helped to protect them from apoptosis, or programmed cell death, thereby allowing for unchecked tumor growth, a hallmark of cancer. Given these protagonist attributes, survivin has since become a target of choice for cancer researchers worldwide, including Anthony W. Tolcher, MD, director of clinical research at San Antonio’s Institute of Drug Development, Cancer Therapy Research Center. “Dr. Altieri’s discovery of survivin has played a world-class role in oncology,” he said. “There have been many discoveries in cancer research, but few have led to target identification, and fewer still to clinical studies of inhibitors.”

Based on his work with survivin, coupled with studies of a second protein called Hsp90 (Heat Shock Protein-90) that “chaperones” survivin to ensure its delivery into cells, Altieri sought an antagonist that would interfere with the function of both proteins. The result was shepherdin, which binds to Hsp90 and blocks its ability to work with survivin.



Dario Altieri, MD, in his UMass Cancer Center lab

“It’s rare indeed to find an investigator who not only identifies a key target for cancer but also attempts to find a therapeutic to directly benefit cancer patients. . . . given that few such discoveries are funded by the RAID program each year, it further confirms that Dr. Altieri’s peers and the National Cancer Institute recognize this discovery at the highest level of science.”

– Anthony Tolcher, MD, Institute of Drug Development,  
Cancer Therapy Research Center, San Antonio

“How we came across shepherdin was through a molecular screening we had done to identify new compounds that could block survivin,” Altieri explained. “What we observed was that shepherdin had three properties that were very important when thinking about development of a therapeutic: it was very effective in killing tumor cells; it was selective in killing only the cancerous cells, and it was effective *in vivo* [in the body], reducing tumor formation in both human tissue cancer cell cultures and animal models, while proving non-toxic to organs and normal tissue.”

Following publication of these findings in the May 2005 edition of *Cancer Cell*, a high-impact scientific journal, Altieri’s next question was, “Where do we go from here?” “Our laboratory is committed to continuing its investigations into the properties of shepherdin as an antagonist to survivin, but we also are interested in pushing promising compounds into the clinic,” he said. Altieri looked to the UMMS Office of Technology Management to identify potential commercial collaborators.

One possibility—and the answer for Altieri—came in the form of a valuable resource that is open only to academic institutions and other non-profit research organizations—the National Cancer Institute’s (NCI) Rapid Access to Interventional Development, or RAID award. This unique award, established

in 1998, aims to support the swift movement of novel anti-cancer molecules and concepts like shepherdin from the laboratory to the clinic for proof-of-principle clinical trials. The RAID application is submitted by a principal investigator who describes the scientific rationale for the project, documents his or her efficacy results to date and requests that specific preclinical tasks be performed. The application is peer-reviewed, and if accepted, the NCI handles project management with input from the principal investigator. No funding is awarded directly to the researcher or his or her laboratory, as is typical with traditional National Institutes of Health grants; rather, the work is provided through the NCI’s contractor network, with the university owning all data generated. Testament to the potential of shepherdin, Altieri’s was the sole accepted proposal in this project cycle, chosen from some 40 applications.

“The RAID allows the NCI to select promising agents and develop them using their own facilities or alternative contractors with whom they have a relationship,” said James P. McNamara, PhD, executive director of the Office of Technology Management and an expert in drug development who aided Altieri in crafting his winning application. “In this way, they perform all of the tasks needed for an IND, or Investigational New Drug, at no cost to the university, saving UMass Medical School some \$2 to \$3 million in development and manufacturing expenses.”

The ultimate conclusion of the RAID is a product, ready to bring into the clinic through an application with the FDA to begin Phase 1 trials with human subjects. “When the RAID is concluded, we hope to have something in hand that is safe, that complies with FDA guidelines, that has gone through extensive toxicology testing and is suitable for injection into humans,” Altieri said.

In the initial stages of the studies, RAID resources will be used to conduct analytical assays in the test tube that establish stability and formulation of the agent. “At some point, we need to put this compound into a vial,” Altieri explained. “We’ll need to dilute it as a powder into saline or some other injectable solution to prepare it for dispensing.” The product, therefore, must not precipitate in solution and be uniformly reproducible and effective among all lots manufactured.

Next, the NCI or its contractors will analyze something called pharmacokinetics. Simply put, this term describes how the body distributes, absorbs, metabolizes and excretes a given drug; it also helps denote what concentration of the compound is needed to have a therapeutic effect. Such findings help determine the set dosage and frequency of administration required for a pharmaceutical. Finally, toxicology screenings are conducted in two animal models to gauge any potential side effects of the

OTM Executive Director James McNamara, PhD, and Licensing Officer Heather Steinman, PhD, assisted Dr. Altieri with the winning RAID application.



compound’s prolonged use on main organs and tissues. Once all three steps are complete, Altieri should receive a product back that is compliant with all rules and regulations of the FDA and can be given to humans in a Phase 1 clinical trial.

The one drawback to the RAID program is that it may take slightly longer to produce a viable compound for the clinic than if licensed to a pharmaceutical company—about two years in total. However, Altieri is content with his choice to pursue the federal award. “You always have to balance your goals,” he said. “The RAID may take a little bit more time than what a drug company would need, but it permits the institution and the originating investigators to be involved in the process.”

Dr. McNamara added, “The RAID is a win-win in that it allows us to further develop technology and affords the investigator an opportunity to be involved in drug development. More concretely, it increases the value of everything because we now have an investigational new drug, which we own, that is ready for the clinic and may spark more interest from investors.”

Shepherdin represents translational cancer research at its finest, and reinforces Altieri’s commitment to bring National Cancer Institute designation to the UMass Cancer Center. Currently, 61 NCI-designated cancer centers across the nation receive such support that strengthens the integrative approach and the establishment of core facilities and joint programs, while ensuring the most rigorous, safe and compliant standards for clinical trials. NCI designation helps ensure that the activity of a cancer center runs the gamut, spanning all aspects of cancer diagnosis, therapy, prevention and control.

It’s this road from discovery to development about which Altieri is most passionate. “Shepherdin is a personal and professional milestone in terms of achievement because, although it’s one thing to find something interesting in the test tube and to publish your findings in a journal, it’s another to develop a drug that has considerable promise.” He noted that given his medical background, he tends to look at basic science research broadly; instead of focusing just on the molecular process, he sees the potential for the treatment of diseases as his greatest goal. “I hope this fulfills that. Whether shepherdin becomes a drug or not, who knows? But regardless, this next step toward the development of a very promising compound that came out of our research lab is fantastic, and I’m thrilled with the prospects.”

Dr. Tolcher agreed: “It’s rare indeed to find an investigator who not only identifies a key target for cancer but also attempts to find a therapeutic to directly benefit cancer patients. This represents the highest form of discovery and translational research. And, given that few such discoveries are funded by the RAID program each year, it further confirms that Dr. Altieri’s peers and the National Cancer Institute recognize this discovery at the highest level of science.”



# Making It Real

*At UMass Medical School, simulated patient experiences in medical education enjoy a healthy history—and a technological tomorrow.*

By Ellie Castano





### Watch any medical drama

on TV and you'll come away thinking that physicians in training have endless opportunities for interaction with patients exhibiting a range of illnesses and injuries. In any given episode of "Grey's Anatomy," "House" or "ER," they might see an accident victim with head trauma, a patient with symptoms of a mysterious disease, and a child with a rare form of cancer.

But television rarely mirrors reality. The truth is that medical students see a small range of conditions in real patients dur-

ing their four years of medical school. By the time they graduate into their residencies, they've been exposed to a lot of common illnesses like diabetes and heart disease, but much less to uncommon ailments. In the past, according to Robert Baldor, MD, UMMS professor of family medicine & community health and co-chair of the Education Policy Committee, physicians in training could learn by following a particular inpatient case for several days. But now, as a result of changes in how health care is managed, hospital

stays are shorter and the patients aren't there long term. More and more, health care is conducted in outpatient clinics and community doctors' offices, giving students even fewer opportunities to practice basic procedures, let alone follow the progress of a given patient. "Specialized teams, such as IV teams and phlebotomists, have developed, and as a result, many types of basic procedures are no longer the responsibility of physicians in training. Yet, they still have to acquire those skills," said Dr. Baldor.

So how does UMass Medical School fulfill its mission of providing “a comprehensive and personally rewarding medical education of the highest quality that prepares graduates to be caring, competent, productive and self-fulfilled physicians”? And how does UMMS foster in students the ability to communicate effectively and empathically with patients—a skill that patient surveys show is an essential element of a good medical experience?

One answer is to make sure that medical students have opportunities to develop

clinical skills outside the hospital setting. UMMS, like other medical schools, relies on clerkships, where third- and fourth-year medical students develop an array of clinical skills in various community medical settings such as outpatient offices, ambulatory care clinics, physician’s offices and urgent care facilities.

Another answer, particularly for first- and second-year (pre-clinical) students, is to build into the curriculum a core of simulated patient experiences that are precise enough to mimic the real thing. As the School of Medicine undertakes a

comprehensive curriculum review, it’s looking toward incorporating state-of-the-art patient simulation technology as one way of ensuring that graduates meet the six standards of competency that are the cornerstone of the school’s educational objectives. By demonstrating these six competencies—physician as professional, scientist, communicator, clinical problem solver, patient and community advocate and person—graduates will show that they possess the knowledge and skills to become caring and effective healers.



“Harvey,” the first member of the UMass Medical School simulation mannequin family, is examined by Vice Dean for Undergraduate Medical Education Michele Pugnaire, MD (right), and medical students Alexandra Kazanovicz (center) and Amanda Malgari. Students also listening to Harvey’s heart sounds are (from left to right in foreground) Sarah Teasdale, Chris Tully, Nicola Sumorok and Joshua Pacheco.

## Practice makes perfect

UMMS has long used patient simulation as an essential component of its academic and clinical training. Since 1982, the Standardized Patient Program has offered highly trained individuals to create realistically staged clinical encounters. As a result, students are

exposed to a broader range of patient conditions than are available to them in a hospital setting. Standardized patients are actors who serve as stand-ins for real patients by simulating not just medical histories, but emotional and physical characteristics of medical problems. They offer themselves up as subjects for fledgling medical and nursing students’

first physical exams, first history takings and first interviews.

Medical students are introduced to standardized patients in the Patient, Physician and Society (PPS) course, designed to help pre-clinical students build their clinical skills from day one. During the two-year course, students

“practice” in a clinical setting under the supervision of their preceptor, a physician whom they shadow and under whose direction they hone newly acquired skills. Standardized patients play an important role as students tackle increasingly tougher tasks, as well as subjects that are not easy to talk about, such as dealing with anxious family members, obtaining sexual histories and delivering bad news. In the Small Group section of PPS, students work with standardized patients while being observed by their classmates. Not only do students build listening and speaking skills, but they also seek and receive feedback from their classmates—much as they will learn to do with fellow residents and physicians—and thus become better clinical decision makers.

While the real people in the Standardized Patient Program provide students with unique methods to hone their communications skills, they are limited in the physical findings they can present. On the other hand, non-human patient simulators offer an entirely different opportunity for students to build skills and sharpen their decision making. According to Vice Dean for Undergraduate Medical Education Michele Pugnaire, MD, “Simulation technology allows students to practice, in the safety of the classroom, the clinical skills that are essential for patient care in the real

world of hospital wards, clinics and operating rooms.”

We’ve all seen the dummy used in CPR instruction. “Annie,” as she is known, is a basic patient simulator. She’s low tech, but she gives learners the opportunity to develop and practice new skills safely and conveniently. The new computer-driven patient simulators being incorporated into medical education worldwide are like Annie, only evolved. Today’s patient simulators come in all shapes and sizes and exhibit a range of physiologic responses, diseases and physical findings—just like people.

This spring “Harvey,” the first member of the UMMS simulation mannequin family, was introduced. Harvey is a cardiopulmonary patient simulator, widely used in medical centers worldwide to train thousands of students, residents and medical professionals each year. Recommended by the American College of Cardiology Task Force on Teaching, he can realistically simulate nearly any cardiac disease through varying blood pressure, breathing, pulse, heart sounds and murmurs. He can also be remotely operated by a standardized patient who delivers physical complaints in Harvey’s voice.

Harvey is already familiar to the first class of students in the Graduate School of Nursing Graduate Entry Pathway program. He made several appearances

this spring in the Advanced Health Assessment course taught by GSN faculty Janet Hale, PhD, RN, CS, FNP, and Jill Terrien, APRN-BC. “We utilized Harvey in three separate scenarios: a 16-year-old Caucasian male with chest pain; an 18-year-old African American male who needed sports clearance for a newly diagnosed heart murmur; and a 45-year-old Hispanic female with an evolving myocardial infarction,” said Terrien. “Student feedback was overwhelmingly positive. They found the experience thought-provoking and reassuring for the skill set they had been developing in the course.”

UMMS is in the process of expanding its technology inventory through the purchase of a full-body mannequin that simulates life-threatening conditions such as shock, heart attack, embolism and other emergency scenarios, as well as a variety of task trainers that are anatomically equipped for practicing medical procedures such as intubation, catheterization and IV access.

Recently a group of medical students visited the Center for Medical Simulation in Cambridge, Massachusetts to experience firsthand what it’s like to use simulation technology for learning. They came away astonished by the realism of the experience and excited at the prospect of having this type of technology available at UMMS. “You really feel like you’re

Chancellor and Dean Aaron Lazare (center), simulation technology’s champion at UMMS, listens to Robert Simon, EdD, CPE, education director at Cambridge’s Center for Medical Simulation, as he describes the capabilities of a simulator during a recent visit by UMMS faculty and students. To Dr. Lazare’s left are Chair of Surgery Demetrius Litwin, MD, and Robert Baldor, MD. In the foreground are Michele Pugnaire, MD (left), and Graduate School of Nursing Professor Janet Hale, PhD.



**“I anticipate in the years to come that simulation training will be a prerequisite for quality medical education.”**

*– Chancellor and Dean Aaron Lazare*

walking into a surgical suite,” said student Steven Beckman. “The mannequins are essentially living, breathing beings in the sense that they give you all the responses that a person would.” Other students commented that the technology illuminated the importance of working as a team, particularly in terms of communication.

With the renovation of a suite of rooms at the Medical School, the institution’s initial simulation resources have a home together. This new space will house Harvey, the full-body mannequin and the task trainers, as well as computer workstations with screen-based simulation programs. A skilled coordinator serves as a resource for the learning community’s educators, who will be integrating this technology into coursework and clerkships. The first orientation for faculty and staff was held in early May and generated enthusiastic feedback from all who attended, as well as many ideas about how this technology can be used to enhance educational experiences.

In addition to Harvey, beginning this summer, clinical students in their Obstetric/Gynecology clerkship will meet “Noelle,” a maternal and neonatal birthing simulator. Noelle simulates the birthing experience, including the “delivery” of

a baby simulator, and will be used by medical students to practice a procedure they must master regardless of their intended specialty. According to Edward “Ted” Peskin, MD, associate professor of obstetrics & gynecology and director of the Ob/Gyn clerkship, medical education is taking a cue from the airline industry, which saw a dramatic improvement in safety after simulation became a part of pilot training. “Students quickly start thinking of the patient simulator as a living person, much like a pilot in training quickly forgets that he or she is in a simulated cockpit,” said Dr. Peskin.

A more advanced version of Noelle will be available to practice complex deliveries that are less commonly seen in real patients but that, nonetheless, need to be mastered. This model can replicate complicated deliveries that might require performing a C-section, use of forceps or involve fetal distress. She also delivers a baby upon whom APGAR measures can be performed and who can turn blue from lack of oxygen. The baby as well as the mother exhibit heart and breath sounds and both can be intubated.

## A circle of learning

The vision for a comprehensive educational center at UMMS that features

state-of-the-art simulation technology is designed to enhance the strengths that the Medical School has already mastered. Chancellor and Dean Aaron Lazare is the enthusiastic champion in the drive to ensure that UMMS stays on the forefront of medical education. “Currently, we are in the first phase of a major investment in simulation technology. Over the next several years, we intend to acquire more sophisticated equipment and become a leader in this field. I anticipate in the years to come that simulation training will be a prerequisite for quality medical education.”

This vision is well on its way to becoming a reality; later this year, construction will begin on the new Advanced Educational and Clinical Practice Center, which will house an advanced education center, home to patient simulation technology, the Standardized Patient Program and the Graduate Entry Pathway Program. In addition to a place where all students can learn, the center will be a training ground for the array of medical professionals from across the health care continuum, offering a full range of simulation experiences in a variety of settings, including simulated ERs, operating suites and outpatient clinics, as well as the opportunity to gain further assessment and certification. ©

Below, medical student Smita Sihag practices intubation techniques on a simulation mannequin at the Center for Medical Simulation in Cambridge. “Working through simulated scenarios really serves to foster the necessary teamwork in medicine,” said Sihag. At right, student Andrew Giese holds a baby simulator, just delivered by its mother, “Noelle.” Associate Professor Ted Peskin, MD, director of the UMMS Ob/Gyn clerkship, assists him.





*UMass Medical School, through the philanthropic Worcester Foundation for Biomedical Research, gives a boost to its promising young researchers.*

# Promoting Potential

By Lynn C. Borella

The Worcester Foundation for Experimental Biology was founded more than 60 years ago on the premise of innovative science, accelerated through patronage. In fact, Drs. Gregory Pincus and Min-Chueh Chang, working diligently in the Foundation's Shrewsbury Mass. labs in the mid-20th century, would not have been able to bring their revolutionary discovery of the birth control pill to women worldwide without such support.

Continuing this legacy of advancement of potentially ground-breaking research through philanthropy, the Worcester Foundation for Biomedical Research (formerly the WFEB) allocated a portion of its endowment when it merged with UMass Medical School in 1997 to fund the Worcester Foundation Scholars Program. Select, newly recruited faculty are supported during their initial two years with UMMS through the program, promoting the philosophy, according to Worcester Foundation Director Thoru Pederson, PhD, the Vitold Arnett Professor, that recognizing exceptional promise in a young scientist can have a “disproportionate effect” on his or her research endeavors. “Those chosen as scholars have been singled out to receive this unrestricted funding. In turn, we expect them to be catalyzed by this vote of confidence to quickly reach the full dimension of their talent,” said Dr. Pederson.

Mark Alkema, PhD, assistant professor of neurobiology (pictured, right), and Sean Ryder, PhD (left), assistant professor of biochemistry & molecular pharmacology—both recruited to UMass Medical School in 2005—are the latest Worcester Foundation Scholars. These young scientists, who recently completed their postdoctoral research at prestigious institutions, join a cadre of other newly recruited faculty who, over the past six years, have received \$100,000 each over a two-year period to jump start their careers at UMMS.

Dr. Alkema's research of the roundworm led to the discovery of a neurotransmitter called tyramine. Neurotransmitters are key signaling molecules among neurons in the nervous system that play an important role in the control of animal behavior. Alkema is studying the role of tyramine—also found in trace amounts in the mammalian brain and implicated in human neurological disorders—and is hoping to identify new genes required for tyramine signaling in the nervous system. Alkema earned both his bachelor's degree and his PhD at the University of Amsterdam, The Netherlands, and completed post-doctoral training at the Massachusetts Institute of Technology in the lab of Nobel Laureate H. Robert Horvitz, PhD.

Like Alkema, Dr. Ryder is also studying aspects of human neurological disorders, specifically the link between a mutation of a gene named Quaking—involved in regulating how nerve cells communicate—and increased schizophrenia susceptibility. He is hoping to determine the regulatory targets of Quaking and thus come closer to defining the genetic characteristics of the mental illness. Ryder earned his bachelor's degree from the University of New Hampshire and his PhD at Yale University. He performed post-doctoral research at The Scripps Research Institute in the lab of James R. Williamson, PhD.

As funding from research agencies including the National Institutes of Health continues to tighten, investigators in every field will be competing for federal grants. Researchers just starting out, however, are those most affected by these funding reductions; the Worcester Foundation Scholars Program, therefore, becomes even more critical for Alkema and Ryder. Both scientists expressed gratitude at receiving their first research award as UMMS faculty and remarked on how fortunate they were to have the funds to set up their labs, attract talented post-doctoral students and prepare preliminary data to make them more competitive in securing funding from research agencies. ●

# Vitae: Grants and Research

New and competitive renewal grants of \$100,000 or more are listed here according to department or center and funding sources.

## BIOCHEMISTRY & MOLECULAR PHARMACOLOGY

### *National Institutes of Health*

**Anthony Carruthers, PhD**, professor and dean of the Graduate School of Biomedical Sciences: *Glucose Transporter Structure and Function*, one year, \$266,862; recommended for three more years, \$679,977.

**William R. Kobertz, PhD**, assistant professor: *K<sup>+</sup> Channel Protein Complexes in Auditory Biology*, one year, \$389,500; recommended for four more years, \$1.5 million.

**Mary Munson, PhD**, assistant professor: *Structure and Function of the Exocyst Complex*, one year, \$307,800; recommended for four more years, \$1.2 million.

### *National Science Foundation*

**Thoru Pederson, PhD**, the Vitold Arnett Professor: *The Nucleolus and the Signal Recognition Particle*, one year, \$152,828; recommended for two more years, \$406,019.

## CANCER BIOLOGY

### *American Cancer Society*

**Leslie M. Shaw, PhD**, assistant professor: *Mechanism of alpha6/beta4 Integrin-dependent Metastasis*, three years, \$540,000.

### *U.S. Army Medical Research and Materiel Command*

**Lucia R. Languino, PhD**, professor: *In Vitro and In Vivo Modulation of Prostate Cancer Cell Proliferation by Integrins and Type 1 Insulin-like Growth Factor Receptor*, two years, \$596,250.

## CELL BIOLOGY

### *National Institutes of Health*

**Peter J. A. McCaffery, PhD**, associate professor of cell biology: *Disruption of Organization of the Cerebral Cortex by Retinoic Acid*, two years, \$119,207.

## CENTER FOR INFECTIOUS DISEASE AND VACCINE RESEARCH

### *National Institutes of Health*

**Daniel H. Libraty, MD**, associate professor of medicine: *A Study of Protective Immunity Against Dengue in Infants*, one year, \$431,883; recommended for four more years, \$2.1 million.

**Alan Rothman, MD**, professor of medicine: *Virus Infections: Pathogenesis and Host Immune Responses*, one year, \$223,680; recommended for four more years, \$896,719.

## EMERGENCY MEDICINE

### *National Institutes of Health*

**Edward W. Boyer, MD, PhD**, associate professor: *Adulterants, Drugs, Coingestants and Associated HIV Risk*, one year, \$389,380; recommended for four more years, \$1.1 million.

**Peter Whittaker, PhD**, associate professor: *Laser Acupuncture*, one year, \$202,500; recommended for one more year, \$202,500.

## FAMILY MEDICINE & COMMUNITY HEALTH

### *Department of Health and Human Services*

**Robert A. Baldor, MD**, professor: *Residency Training in General and Pediatric Dentistry*, one year, \$130,653; recom-

mended for two more years, \$228,733.

**Donna M. Gallagher, MSN**, instructor: *AIDS Education Training Centers*, five years, \$1.8 million.

## MEDICINE

### *Department of Health and Human Services*

**Doreen T. Brettler, MD**, professor: *Region Comprehensive Hemophilia Program*, one year, \$340,900; recommended for two more years, \$728,703.

### *Families of Spinal Muscular Atrophy*

**Natalia N. Singh, PhD**, instructor: *Characterization of Protein(s) that Contributes to SMN Exon 7 Skipping through a Novel Inhibitory Element*, two years, \$186,824.

### *Juvenile Diabetes Research Foundation International*

**Dale L. Greiner, PhD**, professor: *Modeling Type 1 Diabetes in Humanized Mouse Models*, one year, \$506,000; recommended for two more years, \$902,000.

### *National Institutes of Health*

**Neil Aronin, MD**, professor: *Signaling Mechanisms in Neuronal Degeneration*, one year, \$366,023; recommended for four more years, \$1.4 million.

**James F. Carmody, PhD**, assistant professor: *Mindfulness-based Stress Reduction for Hot Flashes*, one year, \$198,904; recommended for two more years, \$446,875.

**Mary E. Costanza, MD**, professor: *A Novel Decision Aid for Prostate Cancer Screening*, one year, \$208,980; recommended for one more year, \$174,688.

**Douglas T. Golenbock, MD**, professor: *Mechanisms of TLR 9 Activation*, one year, \$309,825; recommended for four more years, \$1.4 million.

**Y. Tony Ip, PhD**, associate professor: *Molecular Mechanisms of Drosophila Immune Response*, one year, \$324,000; recommended for three more years, \$975,000.

**Wenjun Li, PhD**, research assistant professor: *Obesity and Neighborhood Characteristics*, one year, \$243,000; recommended for one more year, \$203,125.

**Gyongyi Szabo, MD, PhD**, professor: *Ethanol's Role in Mediation of Monocyte Suppression*, one year, \$364,500; recommended for four more years, \$1.5 million.

**Marian Walhout, PhD**, assistant professor: *Transcription Networks in C. Elegans Organogenesis*, one year, \$301,844; recommended for four more years, \$1.3 million.

*Mapping Worm Fat Gene Networks*, one year, \$202,605; recommended for one more year, \$243,750.

## MOLECULAR GENETICS & MICROBIOLOGY

### *National Institutes of Health*

**Paul R. Clapham, PhD**, associate professor: *Tropism and Transmissibility of HIC-1 Envelopes in Semen*, one year, \$287,653; recommended for four more years, \$1.1 million.

**Rachel M. Gerstein, PhD**, associate professor: *Regulation of V (D) J Recombination of B cell Development*, one year, \$356,688.

**Allan Jacobson, PhD**, professor and chair: *Messenger RNA Metabolism in Yeast*, one year, \$589,822; recommended for four more years, \$2.5 million.

**Janet M. Stavnezer, PhD**, professor: *Isotype Specific Regulation of Ig Class*

*Switching*, one year, \$324,000; recommended for one more year, \$284,375.

**Robert T. Woodland, PhD**, associate professor: *Immunodeficiencies that Impair Lymphocyte Survival*, one year, \$344,250; recommended for four more years, \$1.6 million.

## MOLECULAR MEDICINE

### *National Institutes of Health*

**Stephen J. Doxsey, PhD**, professor: *Centrosome Protein Function*, one year, \$382,709; recommended for three more years, \$1.2 million.

**Michael R. Green, MD, PhD**, professor, Howard Hughes Medical Institute Investigator and the Lambi and Sarah Adams Chair in Genetic Research: *Mechanisms of Eukaryotic Transcriptional Activation*, one year, \$303,750; recommended for three more years, \$900,000.

*Splicing of mRNA Precursors*, one year, \$291,600; recommended for three more years, \$877,500.

**Mario Stevenson, PhD**, the David J. Frelander Professor of AIDS Research: *Function for VPR and VPX of Primate Lentiviruses*, one year, \$344,250; recommended for four more years, \$1.6 million.

**Fumihiko Urano, MD**, assistant professor: *Endoplasmic Reticulum Stress and Diabetes*, one year, \$286,003; recommended for four more years, \$1.2 million.

**Lambertus van den Berg, PhD**, assistant professor: *Hydrophobics Transport Across the Outer Membrane*, one year, \$291,308; recommended for four more years, \$1.2 million.

## NEUROBIOLOGY

### *National Institutes of Health*

**David R. Weaver, PhD**, associate professor: *Genetic Analysis of Circadian*

*Oscillator Hierarchy*, one year, \$187,313; recommended for one more year, \$225,238.

## PATHOLOGY

### *National Institutes of Health*

**Francis K. Chan, PhD**, assistant professor: *Role of Programmed Necrosis in Immune Responses*, one year, \$243,000; recommended for one more year, \$203,125.

## PHYSIOLOGY

### *National Institutes of Health*

**Daniel L. Kilpatrick, PhD**, associate professor: *Transcriptional Determinants of Cell Differentiation*, one year, \$279,861; recommended for four more years, \$1.1 million.

## PSYCHIATRY

### *National Institutes of Health*

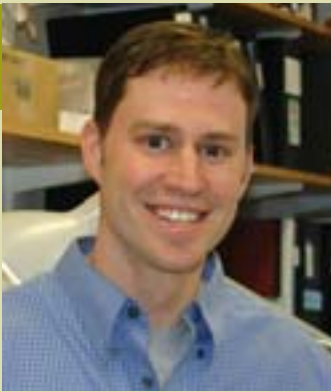
**Schahram Akbarian, MD, PhD**, associate professor: *Dopaminergic Signaling Modifies Striatum Histones*, one year, \$299,324; recommended for four more years, \$1.3 million.

**William J. McIlvane, PhD**, professor: *Interdisciplinary Research in Mental Retardation*, one year, \$834,804; recommended for four more years, \$3.6 million.

## RADIOLOGY

### *National Institutes of Health*

**Stephen J. Glick, PhD**, research associate professor: *Iterative Reconstruction for Breast Tomosynthesis*, one year, \$287,133; recommended for four more years, \$1.3 million.



## David A. Guertin, PhD, GSBS '02

Graduate School of Biomedical Sciences students are highly coveted by research institutions throughout the country upon graduation, and David A. Guertin, PhD, was no exception. Now a postdoctoral fellow

at the Massachusetts Institute of Technology's Whitehead Institute for Biomedical Research, Dr. Guertin works in the laboratory of David Sabatini, MD/PhD, assistant professor of biology. "My gut feeling about the GSBS proved right, and it's been a successful road since," Guertin said.

Postdoctoral positions like Guertin's, typically held for three to five years by individuals with newly earned PhDs, are an essential bridge for gaining greater knowledge and experience, making professional connections and building a name for oneself in research circles, all necessary to establish a scientific career. Having met Dr. Sabatini when Sabatini was still a postdoc himself, Guertin hopes to follow in his advisor's footsteps, with the ultimate goal of becoming a faculty member heading his own laboratory at an academic institution.

As a GSBS student in the laboratory of Dannel McCollum, PhD, associate professor of molecular genetics & microbiology, Guertin studied a signal transduction pathway in fission yeast that controls the timing of cell division. These investigations

led to his current interest in how "crosstalk" between multiple signaling pathways regulates the basic mechanisms controlling mammalian cell growth and survival—activities that are often abnormal in diseases such as cancer and diabetes. Guertin credits the training and mentorship he received from Dr. McCollum for paving the way to his Whitehead position.

Currently, Guertin is studying how the protein mTOR (mammalian Target of Rapamycin) interacts with other proteins in signaling pathways responsible for cell growth, cell proliferation and cell survival. This work has been funded in part by the Damon Runyon Cancer Research Foundation's Fellowship Award program. The competitive, three-year award was granted to Guertin in 2003 following his arrival at the Whitehead Institute, and he is grateful as well as honored to be a recipient in what has become a challenging funding environment for basic scientific research.

Guertin has already published several papers in major peer-reviewed journals. A recent and notable paper appeared last year in the journal *Science*, in which Guertin made key contributions to elucidating the role for mTOR in a pathway aberrantly activated in cancers. While looking forward to establishing his own laboratory, "I'm proud to be doing important work," said Guertin. "If you believe in your work, ask good questions, and are productive, your success will speak for itself." —SLG



## George Topulos, MD '80

George Topulos, MD, recalls a vibrant educational atmosphere in the early years of the School of Medicine, where faculty, when they weren't teaching themselves, sat in on other faculty's classes to share and

learn from each other. Since those heady days, Dr. Topulos has brought the blend of academic rigor and educational invigoration he experienced at UMMS to bear in his own fruitful and diverse career as an educator, researcher and clinician. A champion of lifelong learning for practicing physicians throughout his career, Topulos was recently appointed Director of Educational Pro-

grams in the Department of Continuing Education at Harvard Medical School, the largest continuing medical education (CME) enterprise in the country. "I'm interested in keeping doctors up-to-date because most of what we learn, we learn after residency, while in practice," he explained.

Topulos came to UMMS after earning his undergraduate degree at Bucknell University in Pennsylvania, then completed two years of a residency in surgery at the University of Minnesota. He returned to Massachusetts in 1982 for an additional residency in anesthesia at Brigham and Women's Hospital and has been there ever since. An associate professor of anesthesiology at Harvard Medical School, Topulos's teaching focuses on respiratory system physiology and the role of basic science in understand-





## Vinetta M. Hussey, GSN '97

Like many of her classmates, Vinetta Hussey is one of those energetic people who looks for ways to say “yes” in a busy world where “no” is often the easier answer. In addition to her full-time job as a nurse practitioner at UMass Memorial Medical Center, Hussey also holds

academic appointments at both UMass Worcester and UMass Lowell, precepts nursing students, and serves on the Nurse Practitioner Council, an organizational body she helped form to bring consistency and clarity to the role of NPs at UMass Memorial.

Taking what she calls “the long route through nursing,” Hussey received her diploma in 1977 and her bachelor’s in 1991, after more than ten years of juggling courses while working full time as a floor nurse and raising her two children. “It wasn’t but a short time before I began to think about a master’s program, too,” she said, and enrolled in the Graduate School of Nursing where she felt students were “always reminded to utilize our nursing backgrounds to be advocates for our patients.” For three years Hussey worked 12-hour days to balance her own school schedule with that of her kids, using weekends for family homework sessions; she earned her master’s degree as an adult ambulatory nurse practitioner in 1997.

As the role of nurse practitioners has evolved over the years—for example, to meet hospital needs caused by regulatory changes in medical residents’ work hours—Hussey saw an opportunity to help establish consistency across the departments and specialties in which NPs work. What began as an informal effort to bring fellow NPs together for monthly educational sessions blossomed, through the influence of Paulette Seymour Route, PhD '01, currently GSN Interim Dean, into the Nurse Practitioner Council, an elected 12-member volunteer group of like-minded professionals helping to shape the role of, and formulate policy regarding, UMass Memorial’s 170 NPs.

To foster dedication to education and growth, the Council established a program to recognize and reward NPs who teach courses, publish studies or precept nursing students. Despite a schedule many would find overwhelming, Hussey herself precepts students each year, an energizing experience. “The students come with certain skills, and as they’re gaining advanced clinical experience, they come up with great questions that really make you stop and think.”

Hussey feels that, philosophically, medicine hasn’t changed much since she earned her degrees, but technologically, it is always evolving. “The nice thing about this institution is that there are always new people showing us different things. I can’t imagine if I worked in a community that was stagnant.” —AMD

ing clinical practice, as exemplified by his combining both in his own career: Board-certified in anesthesiology, he performs clinical work one day a week, and spends one day a week in his laboratory conducting investigations into respiratory physiology. “We are particularly interested in quantifying regional variation in lung function in health and in diseases such as acute lung injury and chronic obstructive lung disease.”

Topulos was recruited to the continuing medical education enterprise largely due to his success as the course director of Harvard Medical School’s Anesthesia Review and Update, an annual, week-long CME course that attracts hundreds of anesthesiologists from all over the world. Marking Topulos’s commitment to medical education, in 2004 he was named a Rabkin

Senior Fellow in Medical Education at Harvard Medical School’s Shapiro Institute for Education and Research.

Continuing education for physicians is important for two reasons, according to Topulos. “The first is obvious: to improve patient care. Second, as the practice of medicine changes rapidly, continuing education helps reinvigorate physicians and keep them engaged in their careers.” To ensure these goals are met, Topulos is challenging himself and others to develop meaningful evaluation tools for CME. “There are several useful educational outcomes, such as increase in knowledge and change in practice, but we don’t yet have good ways to measure them,” he noted. “We need to figure out if and how what we’re doing works.” —SLG

# Vitae: Class Notes



Members of the School of Medicine Class of 1979 got together at the Aaron Lazare Medical Research Building on the UMass Medical School campus during their 25th Reunion. Front row, left to right: Alan Stefanini, Anne Sigsbee, Marina Florencia Rodriguez, Barbara Henick Bachow, Barbara Gibson Ciak, Theresa Caputo, Celestia (Tia) Higano, Robert Faucette. Back row: Eric Leskowitz, James Goldman, Carl Ciak, Edward Mascioli, Allen Bale, Christopher Linden, Brian Battista, Austin Thompson, Thomas Marks, Neil Goldstein, Irvin Heifetz, Paul Clark, Andrew Ober, Richard Grazer, Roger Garceau, Brent Fletcher, Richard Jacobs, John Patrick, Andrew Miller, Jonathan Wolf, Paul Williamson, Joseph Sabato, Donald MacDougall

**Robert A. Klugman, MD '77, Andrew J. Miller, MD '79, Mary R. Hawthorne, MD '81, Joseph F. Daigneault, MD '90, and Stephen P. Griffey, MD '92,** were recently recognized by their peers at UMass Memorial Medical Center for their collegiality, dedication and passion for their work and commitment to providing patients with quality care at the highest level of safety.

## 1984

**Richard C. Antonelli, MD,** has been named medical director of the primary care practice at Connecticut Children's Medical Center. He is also chief of primary care and director of the Division of General Pediatrics for the Faculty Practice Plan at CCMC. Dr. Antonelli, an assistant professor of pediatrics at UMMS, has focused his clinical research on measuring outcomes of care coordination for children and youth with special health care needs, and his advocacy efforts include the "Medical Home" method of providing comprehensive, culturally attuned, family-centered care for pediatric patients and their families. Dr. Antonelli was previously lead physician at UMass Memorial Health Care affiliate Nashaway Pediatrics, which he founded in 1987.

## 1985

**Mitchell J. Gitkind, MD,** clinical associate professor of medicine at UMMS, serves as medical director—with fellow alumnus **John J. Kelly, MD, '92**—of the UMass Memorial Weight Center. The center offers a multidisciplinary approach; a team of psychologists, nutritionists, exercise specialists and support staff assists patients in what is considered among experts in the field as a state-of-the-art program.

## 1986

**Timothy J. Babineau, MD, MBA,** is senior vice president and chief medical officer for the University of Maryland Medical Center. A surgeon, Dr. Babineau is also a member of the university's faculty. He had previously held several leadership positions at Boston Medical Center, including vice chairman of surgery, chief of gastrointestinal surgery and director of the Center for Minimally Invasive Surgery, and served on the faculty of Boston University School of Medicine. During his time at Boston Medical Center, Dr. Babineau was surgeon-in-chief at Quincy Medical Center and executive vice president of Boston University General Surgery Group. Previously, he served on the surgical staff at Beth Israel Deaconess Medical Center and as an assistant professor of surgery at Harvard Medical School.

**Seth D. Bilazarian, MD,** a cardiologist in the Haverhill office of Pentucket Medical Associates, successfully completed the Registered Physician in Vascular Interpretation Exam. The exam focuses on relevant anatomy, physiology, instrumentation and physical principles and tests the knowledge and skills physicians use while working in a team in a vascular laboratory. Upon completion of the exam, Dr. Bilazarian received the new Registered Physician in Vascular Interpretation credential, which is intended for practitioners of such specialties as cardiology, radiology, vascular surgery and vascular medicine.

## 1987

**Mary P. McGowan, MD,** a leading cholesterol specialist and medical director of Concord Hospital's Cholesterol Treatment Center, recently became the first physician in New Hampshire to achieve board certification in lipidology, the study of ef-

fects of fat in the body. Dr. McGowan has written numerous books and articles on cholesterol, women and heart disease, and familial hypercholesterolemia. In addition, she has been the primary investigator for many national and international clinical trials of cholesterol-lowering medications, and lectures frequently for the American Heart Association and National Lipid Association.

## 1989

**Pamela L. Alix-Bloznalis, MD**, is a member the pediatric staff at Tri-River Family Health Center in Uxbridge, Mass. Her interests include adolescent medicine and gynecology, behavioral pediatrics, and international health and adoption.

**Carol A. Burd, MD**, and **Douglas A. Burd, MD**, of Weston and New Seabury, Mass. welcomed a new son to their family, Maxwell Frederick, on October 4, 2005. The Burds also have a daughter, Rachel.

**Jeffrey A. Scott, MD**, has joined the medical staff of Tri-County Medical Associates, Inc. in Hopedale, Mass. and serves on the staff of Milford Regional Medical Center. Dr. Scott was most recently an assistant professor of medicine at Eastern Virginia Medical School in Norfolk and chief of pulmonary and critical care medicine at its Health Services affiliate. He also served as medical director of the Pulmonary Diagnostics Center at Norfolk General Hospital. While at EVMS, Dr. Scott received several honors, including a teaching award and an outstanding service award.

## 1990

**Robert V. Talanian, PhD**, is the director of the Department of Molecular Pharmacology at Worcester's Abbott Bioresearch Center, which performs drug discovery research in immunology-based clinical indications. Dr. Talanian's group is responsible for *in vitro* characterization of early drug candidate mol-

ecules in cellular and enzyme assays, and he says he conducts the challenging research by frequently applying the lessons he learned while a UMMS student from faculty members George Wright, PhD, and Neal Brown, PhD, among many others.

## 1992

**Henry D'Angelo, MD**, has been appointed chair of family medicine at Newton-Wellesley Hospital. On the staff since 1995, Dr. D'Angelo provides primary care for adults, children and adolescents at Newton-Wellesley Family Medicine in Walpole, Mass. He is also an assistant clinical professor of family medicine at Tufts University School of Medicine and Brown Medical School.

## 1994

**Nancy E. Hamel, MD**, and physician assistant Lisa Mitchell have established a new laser center in Walpole, Mass. —Medical Laser Solutions. They note that they conduct the procedures themselves, while services at other centers are often under the direction of a medical doctor, but typically performed by technicians.

**Jill T. Lyons, RN, JD**, has been named an associate of Morrison Mahoney LLP's Health Care Practice Group in Springfield, Mass. She will focus on health law and defense of medical malpractice claims. Lyons's prior roles included director of risk management and patient safety manager at Worcester Medical Center and consultant and emergency department interim director for the Nashoba Valley Medical Center in Ayer, Mass. Lyons, who resides in Jefferson, Mass., received her JD degree from the Massachusetts School of Law in Andover. She also serves as chair of the legislative committee of the Central Massachusetts Office of Emergency Services Board of Directors.

## 1995

**Rachel D. Harrison, MD**, is a member of the medical staff at Jordan Hospital in Plymouth, Mass. where she specializes in emergency medicine.



In Newton, Mass. on October 12, 2005, the following alumni joined Vice Dean for Undergraduate Medical Education Michele Pugnaire, MD (right), for an Alumni Breakfast: From left, Susan Auerbach-Ferdman, MD '83, Daniel Silverstone, MD '84, Salvatore Basta, MD '76, Leslie Shaff, MD '84, and Joshua Boyce, MD '85.

# Vitae: Class Notes

**Aqeel M. Siddiqui, MD**, a vascular surgeon, has joined the medical staff at Saint Anne's Hospital in Fall River, Mass.

## 1996

**Sarah Goff, MD**, recently joined the UMass Memorial Children's Medical Center Division of General Internal Medicine. Dr. Goff served a Robert Wood Johnson Clinical Scholars Fellowship at Yale University.

**Nathan R. MacDonald, MD**, has been appointed chief of emergency medicine at Lowell General Hospital in Lowell, Mass. Dr. MacDonald previously served as assistant medical director of LGH's emergency department.

## 1999

**Henry Danis, MD**, a specialist in gastroenterology, has joined the medical and dental staff of St. Francis Hospital and

Karl previously practiced internal medicine at Anchor Medical Associates in Warwick, Rhode Island. Before attending UMMS, she was a certified public accountant and worked in that field for several years.

## 2000

**Michael J. Mitchell, MD**, is an internal medicine physician with Hawthorn Medical Associates in Dartmouth, Mass.

## 2001

**Lenna Finger, MD**, has joined Revere Family Health Center in Revere, Mass. and Whidden Memorial Hospital in Everett. Dr. Finger's interests include adolescent medicine and eating disorders.

**Elizabeth M. Gittinger, MD**, practices at Winchester OB/GYN Associates in Winchester, Mass.

During an Alumni Breakfast at Worcester's Beechwood Hotel on October 27, 2005, the following alumni gathered for a photograph: First row, from left: Jerry Gurwitz, MD '83, Barbara Stewart, MD '81, Madeleine Fay, MD '78, Sheila Callahan-Butler, MD '82. Second row: Joseph DiFranza, MD '81, Marc Restuccia, MD '84, Paul Ricciardi, MD '79, Paul Sedgwick, MD '84. Third row: Rod Miller, Vice Chancellor for National Research Advancement, Alan Farwell, MD '84, Steven Rozak, MD '83, Kevin DeLacey, MD '81, Kathleen Cleary, MD '84. Not pictured: Eleanor Duduch, MD '84, Gerald Gleich, MD '84, Gordon Saperia, MD '77.



Medical Center in Hartford, Conn.; he will practice as a member of Prime Healthcare.

**William A. Heinser, MD**, and two colleagues have established Groton Medical Associates in Groton, Mass. The new practice specializes in adult internal medicine, including preventive care.

**Joan Karl, MD**, recently joined Tri-County Medical Associates, Inc., practicing with Primary Care Physicians in Milford, Mass., and is on staff at Milford Regional Medical Center. Dr.

## 2002

**Michael A. Dedekian, MD**, former pediatrics chief resident and an instructor in pediatrics at UMMS, was the recipient of the inaugural Dr. Robert Thomas Teaching Award presented at the institution in November 2005. The award was established to honor the teaching legacy of Dr. Thomas, a Westborough resident who was a pediatrician at UMass Memorial Medical Center and a UMMS assistant professor of pediatrics for

many years before his death in 2004. The award, which will be presented annually to the resident who best exemplifies Dr. Thomas's dedication and skills as a teacher, is unique at UMMS in that the recipient is chosen solely by fellow residents. In accepting the award, Dr. Dedekian reflected that although he hadn't had the privilege of being a student of Thomas's, his teaching influence was palpable in the department. Dr. Dedekian added that he was "overwhelmed and honored to receive the award."

**Katherine E. Frias, MD**, has joined Southcoast Primary Care in Dartmouth, Mass. and is a member of the medical staff at St. Luke's Hospital. Dr. Frias's interests include pediatric safety and trauma issues and adolescent medicine. She is a recipient of several awards, including a New England Pediatric Society award, the Janet M. Glasgow Memorial Achievement citation from the American Medical Women's Association, and a Community Access to Child Health grant from the American Academy of Pediatrics for planning a pilot project aimed at injury prevention at home.

**Tessa Lafortune-Greenburg, MD**, recently joined the pediatric department of Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire.

**Paul R. Larson, MD**, completed studies in Tropical Medicine & Hygiene at the Liverpool School of Tropical Medicine in England, and is now practicing at Kapsowar Hospital in Kenya as part of Africa Inland Mission International. He resides in Kenya with his wife, Alysia, and daughters Juliana, 4, and Chara, 2. Mail may be sent to Dr. Larson at 135 Tyler Run Road, York, PA 17403. Mail received at this address will be screened and sent once a month to Kenya. Mail may also be sent to A.I.C. Kapsowar Hospital, P.O. Box 68, Kapsowar, Kenya, 30705.

**Bronson E. Terry, MD**, recently joined the staff at the Day Kimball Hospital Pediatric Centers in Putnam, Conn.

## IN MEMORIAM

**Thomas S. French, MD '87**, died from Lou Gehrig's disease on Sept. 8, 2005. Dr. French was an assistant professor at UMass Medical School and practiced plastic surgery. An enthusiastic musician, Dr. French also authored—through the use of his eyes and a special computer—*Who's Right (Whose Right?): Seeking Answers and Dignity in the Debate Over the Right to Die*. He is survived by his wife, Jacqueline S. French, and daughter, Lauren S. French, of Barnard, Vermont.

## A New University of Massachusetts Tradition

The University of Massachusetts Club, founded in 2005, is located atop 225 Franklin Street in Boston, and alumni, faculty, staff and friends of the University are active at the member-supported club.

The club offers expansive views of the city and a spacious floor plan for hosting business meetings and social events. "We are certain that our club will serve the University for many years to come and will be a hub for exchanging ideas, goals and achievements," said General Manager Meredith Waites.

The staff of the University of Massachusetts Club invites alumni, faculty, staff and friends of the University to attend a complimentary continental breakfast any Tuesday, Wednesday or Thursday, between 8 and 9 a.m. For reservations, contact the Membership Office at (617) 287-3020 or e-mail [toby.owren@clubcorp.com](mailto:toby.owren@clubcorp.com). For more information about the club, visit [www.umassclub.com](http://www.umassclub.com).

**Alumni of the School of Medicine, Graduate School of Biomedical Sciences and the Graduate School of Nursing may send their latest news to [alumni@umassmed.edu](mailto:alumni@umassmed.edu)**



On October 21, 2005, alumni attended a breakfast in their honor in Newton, Mass. From left, Paula Lutz, MD '85, George Topulos, MD '80 (see a Profile of Dr. Topulos on page 22), Melanie Brunt, MD '81, Leonard Finn, MD '74, Virginia Palazzo, MD '85, Elizabeth Vinton, MD '85, and Bernadette Leber, MD '83.

# Vitae: The Last Word

By Aaron Lazare, Chancellor and Dean of the University of Massachusetts Medical School

*Since Dr. Aaron Lazare stepped into the role of Chancellor and Dean of the University of Massachusetts Medical School nearly 15 years ago, the institution has experienced tremendous growth. During his tenure, the school has garnered a national reputation for its primary care educational program, with U.S. News & World Report consistently ranking UMMS among the top of the nation's 125 medical schools in primary care education—fourth again in April 2006. The school's annual research funding has increased from \$40 million to \$175 million, and the institution has grown from one to multiple campuses. To ensure such continued success and embrace future growth, UMass President Jack M. Wilson accepted Dr. Lazare's recommendation to split the Chancellor and Dean role into two positions: Dr. Lazare will continue to hold the title of Chancellor, and a new Dean of the School of Medicine will be selected. Below, Dr. Lazare describes the responsibilities of the future Dean, for whom a search is already underway, as well as his own role in the coming years.*



Upon selection of a new Dean, I expect that she or he will assume full responsibility for the academic direction and resource allocation within the School of Medicine and the Graduate School of Biomedical Sciences. The new Dean will be primarily responsible for issues concerning our faculty and the academic relationship with UMass Memorial Health Care. I will concentrate my energies on matters external to the School of Medicine, with primary attention being given to relationships with the University Board, the community, the legislature and the philanthropic community, while I continue to oversee the institutional infrastructure such as information services, facilities maintenance, total campus finances and

human resources. In addition to the Deans of the School of Medicine and the Graduate School of Nursing, I anticipate I will have two entities directly reporting to me: the auxiliary enterprises that are Commonwealth Medicine and the Massachusetts Biologic Laboratories.

Because of the importance of the Worcester campus to the University of Massachusetts system and of these new positions to the campus's future success, President Wilson has agreed to partner with me throughout this process, from search committee selection to the final appointment of the new Dean, which is anticipated to occur this fall. In April, he met with academic department chairs, faculty, students, residents and the leadership team of our clinical partner, UMass Memorial Health Care, to learn more about our needs and aspirations and to demonstrate his commitment to this process.

The search committee, chaired by David C. Ayers, MD, the Arthur M. Pappas, MD, Chair in Orthopedics, includes leadership from the Medical School's departments of Cancer Biology, Cell Biology, Family Medicine & Community Health, Medicine, Molecular Medicine, Obstetrics & Gynecology and Surgery, as well as the offices of Diversity and Equal Opportunity and Graduate Medical Education, the Massachusetts Biologic Laboratories, UMass Memorial Health Care and the President's Office.

This spring Spencer Stuart, the firm retained as our search consultant, conducted a series of interviews and forums with faculty and staff. Their purpose was to garner an environmental assessment of the challenges unique to our campus culture, the current character of our campus, and a representation of campus views as to the qualities we seek in the new Dean. Spencer Stuart, working closely with me and the search committee, have synthesized this information and developed a specific candidate profile.

I have always found great strength in the involvement of our many important constituencies who bring excellence and national distinction to our missions and programs. Although not everyone can be individually contacted, all have the opportunity to be involved through a link on our Internet home page ([www.umassmed.edu](http://www.umassmed.edu)) to "UMMS Medical School Dean Search."

The history and trajectory of this institution has been nothing short of spectacular. That has only been achieved through the collective contributions of our faculty, staff and students. With their assistance and support, the recruitment process will ensure the selection of a new Dean who will spearhead our continued accomplishment and growth—growth guaranteed to accelerate in the decades ahead.

A handwritten signature in black ink that reads "Aaron Lazare".

Aaron Lazare, MD

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