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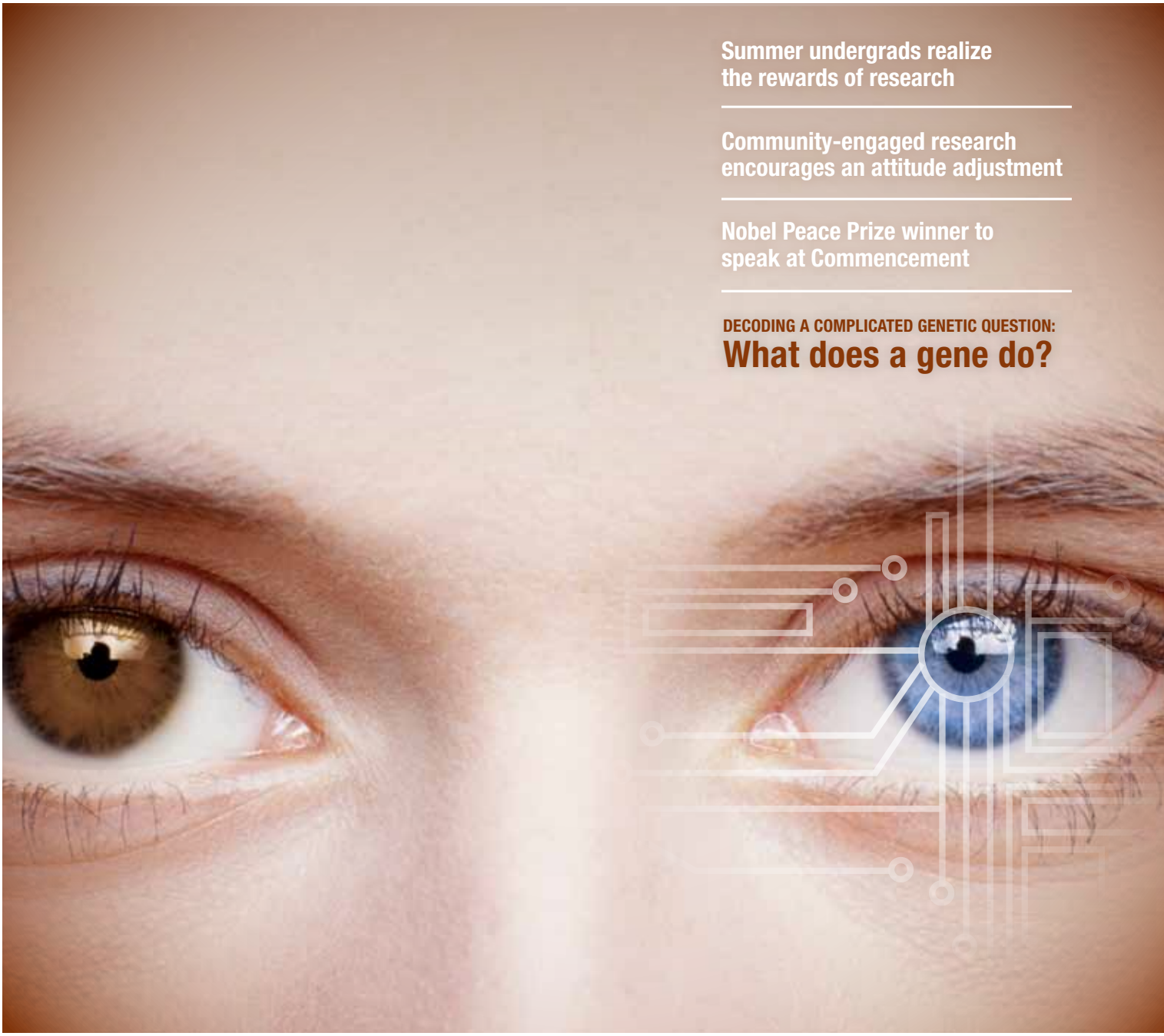
The University of Massachusetts Medical School Magazine

RESEARCH 2012



Summer undergrads realize the rewards of research

Community-engaged research encourages an attitude adjustment

Nobel Peace Prize winner to speak at Commencement

DECODING A COMPLICATED GENETIC QUESTION:

## What does a gene do?

The University of Massachusetts Medical School, the state's first and only public academic health sciences center, educates physicians, scientists and advanced practice nurses to heal, discover, teach and care, with compassion. Our mission is to advance the health and well-being of the people of the commonwealth and the world through pioneering advances in education, research and health care delivery.

# RESEARCH THAT SETS UMASS MEDICAL SCHOOL APART

This research-focused issue of *UMass Med* magazine highlights some of the work that speaks to the mission of UMass Medical School—and truly sets it apart. Genetic research has entered a new and exciting era with the use of next generation sequencing technology, allowing scientists to more efficiently analyze the sea of genetic information to address some of medicine's toughest mysteries. Read about this exciting work, as well as how the Medical School is drawing in the next generation of scientists and connecting with the community research that will make a difference in the lives of our neighbors—locally, nationally and globally. We welcome your feedback. Email ummscommunications@umassmed.edu.





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As you read about the dynamic UMass Medical School community, you'll frequently come across references to our partners and programs.

### Commonwealth Medicine
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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.

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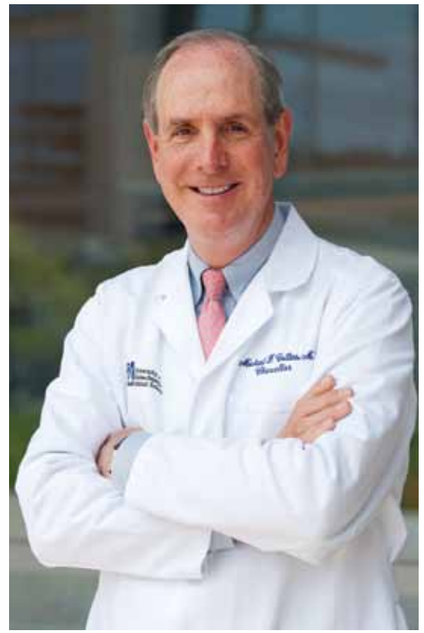
# Chancellor's Message

In my Convocation address this last fall, I talked about hope, and how it characterizes so much of the mission of our medical school: The hope that an educated mind can improve the human condition; the hope that our research efforts and innovative thinking can make progress in unraveling basic scientific mysteries; the hope we give to our patients when we pledge to promote and protect their human dignity.

**"Having recently participated in a successful Match Day where our medical students' collective hopes were answered with outstanding residencies, many of them here at UMass, I am also filled with hope as I think about the future of UMass Medical School."**


Having recently participated in a successful Match Day where our medical students' collective hopes were answered with outstanding residencies, many of them here at UMass, I am also filled with hope as I think about the future of UMass Medical School.


The Albert Sherman Center recently marked a milestone, becoming weather tight as work continues within the structure in preparation for a scheduled opening in December. In this building, the innovative centers that will be established to advance clinical and translational science will usher in a new era of collaborative science, which has long been a hallmark of our institution.



Michael F. Collins, MD
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Translational science means that laboratory and clinical scientists are working together in new ways. Findings from the bedside are being brought directly to basic scientists, giving them a clear path to clinically relevant research. Likewise, results from the lab are much more quickly, but still safely, being applied in the clinic. We are creating new avenues of communication, new opportunities for collaboration and completely new ways of preventing, diagnosing and treating disease.

At the same time, we have remarkable new technologies available, including those to analyze our genetic makeup, allowing researchers to investigate the links between symptoms and the biologic processes that underlie them. I invite you to read this issue's cover story about the Medical School's cadre of deep sequencers, which are helping scientists to decode complicated genetic questions quickly and efficiently. It is still amazing to realize that the Human Genome Project took 13 years and millions of dollars to complete the first human genome sequence, while in the near future, scientists expect to do the same sequence in a single day for under $1,000.

While the hope that comes from our research efforts is exciting, the other stories highlighted in our magazine are similarly inspiring. As Massachusetts' public medical school, we are deeply invested in the communities of the commonwealth. I encourage you to read about the work we are doing to make our residents healthier and to inspire young scientists through summer outreach programs.

Be sure to read about our team of Boston Marathon runners who are raising money for ALS research at UMMS. Your support for the team and for the UMass ALS Champion Fund, which is being chaired by former Massachusetts Gov. Paul Cellucci, himself an ALS patient, will help our researchers pursue leads and breakthroughs now that might otherwise take years to attract funding from traditional sources.

Your support for UMass ALS Champion Fund and UMass Medical School will continue to foster the hope that I see every day on this campus. Please read on to see the remarkable evidence that our time is now.

Decoding a complicated genetic question:

# What does a gene do?

Next generation deep sequencers at UMass Medical School answer fundamental genomic questions

**In a series of sealed clean rooms on UMass Medical School's Worcester Foundation campus in Shrewsbury, an absolutely unimpressive group of machines resides. Unlike Hollywood-created laboratories with flashing lights and whirring servos, these machines are mostly notable for their little-known nicknames: One is "Nemo" (as in Captain Nemo, the explorer); another machine is "Kraken," the sort of sea monster with which Nemo might battle. Others are "Grendel" and "Goron" and the newly-refurbished "HMS Beagle" (Darwin's ship).**

If the names are whimsical, the work these machines do is not. They are being asked to answer some of the most fundamental questions in the life sciences: "What does this gene do?" "What does this genetic sequence mean?" "Why does this snippet of genetic material make a crucial protein, and another snippet, almost identical, cause disease?" To these questions, Nemo and Kraken, Goron, Grendel and the Beagle are churning out answers.

Almost everyone knows something about genetics, whether it's the heritability of characteristics such as eye color, the phenomenon of identical twins or the passing of a disease or disorder down through generations. Recently, decoding genetic material residing in all living cells is providing insight into how all of these things happen. Unwinding the mystery of the double helix—the shape of DNA—showed how genes provide instructions to cellular machinery to build proteins and other substances that are the building blocks of living organisms. When science definitively linked instructions in the genome (the entirety of an organism's genetic information) to a particular outcome, science had a new and abiding quest: decode these instructions and determine the outcomes.

BY MARK L. SHELTON
UMass Medical School Communications

*Dale Greiner, PhD, far left, and John Landers, PhD, left, are using next generation sequencing machines to answer genomic questions coming out of their research in diabetes and ALS, respectively. The machines, like the one pictured below, can sequence a genome in a period of days for a few thousand dollars.*

Early progress in decoding was both immensely promising and intensely frustrating, no place more so than in the search for which genes did what, especially in finding the genetic basis for a disease. Scientists were able to compare stretches of DNA from an organism with a disease to one without the disease. This produced an understanding of the origin of some diseases, particularly those that passed from one generation to the next. But the DNA ocean is vast—three billion or so base pairs (the basic building blocks of a gene)—where a gene of interest may be surrounded by thousands of base pairs that are irrelevant to that gene's activity.

As recently as the 1980s, this decoding process, or sequencing, was glacially slow. Scientists would work for months to ascertain the order of a few base pairs. The simplicity of the building blocks—the nucleotides adenine, guanine, thymine and cytosine in DNA, or "A," "G," "T" and "C," where A pairs with T and G with C to form base pairs—captures both the elegant efficiency of DNA and the maddening complexity of a system where such exquisite precision determines what a gene does and doesn't do.

By the 1990s, comprehensive efforts to sequence the human genome were underway. While the first draft of the human genome provided vast amounts of information, that huge reservoir came from great investments of time and money: $3 billion and a decade for the NIH-led Human Genome Project; $300 million for an industry-led genome project using a different technical approach. The publication of these genomes in 2000, with repeated refinements over the next five years, produced a searchable database of about 90 percent of the human genome. This gave scientists a library, but not a tool. It was only with the development of new sequencing technologies that the utility of sequencing became real to bench scientists.

How real? In little more than a decade, genomics research has gone from producing information so slowly as to create a bottleneck, to producing information so rapidly that the cost of storing and transporting the data is higher than the cost of producing it. Welcome to the world of "nextgen," or more formally, next generation sequencing.

Researchers at UMass Medical School have been at the front edge of nextgen since there was a nextgen. In 2006, following a presentation to the Chairs Council about the promise of nextgen, Phil Zamore, PhD, Howard Hughes Medical Institute (HHMI) Investigator, the *Gretchen Stone Cook Chair of Biomedical Sciences* and professor of biochemistry & molecular pharmacology, Craig Mello, PhD, HHMI Investigator, *Blais University Chair in Molecular Medicine* and distinguished professor of molecular medicine and cell biology, and Michael Green, HHMI Investigator, the *Lambi and Sarah Adams Chair in Genetic Research* and professor of molecular medicine and biochemistry & molecular pharmacology, wrote a research proposal to HHMI to purchase the first Illumina sequencer at UMMS—that was Nemo. Since then, the UMMS sequencing core has amassed an army of machines that will be joined by a machine from Pacific Biosciences that UMMS won in a spirited competition among HHMI scientists who submitted proposals to host these scarce and expensive machines regionally. When the PacBio arrives, HHMI investigators from across the mid-Atlantic and New England will send their samples to Worcester to run their experiments. An important perk for the host institution is that a significant portion of the machine's experimental capacity will be available to non-HHMI scientists on the Medical School faculty.

The impact of these machines on how scientists think about science can't be overstated, and has to do with time, cost and the specificity of the result. The ability to sequence a genome in a period of days for a few thousand dollars means that scientists can turn vast genomic data into recognizable patterns. Other scientists have gone from hunting for a genetic needle in a haystack of DNA to having to sort through a handful of needles to find the right one.

So researchers can do things like make repeated comparisons of genomes to see how a fruit fly's DNA changes during its lifespan; viruses that mutate rapidly and easily can be repeatedly sequenced to identify areas of high mutability (making them unlikely targets for drug therapies) and areas that don't change at all (ideal drug targets). And perhaps most extraordinarily for the vibrant RNA community at UMMS, the trove of RNA sequences that can be rapidly parsed means that the actual processes of transcription, translation, messengering and interfering (as in RNAi) can be captured with a specificity that a few years ago was largely theoretical.

Take, for example, diabetes. It is a very common disease, but there's no single gene that causes it. Instead, there appear to be many factors at play. If you could stretch out the genome of a person without diabetes next to the genome of a diabetic, there would be what seem to be countless differences, right down to apparent differences in the actual cells that produce insulin, which thrive in someone without diabetes, and die in someone with it. Why, for example, when insulin-producing beta cells are extracted from a donor pancreas and transplanted into a diabetic, do some of them proliferate and some don't?

That's exactly the question that has Dale Greiner, PhD, professor of molecular medicine and a leading expert in the molecular biology of diabetes, so excited about nextgen sequencing. Along with David Harlan, MD, the *William and Doris Krupp Professor in Medicine,* professor of medicine, and co-director of the UMass Memorial Health Care Diabetes Center of Excellence, Dr. Greiner is part of the new NIH-funded Beta Cell Biology Consortium, and after spending a

prolific career studying why beta cells die, is now ready to study what differences there are, genomically, between beta cells that die and beta cells that don't.

"We know there are genetic differences that affect beta cells," he said. "We also know that there are about thirty thousand genes, so the 'candidate gene' approach that looks at specific genes is arduous; arrays that let you look at lots of genes at once are less arduous, and less specific. But to be able to extract RNA from proliferating cells, and also from non-proliferators, and sequence *everything* . . . if there are five thousand copies of a gene in a beta cell proliferator, and two copies in a non proliferator, you've found something. And you've found it rapidly, and, we hope, reproducibly."

The challenge for gene-hunting scientists like John Landers, PhD, associate professor of neurology, is something of the opposite. It lies in finding a single, disease-causing genetic change amid billions of DNA base pairs. As Greiner observed, scientists have until recently been restricted to only investigating a relatively small section of the genome at a time.

"It wasn't that long ago that we'd look at a narrowly defined region of the genome where we thought a disease-causing mutation might be hiding," said Dr. Landers. "The rise of next generation sequencing technologies has changed how we work."

"We're still asking the same questions," said Landers, who investigates the genetics underlying amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease, and Parkinson's disease. "But how we answer those questions is very different now."

Instead of looking at a small portion of the genome and going through the fairly long process of sequencing each gene, Landers can use next generation sequencing to get complete genomes from tissue samples of patients from families who have a history of ALS or Parkinson's. "We went from looking for a single change in a sea of DNA to having all those changes at our hands thanks to deep sequencing and having to figure out which of those is the one that's causing the ALS."

> **"We're still asking the same questions, but how we answer those questions is very different now."**
>
> – John Landers, PhD

Challenges still pervade nextgen sequencing. A major preoccupation in the field right now, for example, is the storage of these vast seas of data and the cost of analysis. The availability of the technology means, as Dr. Zamore observes, that every single experiment they do generates results that suggest new, more specific questions to be answered.

When PacBio arrives, UMMS will have a powerful collection of nextgen and a faculty eager to put it to use. Simon Xi, PhD, a research associate professor of biochemistry & molecular pharmacology and director of the new Bioinformatics Core, was more than a little surprised that in his first five months getting the core up and running, he found himself working with *18* different UMMS labs. "That's pretty amazing," he said.

## Genetic adaption process captured using a tiny fly

In his quest to understand how the genome adapts to an invasion by transposons—small, mobile sequences of DNA that threaten the genetic integrity and stability of an organism—William E. Theurkauf, PhD, professor of molecular medicine (pictured, left), turned to the experts in the Deep Sequencing Core and their cadre of next-generation sequencing machines for assistance.

The challenge of unraveling this unique and critical biological mechanism began with a keen observation by Jaspreet Khurana, a PhD student in Dr. Theurkauf's lab. It's known that crossing lab-bred female *Drosophila* with male flies caught in the wild results in offspring that are sterile. This happens because the offspring inherits a transposon from the male that causes genetic instability resulting in sterility. What Dr. Khurana learned, however, is that after about three weeks, the progeny of these crosses regained their fertility.

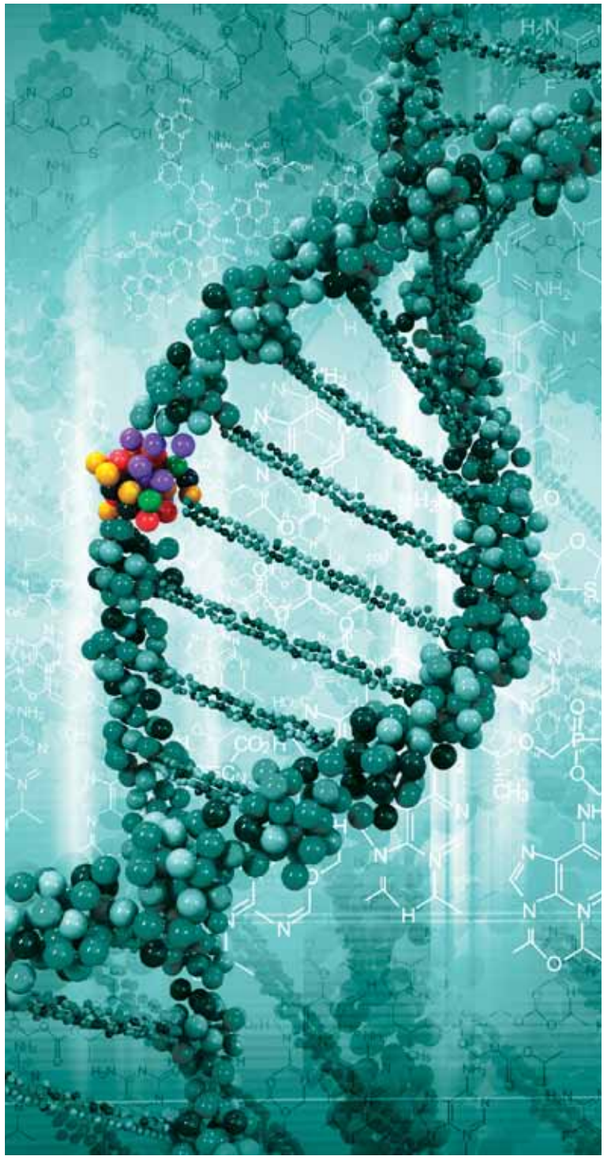
"Based on the observation that the flies recovered, it seemed likely that they were learning how to shut down transposons," said Theurkauf.

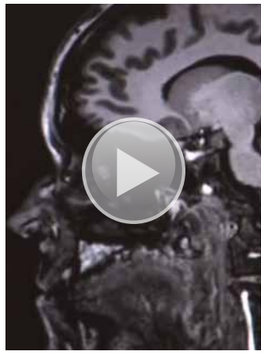
Using a multi-disciplinary approach that included next generation sequencing, Theurkauf and his collaborators at UMMS were able to get complete genetic sequences of the sterile, hybrid flies at various stages of their physical development. Jie Wang, PhD, a postdoc in the lab of Zhiping Weng, PhD, professor of biochemistry & molecular pharmacology and director of the Program in Bioinformatics and Integrative Biology, analyzed the genetic information to see how the genome of the progeny were responding to the introduction of the new transposon.

What they found was startling. In the hybrid offspring, the new transposon had triggered a response that disrupted the entire machinery responsible for containing these mobile genetic elements. Not only was the newly introduced transposon jumping around the genome and causing a problem, which was expected, but most of the 120 plus transposons in the *Drosophila* genome had also become active.

As the hybrids aged, however, the new transposon and all the existing, resident transposons were shut down and fertility was restored. For the new, invading transposon, it turned out that the flies learned to process the transcripts inherited from the father and silence the transposon. Resident transposons, by contrast, jumped into RNA clusters and altered the architecture in a way that silences the resident elements.

*Next generation sequencing machines will allow scientists to turn vast genomic data into recognizable patterns, or target a handful of needles in a haystack to find the right genetic culprit.*





### Brain imaging and postpartum depression

Physician-scientists are using a series of innovative imaging techniques to measure chemical levels in the brains of postpartum women in an effort to understand why certain women develop depression after giving birth. »

## A persistent clue in stem and cancer cells

A UMass Medical School research team, led by Stephen J. Doxsey, PhD, has found that a protein-packed ring known as the midbody—the final gatekeeper of cell division—plays an important role in the ability of stem cells to differentiate into different types of cells and of cancer cells to rage out of control and create tumors. »

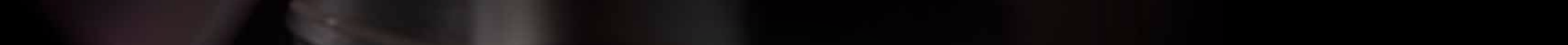
## CTSA at end of year one

See the impact of the National Institutes of Health's $20 million Clinical and Translational Award (CTSA), received by UMass Medical School 18 months ago. The grant placed UMMS among an elite consortium of 55 nationally prominent research institutions working to move laboratory discoveries into treatments for patients, engage communities in clinical research and train a new generation of researchers. »

### Emergency training for real

Volunteers from the Shriver Center in Waltham helped make UMass Memorial Medical Center emergency preparedness training more realistic, while raising awareness about equal access for people with disabilities. »

» For more on these stories, including videos, visit: www.umassmed.edu/pockets



# Realizing the rewards of research

## Summer Undergraduate Research fellows thrill to scientific discovery

**"Bringing talented students into science is something we should all do."**

– Jeffrey Nickerson, PhD

More than a decade ago, Amalene Cooper-Morgan, PhD, had what proved to be a pivotal experience in the UMass Medical School Summer Undergraduate Research Fellowship (SURF) Program. "It was life-changing and determined my future path," said Dr. Cooper-Morgan, then majoring in biology at Long Island University with her sights set on medical school. "I held my first pipette, read journal articles, attended scholarly meetings and felt I might have a talent for research."

Instead of heading to medical school, Cooper-Morgan went on to earn her PhD at Columbia University and is now conducting translational cancer research as a post-doctoral fellow in the laboratory of Brian Lewis, PhD, associate professor of molecular medicine. Cooper-Morgan has also come full circle with SURF, now volunteering as one of three group leaders for the annual 10-week program. "The program has evolved since then, but what hasn't changed is the faculty's commitment to students."

Co-founded and co-directed by Deborah Harmon Hines, PhD, professor of cell biology and vice provost for school services, and Janet Stein, PhD, professor of cell biology, SURF is designed to diversify the pool of biomedical researchers by providing structured, hands-on laboratory research experiences to undergraduate students, especially those from backgrounds under-represented in the field, or who are economically or educationally disadvantaged. Run by the Office of Outreach Programs and funded by the National Institutes of Health (NIH) and the UMMS Office of Research, the program last summer welcomed 32 juniors and seniors from universities and colleges across the country, some of whom had never worked in a laboratory before.

Jeffrey Nickerson, PhD, associate professor of cell biology, and Jack Leonard, PhD, professor of microbiology & physiological systems, are, like Cooper-Morgan and the other group leaders and distinguished faculty who give their time to SURF, committed to inspiring potential future biomedical scientists. Dr. Nickerson hosted two fellows in his laboratory last summer. "I was an undergraduate psychology major when a biochemistry professor offered me a job, and now I do science," he said. "I think that's an opportunity that lots and lots of students should have. Bringing talented students into science is something we should all do."

One of Nickerson's mentees and a member of Cooper-Morgan's group was neuroscience major and education studies minor Nikki Rossetti, a rising senior at Wellesley College, who took first place for best poster

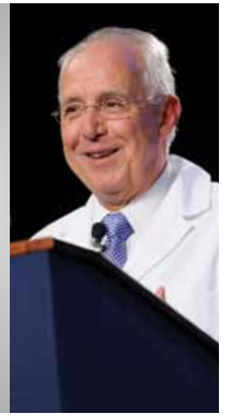
BY SANDRA GRAY
UMass Medical School Communications

## A quieter bird takes flight

A quieter, more efficient Life Flight helicopter ambulance has been zipping off and on the helipad at the UMass Memorial Medical Center University Campus Emergency Department. Get a feel for what it's like to fly in this important teaching vehicle. »


## Filling the White Coat with substance

White Coat Ceremony keynote speaker Darrell G. Kirch, MD, president and chief executive officer of the Association of American Medical Colleges, cautioned students that although their newly donned white coats might be the correct size, they won't fit. "It will take quite a bit of time to fill them with substance." See reaction to the event. »



## Doctors cook up heart-healthy dinners

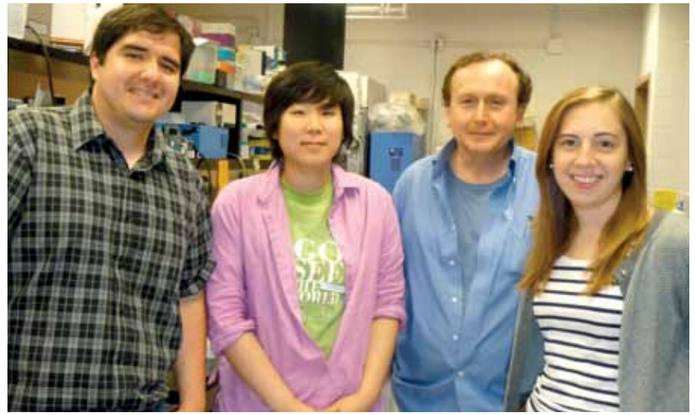
Cardiac fellows cooked up a healthy meal to get an idea of what their patients would be learning during the optional cooking classes that are part of the cardiac rehab services of the Division of Preventive and Behavioral Medicine. »

## Recognizing precious donors

As a way of expressing their gratitude for the incredible gift they've been given, medical students participate in a memorial service at the end of each academic year to meet the families and friends of their human donors and thank them for their sacrifice. Watch moments from the 2011 memorial service in this video. »

» For more on these stories, including videos, visit: www.umassmed.edu/pockets

*Amalene Cooper-Morgan, PhD, has come full circle with UMass Medical School's Summer Undergraduate Research Fellowship. She started as a participant when she was an undergraduate at Long Island University with her sights set on medical school. Instead, she went on to earn her PhD, and now is a postdoctoral fellow in the laboratory of Brian Lewis, PhD, and volunteers with the program as a group leader.*



*Above: Jeffrey Nickerson, PhD (second from right), hosted Summer Undergraduate Research Program students Nikki Rossetti (far right) and Dan Pak, with much assistance from postdoctoral fellow Alexandre Quaresma, PhD (left).*

presentation at the SURF closing ceremonies. "It was exciting to be using microscopy in a new way and actually generating results," Rossetti said of her project, conducted with the state-of-the-art three-dimensional microscope that supports the work of a major UMMS program project grant from the National Institute of Cancer.

"After spending several full days in a cold, dark room taking pictures of cells, I didn't know if they were good pictures and if I was actually generating any data, but when we come back up here and we processed the files and plugged them in, all of a sudden we could tell something about the biology of the cell," said Rossetti. "It was an 'aha' moment."

"Nikki's not just taking pictures, she's doing a very sophisticated microscopy technique called fluorescence recovery after photobleaching that requires a lot of quantitative analysis and computations," added Nickerson, who directs the Medical School's Three-Dimensional Confocal Microscopy Core laboratory.

"What I do is share the joy that I experience in the lab," said Dr. Leonard, a founding faculty member who has been mentoring undergraduates since SURF's inception. "Students learn that success in science requires persistence and vigilance. You have to be an optimist and find kernels of truth even in your mistakes."

> "Students learn that success in science requires persistence and vigilance. You have to be an optimist and find kernels of truth even in your mistakes."
>
> – Jack Leonard, PhD

"It's been very informative to see how science really works in a full-spectrum clinical health sciences center," said Rossetti. Members of Cooper-Morgan's group also received the second and third place awards for their poster presentations, which was a thrilling reward for the supportive but demanding teacher. "If even one of them thinks about a career in research, then we have done our job," Cooper-Morgan said with satisfaction. U

# An attitude adjustment

## Small changes lead to improved health for entire communities

Eight years ago, UMass researchers embarked on a study to see if small changes in diet and exercise could reduce pre-diabetes indicators in a Latino population at risk for developing diabetes. The researchers, led by Ira Ockene, MD, the *David and Barbara D. Milliken Professor of Preventive Cardiology* and professor of medicine, and Milagros Rosal, PhD, associate professor of medicine, launched the Lawrence Latino Diabetes Prevention Project, a $2.6 million clinical trial funded by the National Institute of Diabetes and Digestive and Kidney Diseases. The team used a model that was culturally sensitive and brought together an array of community groups in Lawrence to introduce weight control, nutrition and exercise programs to Lawrence Latinos who were at risk for developing type 2 diabetes.

The recently published results showed weight changes that were small but significant, demonstrating that even small changes in lifestyle can help prevent or delay the onset of disease, which could provide an affordable approach to addressing this growing problem for similar low-income populations.

What is even more remarkable about the results is that no medical interventions took place. No medications were prescribed. No surgeries

BY ELLIE CASTANO
UMASS MEDICAL SCHOOL COMMUNICATIONS

*An example of community-engaged research, the Lawrence Latino Diabetes Prevention Project brought together an array of community groups in Lawrence to introduce weight control, nutrition and exercise programs to Lawrence Latinos who were at risk for developing type 2 diabetes. Here, Lawrence residents representing a range of ages work out at the Senior Center.*

were performed. The study participants simply changed their habits to improve their health. According to Dr. Ockene, this is how most health improvements occur.

Ockene admits that many physicians—himself included—are "widget bound," saying, "Real health is determined by education, vaccinations, prenatal care, nutrition and activity. Widgets—stents, catheters—are not major determinants of health." Research bears this out. Even as scientists edge closer to unlocking the secrets of cancer, a recent study published in the *British Journal of Cancer* reports that more than one third of all cancers are caused by lifestyle choices such smoking, poor eating habits and inactivity.

The kind of community-based research that Ockene and his colleagues undertook in 2004, in which academic medical centers engage with their communities to improve health through changing attitudes and behaviors, isn't characterized by the "Eureka!" moments that occur when bench scientists make research breakthroughs, then translate that research into therapies to treat or cure diseases. But community-engaged research has the capacity to impact human health in a huge way.

The National Institutes of Health, the largest funder of research in the country, has recognized the importance of such community engagement. Since 2006, the NIH has funded a program to establish 65 translational research centers at nationally prominent research institutions throughout the country that are working to move laboratory discoveries into treatments for patients. An important component is a commitment to engage communities in research and train a new generation of researchers who are skilled at navigating from bench to bedside and community.

UMass Medical School was the beneficiary of that NIH commitment and is currently in the second year of a five-year, $20 million Clinical and Translational Science Award that established the UMass Center for Clinical and Translational Science (CCTS). Ockene, who is director of the Community Engagement Section of the UMass CCTS, said that rather than focusing on a single disease, as some other NIH-funded translational research centers have chosen to do, the UMass center is focusing on the best science for improving health.

This means that the center can pursue community-engaged research that looks like it has the best chance of succeeding and has the potential to result in a broader impact. Recent examples of this

> "Real health is determined by education, vaccinations, prenatal care, nutrition and activity. Widgets—stents, catheters—are not major determinants of health."
>
> – Ira Ockene, MD

community-engaged research include studies on teen-violence prevention, the link between depression and addiction, the best way to improve communication between the parents of sick children and their doctors, and the health benefits of dog walking, to name a few.

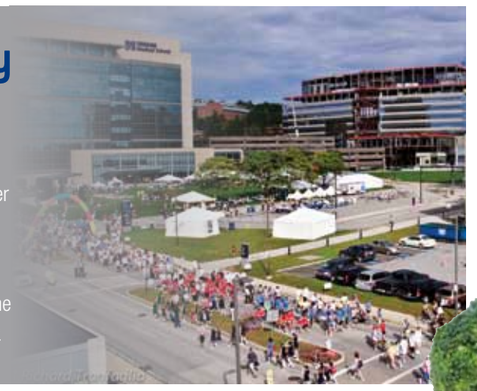
A recent pilot project funded by the Community Engagement Section of the CTSA addresses a need that was identified by community health workers, who often serve as ad hoc interpreters for patients at community health centers. Because community health workers are often bilingual, they are frequently pulled away from their primary patient responsibilities—improving access to care, improving quality and promoting appropriate use of medical care—to translate for non-English speaking patients.

Through a pilot grant, principal investigator Lee Hargraves, PhD, research associate professor of family medicine & community health, is working with community partners from the Outreach Worker Training Institute of the Central Massachusetts Area Health Education Center to determine if medical interpreter training—a specialized service that requires more than just familiarity with a second language and may interfere with patient advocacy—needs to be part of the overall training program for community health workers or whether it conflicts with their prescribed duties. Dr. Hargraves and his colleagues are currently recruiting community health workers to participate in focus groups that will explore the significance of the problem.

What this research and the earlier Lawrence diabetes study have in common, and what defines the exemplary community-based participatory research advocated by the NIH, is that it springs from the community itself. "These projects are born when someone from the community says, 'Here is a problem and this is what we think might be a solution,'" said Hargraves.

## A walk to raise money for cancer research

The annual UMass Medicine Cancer Walk drew nearly 10,000 people to campus in September, all brought together by the fervent desire to support cancer research. Since its inception 13 years ago, the walk has raised more than $7 million in support of cancer research and care programs at UMass Medicine Cancer Center of Excellence. Join us for the 2012 UMass Medicine Cancer Walk on Sunday, Sept. 23. »



### Students help local restaurants create healthy options

Three medical school students are working with local business owners to create a business-friendly model for healthy eating choices. »

### Giving vulnerable kids something to hold onto

Heather Busick, SOM '12, and a group of fellow students have launched the Kelley Backpacks program to give each child who transitions into state care from UMass Memorial Children's Medical Center and the Pediatric Emergency Department something small to call his or her own: a backpack loaded with age- and gender-appropriate items. »

## Empowering a community

Worcester Refugee Assistance Program's Family Health Night was the culmination of months of planning by GSBS student Nang Maung, several medical school students, and members of the Burma Youth Organization who took leadership roles as advocates for their community. »

» For more on these stories, including videos, visit: www.umassmed.edu/pockets

# More support for research funding

**Chancellor Michael F. Collins offered a message of hope to the UMass Worcester campus in his Convocation address in September, but also raised a clarion call to the country for more support of biomedical research, which offers hope to millions of people whose lives are touched by illness and disease every year.**

"Research means hope," said Chancellor Collins. "Research can bring change to the human condition. Research can restore human dignity. If in the earlier difficult times faced by our nation, we gave up an important cause, we would not be the great country that we have become. At each and every complex juncture, we have believed in a brighter future and our actions have confirmed our values and resolve."

In addition to recognizing outstanding faculty, Collins remarked on the outstanding promise of the individuals who comprise the UMass Worcester community—from the students who are preparing to become tomorrow's health care leaders to the physicians, scientists and nurses who are compassionately practicing their professions here and now.

In the midst of hope made possible by the promise of discovery, Collins called for an increase in support for research on a national level, saying, "As I look beyond this campus green, I hope that our nation will find the resolve and the determination to continue its investment in medical research and not destroy the treasure that is our nation's biomedical research enterprise. On behalf of our patients, each of us must raise our voices and increase our resolve to assure that American values prevail, so that America values the promise of medical research. To one who is sick and enters our midst, nothing matters more!"

*Read more about the importance of NIH funding from Craig C. Mello, PhD, 2006 Nobel Laureate in Physiology or Medicine, on page 28.*

# Distinguished faculty win Chancellor's Medals

During his Convocation address in September, Chancellor Michael F. Collins announced the recipients of the 2011 Chancellor's Medals for distinguished teaching, research and service:

**William "Jerry" Durbin, MD,** professor of pediatrics and medicine, received the Chancellor's Medal for Distinguished Teaching and was recognized by Chancellor Collins as "a humble, committed and passionate educator who provides inspiration by encouraging students to learn from their best teachers, their patients."

> **"...a humble, committed and passionate educator who provides inspiration by encouraging students to learn from their best teachers, their patients."**
>
> – Chancellor Michael F. Collins

**Michael R. Green, MD, PhD,** Howard Hughes Medical Institute Investigator, the *Lambi and Sarah Adams Chair in Genetic Research* and professor of molecular medicine and biochemistry & molecular pharmacology, received the Chancellor's Medal for Distinguished Research. According to Collins, Dr. Green was honored for his extraordinary contributions to the scientific body of knowledge and the acclaim that such efforts bring to our institution.

**Marianne E. Felice, MD,** chair and professor of pediatrics and obstetrics & gynecology, received the Chancellor's Medal for Distinguished Service for her legacy as a devoted clinician for adolescents and younger children, a mentor in high demand and a colleague with limitless energy. Collins noted that Dr. Felice, who recently announced her upcoming retirement as chair of pediatrics, has recruited more than 100 pediatric faculty members and has been the driving force behind numerous public health projects that are bettering the lives of children throughout the commonwealth.

# Three faculty members invested as named professors

In front of an audience that included friends, families, faculty and benefactors, two UMass Medical School professors—and a professor-to-be—were invested into endowed positions at UMMS that were created with just these sorts of leaders in mind: faculty at the top of their professions in fields that have an important human impact.

> **"I'm also so grateful to my 'mosaic' of mentors here and throughout my career, who have always exulted in the possibilities."**
>
> – Julia D. Andrieni, MD

Melissa J. Moore, PhD, a Howard Hughes Medical Institute Investigator and professor of biochemistry & molecular pharmacology, was invested as the Eleanor Eustis Farrington Chair in Cancer Research. Dr. Moore, who joined UMMS in 2007, is a founder and co-director of the RNA Therapeutics Institute at UMMS.

Julia D. Andrieni, MD, was invested as the third Joy McCann Professor for Women in Medicine. Dr. Andrieni is associate professor of medicine and UMass Memorial Medical Center chief of general internal medicine. In accepting the role as McCann Professor, Andrieni said, "I'm so honored and so appreciative of this recognition, and so excited about the opportunity it affords. I'm also so grateful to my 'mosaic' of mentors here and throughout my career, who have always exulted in the possibilities. That's what I hope to instill in those I work with."

Jeremy Luban, MD, invested as the David J. Freelander Professor of AIDS Research, is new to UMMS. He came to Worcester for Investiture from his post as professeur ordinaire in the Department of Microbiology and Molecular Medicine of the University of Geneva. "I graduated from medical school in 1987, the same year that the Freelanders lost their son, David, at the age of 32; their wish to support research honors him, and it is an exceptional honor for me to be here in this role," said Dr. Luban.

# Boston Marathon runners support ALS research at UMMS

Eight athletes will truly be going the distance for the UMass ALS Champion Fund this spring, running the 26.2 grueling miles of hilly Boston Marathon terrain to raise precious research dollars for UMass Medical School. Now, in addition to stepping up their training to conquer those heartbreaking hills of Newton, each member of the group is also working hard to raise at least $5,000 for the fund.

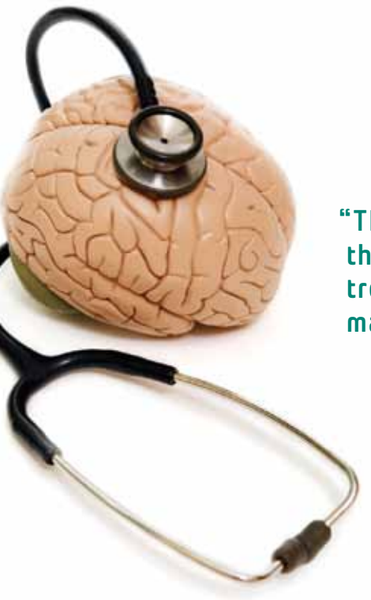
Four of the eight runners have close ties to UMMS: One is a Graduate School of Biomedical Sciences student; one works for Information Services; one is a registered nurse at UMass Memorial Medical Center; and another is a former employee who works frequently for the Medical School as a freelance photographer. Other team members have connections to former Gov. Paul Cellucci (pictured, left), who is living with the disease and helped launch the UMass ALS Champion Fund last spring, or know other people affected by ALS.

The UMass ALS Champion Fund [umassals.com] will help researchers pursue leads and breakthroughs right now that might otherwise take years to attract funding for from traditional sources. The fund will support the laboratory of Robert H. Brown Jr., DPhil, MD, chair and professor of neurology, a national leader in ALS research. Cellucci is being treated by Dr. Brown at UMass Memorial.

The members of the team are: Anna Serquina, a GSBS student; Charles Desourdy, associate chief information officer of enterprise networks at UMMS; Rob Carlin, owner of Robert Carlin Photography; Cindy Palmer, RN, a nurse in the Pediatric ICU at UMass Memorial Medical Center; Philip Frattaroli, owner of Ducali Pizzeria in Boston; Joshua Jabaut of Saranac, N.Y.; Michael Traverse of Dorchester; and Ram Viswanathan of Chennai, India.

To support these runners, visit the UMass ALS Champion Fund team's website http://bit.ly/AhMM8u.

UMASS ALS CHAMPION FUND
FUNDING ALS RESEARCH BREAKTHROUGHS



## New center integrates mental health into primary care

The ability of primary care practitioners to involve behavioral health clinicians in patients' total care is essential to effective treatment, according to a growing movement in the health care field. Called integrated primary care, the concept is taking hold nationally as evidence grows that patients are more likely to successfully engage in mental health, substance abuse or health behavior change treatment—which can address problems at the root of other health issues—if they are treated in a primary care setting.

**"There is hard evidence that bringing mental health treatment into primary care makes a difference."**

With the new Center for Integrated Primary Care, UMass Medical School is set to take a national leadership role in this movement, building upon already existing expertise and programs and expanding into other areas, such as creating evaluation standards for effective models.

"There is hard evidence that bringing mental health treatment into primary care makes a difference," said Alexander Blount, EdD, clinical professor of family medicine & community health and psychiatry and director of the center. "When done right, it has been shown to improve access to care, patient satisfaction, provider satisfaction and clinical outcomes."

## Antibody gives hope to liver transplant patients with hepatitis C

A human monoclonal antibody developed by UMassBiologics, when given to patients with chronic hepatitis C virus (HCV) infection undergoing liver transplantation, significantly suppressed the virus for at least a week after transplant and delayed the time to viral rebound. Results from a phase 2 study were presented at the annual meeting of the American Association for the Study of Liver Diseases in San Francisco.

**"one step closer to clearing the virus"**

– Deborah C. Molrine, MD

"The challenge for patients with end-stage liver disease from HCV is that a transplant is not a cure. Because the virus remains in the blood stream, the new liver eventually becomes infected with the hepatitis C virus," said Deborah C. Molrine, MD, deputy director of clinical and regulatory affairs at UMassBiologics and associate professor of pediatrics. "These results show that a human monoclonal antibody targeting the hepatitis C virus can significantly reduce viral loads in infected patients who receive donor livers and moves us one step closer to clearing the virus so the new liver doesn't become chronically infected."

Five hospitals enrolled patients in the trial—Massachusetts General Hospital and Beth Israel Deaconess Medical Center, both in Boston; Lahey Clinic in Burlington, Mass.; Yale-New Haven Hospital in New Haven; and Mount Sinai Hospital in New York City.

## High-tech tools for budding health care pros

Science is alive at the new $72.8-million North High School in Worcester, where students enjoy access to state-of-the-art laboratories, cutting-edge technology and the offices of the Worcester Pipeline Collaborative.

"We have a facility now with the bricks and mortar to match our programs and meet the educational goals for students when it comes to instruction," said Principal Matthew C. Morse.

The Pipeline, a partnership between UMass Medical School and numerous education, community and business affiliates, gives North High students tutoring, mentoring, internships, laboratory experiences, after-school science clubs and summer research opportunities. The program, one of more than a dozen Pipeline initiatives, is designed to improve students' academic skills in science and mathematics, and increase awareness of careers in health care and biomedical research.

## Early Innovator grant helps UMMS lead in health reform implementation

Massachusetts is leading the way in the design and development of information technology infrastructure crucial to national health reform—so far ahead of other states that the Washington, DC-based blog *Politico* recently took notice. A news story covered the New England States Collaborative for Insurance Exchange Systems (NESCIES) and its work on an Early Innovator collaborative agreement administered by Commonwealth Medicine and principal investigator Jay Himmelstein, MD, MPH, professor of family medicine & community health and medicine, and the chief policy strategist in the Center for Health Policy and Research.

The U.S. Department of Health and Human Services awarded seven Early Innovator grants to help states develop the infrastructure necessary for health insurance exchanges as called for in the Patient Protection and Affordable Care Act. The NESCIES collaborative is unique because it involves several states, and it builds on Massachusetts health reform, a functioning Health Insurance Exchange (The Massachusetts Health Connector) and related policy work performed by UMMS and the Massachusetts Executive Office of Health and Human Services.

"It will not be as much of a lift to build the exchange portal for Massachusetts, since we already have a fully functioning exchange," Dr. Himmelstein told *Politico.* "We have built in enough time. We'll be able to deliver. The big challenge is: Can the systems be built in time to fully integrate with other states' systems?"

Health insurance exchanges will use web-based portals to facilitate enrollment in affordable quality health plans by providing real-time eligibility determination, a modern "shopping experience" including comparative information on health plans, and appropriate subsidies for individual consumers and businesses.

## Phenotyping center helps researchers explore new treatments

### NIH designation makes UMass Mouse Metabolic Phenotyping Center one of six elite labs in the country

UMass Medical School has been selected as a National Mouse Metabolic Phenotyping Center by the National Institutes of Health (NIH), making the UMMS center one of six elite laboratories in the country established to provide advanced testing and analysis to researchers exploring new treatments for obesity, diabetes and other metabolic diseases.

The NIH designation comes with a five-year, $2.2 million grant to support operations at the UMass Mouse Metabolic Phenotyping Center (MMPC). "We are excited to earn this important recognition and support from the NIH," said Jason K. Kim, PhD, professor of molecular medicine and medicine, and director of the MMPC. "This puts a big star on the national map for our medical school, and is in line with our mission to support the scientific community that searches for cures for obesity and diabetes, which now affects more than 360 million people in the world."

Dr. Kim, who is an internationally recognized expert in diabetes and obesity research, established the UMass MMPC in 2009 to support the research ongoing at UMMS, and to serve as a resource for scientists in the region.

# Digging deeper to understand autism

Scientists at UMass Medical School are the first to map epigenetic changes in neurons from the brains of individuals with autism, providing the first empirical evidence that epigenetic alterations—changes in gene expression caused by mechanisms other than genetic mutations—may play an important role in the disease. Analysis of these variations revealed hundreds of genetic sites that overlap with many of the genetic regions known to confer risk for Autism Spectrum Disorders.

"We know that autism is a biological disorder," said Schahram Akbarian, MD, PhD, director of the Irving S. and Betty Brudnick Neuropsychiatric Research Institute and professor of psychiatry. "But very little is known about the genetic and molecular underpinnings associated with the disorder. It's been hypothesized that an epigenetic model of autism could potentially explain why genetic screening strategies for the disorder have been so difficult and frustrating. Our study is the first clear evidence gained exclusively from nerve cells pointing to a link between epigenetic changes and known genetic risk sites for autism."

"Our understanding of psychiatric disorders, such as autism, is burdened by the fact that we often can't see the structural changes that lead to disease," said Dr. Akbarian. "It's only by studying these diseases on the molecular level that scientists can begin to get a handle on how the diseases work and understand how to treat them."

## President Obama recognizes UMMS physician as a rising star

Chyke Doubeni, MD, MPH, associate professor of family medicine & community health, was recognized in September by President Barack Obama as one of the country's rising scientific stars with a Presidential Early Career Award for Scientists and Engineers. The Presidential Award is the highest honor bestowed by the U.S. government on outstanding scientists and engineers in the early phases of their independent research careers.

Dr. Doubeni, who joined the UMMS faculty in 2004, focuses on identifying and reducing disparities in health care. He has received continuous funding from the National Cancer Institute to pursue research activities on disparities in mortality from colorectal cancer and on evaluating the comparative effectiveness of colorectal screening tests.

With the funding support associated with the Presidential Award, Doubeni will examine the effectiveness of screening colonoscopy in reducing death among average-risk adults.

## Nobel Peace Prize winner to give Commencement address

Ellen Johnson Sirleaf, president of Liberia and 2011 Nobel Peace Prize recipient, will deliver the commencement address at UMass Worcester's 39th Commencement exercises on Sunday, June 3. Joey Fund founder and cystic fibrosis activist Joseph O'Donnell and U.S. Surgeon General Regina M. Benjamin, MD, MBA, will receive honorary degrees.

A peace activist known for her decades-long, non-violent struggle for freedom and justice in Liberia, Johnson Sirleaf (pictured above with UMass Medical School representatives during their recent visit to Liberia) became the first elected female head of state in Africa when she was inaugurated as Liberia's 24th president in January 2006. Prior to her election, she spent decades fighting to improve the Liberian government while holding numerous public positions. As president, Johnson Sirleaf has worked tirelessly to rebuild the country by focusing on developing infrastructure, maintaining peace and eradicating corruption, as well as improving the health care and educational systems of the country.

> "This project will make an enormous difference in the lives of struggling Liberians"
>
> – Terence R. Flotte, MD

Sirleaf has worked closely with UMass Medical School on multiple projects aimed at helping her war-torn country rebuild its medical infrastructure. UMMS is partnering with Indiana University to create the Center for Excellence in Health and Life Sciences at the University of Liberia, offering new academic and research programs in biotechnology, public health, nursing and pre-clinical training in medicine and pharmacology. The project is being funded by a $7.2 million grant from the U.S. Agency for International Development through Higher Education and Development Inc.

"This project will make an enormous difference in the lives of struggling Liberians, who have already endured so many years without proper medical care," said Terence R. Flotte, MD, the *Celia and Isaac Haidak Professor in Medicine,* dean of the School of Medicine and provost and executive deputy chancellor for UMMS.



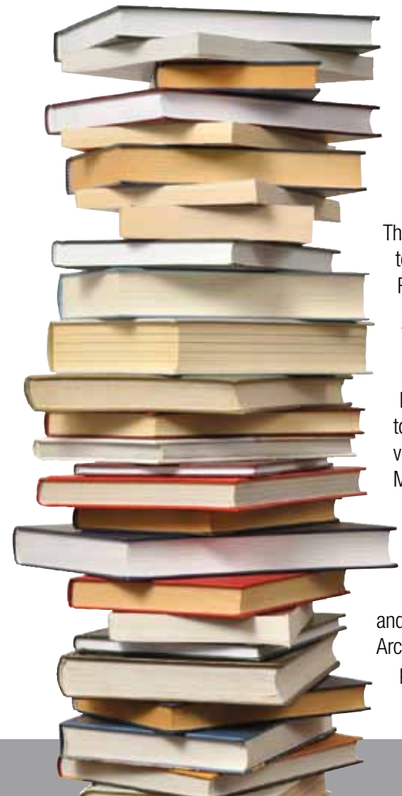
# Helping Special Olympians around the world stay healthy

> "The sole reason Healthy Athletes was created is because people with IDs don't get the health care they need"
>
> – James Gleason, MS, PT

Athens, Greece, the birthplace of the original Olympic Games, was recently the site of similar world games celebrating physical prowess and vitality. Last June, athletes with developmental and intellectual disabilities (IDs) from 180 countries around the globe converged there to compete in the 13th Special Olympics Summer World Games.

On hand to help at the biannual event was James Gleason, MS, PT, who was invited to train a cadre of international health care professionals in the FUNFitness health screening protocol that is part of the Special Olympics Healthy Athletes Initiative. Gleason, associate director of the University Center for Excellence in Developmental Disabilities at UMass Medical School's Eunice Shriver Kennedy Center, has long been involved with Special Olympics Massachusetts and Special Olympics International, serving on a team of three Global Clinical Advisors for FUNFitness.

"The sole reason Healthy Athletes was created is because people with IDs don't get the health care they need," said Gleason, who was instrumental in developing FUNFitness in collaboration with Special Olympics International and the American Physical Fitness Association, and initiating its implementation in Massachusetts. FUNFitness "creates an opportunity for health care providers to gain clinical skills, while opening up their eyes to the needs of this population—and what a pleasure it is to work with them!"



## Library making rare books available to everyone

The Lamar Soutter Library is ensuring that people throughout the world have access to valuable historical resources even if they cannot travel to the Medical School's Rare Book Room.

As one of the world's leading medical libraries, the LSL is taking part in a digital curation collaborative that promotes free and open access to historical resources in medicine. The LSL contributed 286 classic rare medical books to the online holdings of the Medical Heritage Library (MHL) by adding the tag "medicalheritage" to the cataloging information. In so doing, the LSL has "radically expanded the volumes' potential audience," according to Jack Eckert, a founding member of the MHL and a public service librarian at the Harvard Medical School Library.

Prior to contributing to the Medical Heritage Library, the LSL had already made a strategic decision to digitize important books from its rare book collection, which contains materials dating back to the 16th century. Over the past two years, Ellen More, PhD, and her colleagues from the LSL's Office of Medical History and Archives have carefully chosen books to be digitized and included in the Internet Archive, a non-profit organization founded in 1996 to build an internet library that provides permanent access to historical collections that exist in digital format.

# Could statin use increase diabetes risk in women?

Millions of women over age 50 who use statin drugs are at a significantly increased risk of developing diabetes, according to a new study from UMass Medical School published in the *Archives of Internal Medicine.* Senior author Yunsheng Ma, MD, PhD, associate professor of medicine and an epidemiologist at UMMS, said the study found that postmenopausal women on statin drugs showed a 48 percent increased rate of diabetes compared to those not on the cholesterol-lowering medications.

"These findings should have a significant impact on current clinical practice, as statin use has soared in recent years," Dr. Ma said. "With an average of one in four Americans over 45 on these medications, it is imperative that future studies evaluate the risks as well as benefits of statin use among men, women and diverse ethnicities with different risk profiles."

UMMS researchers examined data from the Women's Health Initiative, the wide-ranging national health study funded by the National Institutes of Health in which 161,808 postmenopausal women ages 50 to 79 were followed for 15 years. The UMMS study focused on 153,840 of those women who did not have diabetes at enrollment. After adjusting for confounding factors, statin use at baseline was associated with a 48 percent increased risk of diabetes. The association was observed for all types of statin medications.

## National media tapping UMMS researchers for comment

With the addition of a television studio on the Medical School's Worcester campus, national media outlets are turning to UMMS faculty to comment on important research outcomes, and as experts on trending topics.

Michael L. Blute, MD, the *Mary C. DeFeudis Chair in Cancer Care and Research* and professor of surgery, was on *NBC Nightly News* in November, commenting on new research connecting cancer to a sedentary lifestyle. Dr. Blute was able to use the new TV studio on the B-level to get his expert commentary on the national airwaves.

The state-of-the-art studio includes everything needed to shoot digital video that can be sent live via satellite to any of the major broadcast outlets. The camera, sound and lights are operated remotely by VideoLink, a company in West Newton, that also hosts a database of the school's TV-ready experts for network producers and bookers to access.

Blute's appearance marked the second time in a two-week period that a faculty member had offered expert insight on *NBC Nightly News.* A story about the Centers for Disease Control recommending that 11- and 12-year-old boys receive the HPV vaccine included comments from Darshak M. Sanghavi, MD, associate professor of pediatrics and chief of pediatric cardiology at UMass Memorial Medical Center.

"These kinds of appearances are incredibly important. NBC Nightly News is the ratings leader, drawing millions of viewers each night," said Edward Keohane, vice chancellor for communications. "NBC can go just about anywhere for expert commentary. The fact that we now have the technical resources to accommodate reporters who want to talk to our faculty is a fantastic step forward for UMass Med."

Other notable recent appearances in national media outlets included:

- Chancellor Michael F. Collins wrote a column for the *Wall Street Journal* on the need for universal patient identifiers, or UPIs.
- Yunsheng Ma, MD, PhD, talked to more than a dozen media outlets, including *USA Today* and *NBC Nightly News,* about the increased risk of diabetes for older women on statin drugs. [see story at left]
- *ABC News* interviewed Heidi A. Tissenbaum, PhD, about the longevity of the world's oldest twins, who recently turned 102.
- Ira Ockene, MD, talked with National Public Radio on seasonal variation of eating patterns and why it seems people eat more in the wintertime.

To read these full stories, or to see a full list of all external media hits, visit www.umassmed.edu/news/newsmakers.





**School of Medicine Reunion**
Celebrating Class Years 1977, 1982, 1987, 1992, 1997, 2002, 2007
Saturday, May 5, 2012
UMass Medical School

**Commencement**
Sunday, June 3, 2012
12 p.m.
Campus Green, UMass Medical School

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UMass Medical School Alumni Online Community: www.NetworkUMass.com/Medical

Office of Alumni Relations: alumni@umassmed.edu or 508-856-1593.

# Expanding possibilities

By investing in UMass Medical School, you have cultivated the talents—and greatly expanded the possibilities—of hundreds of students. Your private philanthropy has created opportunities for future doctors, nurses and research scientists who otherwise may never have had the chance to pursue their medical dreams. The generosity of our alumni allows us to continue offering a world-class education that tuition and state funding alone cannot sustain.

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**Graduate School of Biomedical Sciences**

- GSBS Annual Fund

**School of Medicine**

- Medical Education Fund
- Alumni Scholarship Fund

**Graduate School of Nursing**

- GSN Annual Fund
- Scholarship Fund
- Lillian R. Goodman Lectureship Fund

Class Notes

## 1974

**Richard Aghababian, MD,** was recently elected as president-elect of the Massachusetts Medical Society.

## 1979

**Ann Wang Dohlman, MD, MPH,** was present at the 2011 UMass Medical School Commencement to celebrate her son Thomas' graduation from medical school.

## 1981

**Lester Mietkiewicz, MD,** has joined UMass Memorial Medical Group and his practice is now located in North Grafton.

**Joyce Monac, MD,** is founding partner in an all-women pediatric group, Swansea Pediatrics. The group is affiliated with Children's Hospital Boston and is engaged in quality initiatives and cutting costs, while providing top quality care for patients.

**Francis Renzi, MD,** recently retired from clinical medicine. He was a member of the UMass Emergency Department for 26 years, during which time he cared for numerous patients and taught hundreds of students, residents and fellows.

## 1983

**Alex Sabo, MD,** was recently elected as the 2012 president of the Massachusetts Psychiatric Society.

**Hagop Youssoufian, MD,** has been named the executive vice president and chief medical officer at Ziopharm Oncology, Inc. a New York cancer therapeutics firm.

## 1986

**William Sellers, MD,** was appointed by President Barack Obama to a key administration post as a member of the National Cancer Advisory Board.

## 1991

**Elizabeth Steiner, MD,** was elected to the Oregon State Senate in January.

## 1992 *(Celebrating Reunion on May 5, 2012)*

**James Flynn, MD '92, and Michelle Flynn, MD '90,** welcomed their ninth child, Lily, this year as their oldest child, Michael, went off to Williams College. James and Michelle hope to see old friends at their reunion in May 2012.

## 1994

**Colette Desrochers, MD,** continues to practice urban primary care pediatrics, teach University of Pennsylvania medical students, Children's Hospital of Philadelphia residents, and balance home life with four children, ages 12, 10, 7 and 5. She is grateful to UMMS for all that it provided to her as a student.

## 1995

**Michael J. Jaffe, MD,** is president of the Utah Academy of Pain Medicine.

## 1996

**Stephen A. Pap, MD,** recently joined Milton Hospital's surgical department.

## 1998

**Frederick J. Watson IV, MD,** is a partner at Neurosurgery, Orthopaedics & Spine Specialists PC, in Waterbury, Conn. He is also team physician for Post University Athletics. Frederick and his wife, Cathy, are the proud parents of three sons and a daughter.

## 2000

**Philip Bolduc, MD,** recently joined the Department of Family Medicine and Community Health at UMass Memorial Medical Center.

**Trista Brown, MD,** recently joined the medical staff of Fairlawn Rehabilitation Hospital in Worcester.

**Karen Conway, MD,** recently celebrated the birth of her new baby.

**Tiffany Moore Simas, MD,** was presented the 2011 Outstanding Community Service Award at UMass Medical School's 11th annual Women's Faculty Awards Luncheon.

**Carole Smith, MD,** recently celebrated the birth of her second son.

## 2003

**Leah Doret, MD, and Lloyd Fisher, MD,** recently celebrated the first birthday of their second daughter, Victoria Lynn Fisher. Lloyd is assistant medical director for information at Reliant Medical Group, formerly Fallon Clinic, in addition to maintaining a busy pediatric practice.

**Christina Hermos, MD,** joined the UMass Memorial Children's Medical Center and its division of infectious disease. Board certified in pediatrics, her clinical interests include Lyme disease and MRS infections.

## 2005

**Stephanie Kirsten Mueller, MD,** recently celebrated the birth of her baby girl.

## 2007 *(Celebrating Reunion on May 5, 2012)*

**Julie Herlihy, MD, and Thomas Tadros, MD '04,** are celebrating the birth of their daughter, Matilda Jane.

**Erin Colleen Toohil, MD,** recently celebrated the birth of her new baby.

## 2009

**April Inniss, MD,** has been selected as a 2012 Robert Wood Johnson Foundation Clinical Scholar. She will begin her two-year fellowship in the fall of 2012 at the University of Michigan. Through the program, April will learn to conduct innovative research and work with communities, organizations, practitioners and policymakers in order to take a leadership role in improving health and health care in the United States.

### Graduate School of Nursing

## 2004

**Carolyn Abbanat Villafane, MS, RN,** ran in the 115th Boston Marathon raising money for her employer, Boston Health Care for the Homeless Program (BHCHP). BHCHP is a Boston-based nonprofit that cares for the city's homeless men, women and children.

## 2009

**Cailin Duram, MS, RN,** is a family nurse practitioner at the Edward M. Kennedy Community Health Center in Great Brook Valley, the primary refugee health assessment site in Central Massachusetts,

### Graduate School of Biomedical Sciences

## 2005

**Nichole Renee Mercier, PhD, and Joshua Fischer, PhD,** had their second baby, Lyla, on Feb. 13, 2011. She joins her brother, Benjamin, now 3. Josh has taken a new role at Monsanto Company as an environmental scientist and microbiologist. Nichole is the business development director for Washington University.

# Calling all School of Medicine alumni who are celebrating reunion in 2012


Whether you graduated five or 35 years ago, reunion is a great way to reconnect, reunite and reacquaint with friends, classmates and UMMS. The key to a great reunion is getting as many classmates as possible to attend. Start reaching out now to classmates, friends and everyone you would like to see at reunion. We invite you to visit the alumni webpage, www.NetworkUMass.com/Medical for more reunion information and to reconnect with classmates to begin your plans to celebrate together at reunion.

Reunion information will be sent in the coming months via email and U.S. mail. If you need to update an email address with us, please email alumni@umassmed.edu. If you are interested in participating in your Reunion Class Committee, please contact Diana.Tsotsis@umassmed.edu. If you would like to join your Reunion Class Gift Committee, please contact Kate.Gomes@umassmed.edu.

By Craig C. Mello, PhD

**Just a few years ago, a colleague and I were honored for a series of observations that sparked a revolution in our understanding of how the genetic information that makes us human is stored and expressed inside our cells, work that was made possible with support from the National Institutes of Health as well as other private sources.**

When Andrew Fire and I stood on the stage in Stockholm to receive the Nobel Prize, we were not only intensely energized, but also extremely proud that we live and work in a country that recognizes the importance of investing in science.

Since our initial discoveries, thousands of scientists in labs all over the world are building upon our work to understand and develop treatments for human disease, to shed further light on the basic functioning of cells, and to study and modify plants, animals and microbes important in agriculture, biofuels and other applications essential to meet critical needs of our civilization.

As Congress weighs the benefit of federal expenditures against the realities of balancing the nation's budget, one fact should be crystal clear: More NIH funding will provide more biomedical breakthroughs and outstanding economic gains. Just as clear, cutting that funding would undermine economic recovery, steal hope from millions of desperate patients and threaten our position as the world's leader in biomedical research.

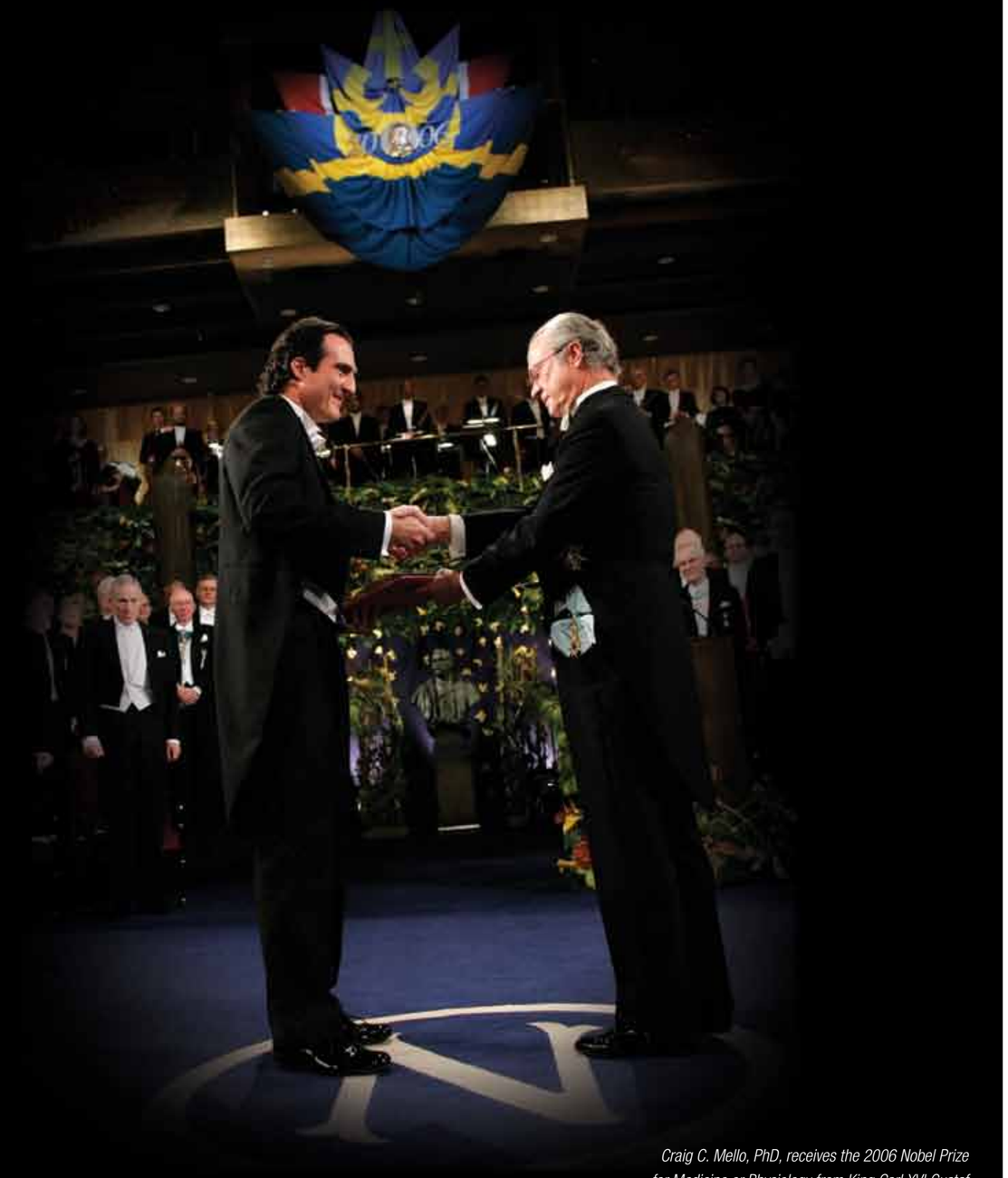
Our discovery of gene silencing by double-stranded RNA—RNA interference—was not something that anyone was looking for. This discovery could happen only in a place where scientists work in an environment that rewards exploration and critical inquiry. The United States has been, without question, the world leader in life sciences research. As a result of national support for this spirit of research, we live in an era of unprecedented potential for scientific discovery.

While RNAi offers tantalizing promise, sufficient funding is needed to make RNAi and other novel tools into life-saving treatments for intractable conditions such as Huntington's disease, Amyotrophic Lateral Sclerosis and others—work that is going on here at the commonwealth's only public medical school. Patients who suffer from these diseases deserve cures.

At UMass Medical School, we strongly believe that science and research do truly matter, for a much larger reason than prizes or prestige. Science matters because no one knows from where, or how, or based on what unpredictable series of events, the next breakthrough might come. And there's never been a moment in human history with more opportunity or greater need for advances in the life sciences than right now. This isn't science for the sake of science, but science for the sake of medical advances and saving lives.

A cut to NIH funding will blunt hope, kill jobs and have a dampening effect that will ripple throughout the economy. It's no secret that Massachusetts's thriving life sciences sector is directly related to the fact that we are ranked first in the country per capita for receiving NIH funding. Instead of cutting funding, let us be wise and continue to invest in this vital part of our economy. We will see the reward both on the balance sheet and in the eyes of grateful patients. What better payoff could we hope for? U

CRAIG C. MELLO, PHD, Howard Hughes Medical Institute Investigator, *Blais University Chair in Molecular Medicine,* 2006 Nobel Laureate in Physiology or Medicine



*Craig C. Mello, PhD, receives the 2006 Nobel Prize for Medicine or Physiology from King Carl XVI Gustaf of Sweden during the Nobel Prize Award ceremony in Stockholm on Dec. 10, 2006. Associated Press photo.*

University of Massachusetts Medical School

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