

**In This Issue:**

- Class Day
- What Makes Cells Tick
- Budget
- Faculty
- Research Awards

# DMS DIGEST

DARTMOUTH MEDICAL SCHOOL

July/August 2000

## Class Day Honors Graduates

Amid the celebration and ceremony, DMS Class Day speakers acknowledged the tenets of the newly chosen professions: the doctor-patient relationship, the art of healing and the scientific method.

Award-winning novelist and screenwriter John Winslow Irving, the invited keynote speaker, addressed DMS graduates and their guests at the gathering Saturday, June 10. He discussed his work as a storyteller. Winning the Academy Award this year for the screenplay of his critically acclaimed novel *Cider House Rules*, with its theme of abor-



Catherine Chang and Ta Yuan Chang, PhD, hood their son, Walter Chang.

tion and medical practice during the forties, catapulted him into a maelstrom of controversy and advo-



Christine Mackey, winner of the Dean's Medal, receives applause from David Nierenberg, MD, and Lori Alvord, MD.

cacy. The book had its genesis, he said, in haunting pre-World War II pictures of orphanage children who were not being adopted, as well as the heritage of his grandfather, a Boston obstetrician/gynecologist.

"Performing an abortion is never a simple decision," he said. One must respect whatever choice colleagues and friends make on the issue. "All should be wary of legislators who are not doctors but who want to create legislation ... on what should be a medical decision

between patient and doctor. Congress should not dictate how doctors do their jobs. We didn't elect them to be doctors." Surveying the audience of families and friends, Irving reminded graduates to thank especially their parents. "Being a parent is one of the hardest jobs, and everyone has to have a choice."

Also speaking were medical student M. Adrian Rossi and biochemistry PhD recipient Jonathan C. Cruz, who launched a new tradition of having a graduate student as well as a medical student talk.

Rossi paid tribute to what separates doctors from so many other professionals: "As physicians, we touch people. We touch people to diagnose them. We touch people to fix them. When we cannot fix them, we touch people to comfort



Graduates James Feeney and Travis Matheny, bagpipers, open ceremonies.

them." Citing their emerging healing arts abilities, he thanked classmates for the caring and empathy they extended to him and to each other. He summed up the past four years with amazement and respect. "... At the end of these four years, there are two things of which I will be fiercely proud for the rest of my life. The first is: I am a doctor. The second is: I graduated from Dartmouth Medical School, class of 2000."



Graduate student speaker Jonathan Cruz and his mother, Miriam Cosca-Cruz, share a proud moment.

Cruz paid tribute to the principles of the scientific method, which, he said, "can be used to make sense of everyday life." He urged his fellow graduates to follow their hearts and their passion. "Our success in this dynamic world will be measured by our creativity and our courage to try

new ideas and to venture forth into unknown territory." Concluding, he quoted Albert Einstein, "who truly



John Baldwin, MD, (right) and keynote speaker John Irving lead the procession.

understood the scientific method, (and) once said, 'There are two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.'" Then he added his own challenge: "... Treat today and the rest of your life as a miracle."

Class Day opened under sunny skies with senior medical students Travis Matheny and James Feeney on the bagpipes followed by their fellow graduates, who stopped to form a double line. DMS Dean John Baldwin and Irving, along with faculty marshal Roger Smith, Irene Heinz Given Professor of Pharmacology and Toxicology, led the academic procession through the rows of applauding students. Baldwin began the ceremonies,



Gerald O'Connor, PhD, hoods CECS graduate Karen Homa as Gilbert Welch, MD, looks on.

welcoming the guests and congratulating the graduates.

Almost 100 DMS students were awarded degrees at Dartmouth College commencement ceremonies (Sunday, June 11): 61 received the MD, seven received a PhD in the life sciences; and 26 received degrees in the clinical evaluative sciences, one PhD and 25 master's.

The newly minted Dartmouth Medical School physicians will continue their training in generalist and specialty areas across the nation; 26 will remain in New England. Ninety percent of those who participated in the National Resident Match Program secured one of their top three residency assignment choices.

Photographs by John Douglas/Elyng Spurred

### AWARDS

#### STUDENT AWARDS

Dean's Medal	Christine Mackey
John W. Strohbehn Medal for Excellence in Biomedical Research	Ronald Kaltreider, Pharmacology and Toxicology
Douglas P. Zipes, M.D. Research Prize in Medicine	Karleyton Evans
Good Physician Award	Joseph Vitterito
John and Sophia Zaslow Prize	Leah von Reyn Cream
Saul Blatman Award for Excellence in Maternal and Child Health	Christine Mackey
Frederic P. Lord Award in Anatomy	Vladimir Grigoryants
French Distinguished Student Award in Pathology	Thomas Golembeski
Janet M. Glasgow Achievement Citations	Christine Mackey, Elisa Thompson Ruksznis
Healthcare Foundation of New Jersey Humanism in Medicine Award	Elizabeth Kellogg Wolfe
Julian and Melba Jarrett Memorial Prize	Michael Betsy
Merck Manual Awards	Allison Fegley, Travis Matheny
Arthur Naitove Surgical Scholar Award	Vladimir Grigoryants
New England Pediatric Society Award	Betsy Sandberg Liolios
Excellence in Clinical Psychiatry	Karleyton Evans
John F. Radebaugh Community Service Award	Kristine Parke
Excellence in Radiology	Nepenthe Fong
Hilda Weyl Sokol Award	Jennifer Eggers
Department of Medicine Award	Christine Mackey
Anesthesiology Outstanding Graduating Student Award	Carlos Cream
Rolf C. Syvertsen Fellow	Derek Woodrum

#### FACULTY AWARDS

Basic Science Teaching Award	William Mosenthal, MD
Clinical Science Teaching Awards	David Nierenberg, MD, Deborah Peltier, MD
Thomas P. Almy Housestaff Teaching Award	Patrick Ting, MD
Healthcare Foundation of New Jersey Humanism in Medicine Award	Joseph O'Donnell, MD

# What Makes Cells Tick

Dartmouth Medical School geneticists have clarified the picture of the way living things maintain robust and stable internal clocks to safeguard the timing of daily activities.

Internal clocks are ubiquitous. In humans they cue circadian rhythms, the 24-hour cycle that paces life's ebb and flow, from when we wake up to when we go to sleep. They are linked to jet lag, seasonal affective disorder and sleep disturbances.

Research published in the July 7 issue of *Science* delineates the dual roles and interlocking connections of the molecular gears that drive biological clocks and prevent them from winding down. The striking parallels in a relatively simple model offer clues to what makes creatures tick, report the DMS authors — Jay Dunlap, professor and chair of genetics, Jennifer Loros, professor of biochemistry, and Kwangwon Lee, a postdoctoral fellow.

Just as the machinery behind clock faces of countless shapes and designs is built on a few basic principles, the genetic machinery behind all biological clocks — from plants to people — shares fundamental properties, in spite of the diverse functions governed. Studying the development of spores in the bread mold *Neurospora*, Dunlap and Loros have teased apart the genetic cogs that form the basis of most living clocks. Light and dark cycles reset the clocks, they found, the way turning the hands of a clock does, but are not required to run them.

The nearly complete map of the human genome propels research into a new era of identifying, treating and preventing problems. "The human genome is a parts list. Now

we have a description: how big, what shape, maybe where the part — or gene — is located, and sometimes, with all this information, we can infer what it does," explains Dunlap. "Still, first we have to know what to look for."

In the bread mold experimental system, scientists can identify the gene, pull it out and further explore it to decipher the sequence of its chemical units and determine how it acts. From his studies, Dunlap says, "we see what proteins might be good candidates for genes that might be mutated in sleep disorders and where to start looking."

The clock mechanism, called an oscillator, is a delicate balancing act of chemical messages where protein products feed back to shut off their own gene activity. If clocks operated solely on negative feedback delay, they would run down quickly. The current report details the opposing dualities and complex interplay among the *Neurospora* clock genes and proteins they produce in the intricate feedback loops that keep time. The relationships among components, not the absolute levels, set internal time.

The clock cycle involves a central cog, the Frequency (FRQ) protein, and a complex, called white collar proteins, that control behavior in both light and dark phases. The DMS research reveals more dexterity than once thought. FRQ has dual functions, blocking some products while promoting synthesis of others, depending on the white collar protein signals. "What we thought was negative is actually positive as well," says Dunlap.

In addition, stretches of the white collar proteins resemble those of comparable regulatory proteins

in mice and humans. "The wiring is similar, although the molecular biology — at the level of making protein — is different," notes Dunlap. "Sequence conservation between proteins has evolutionary importance

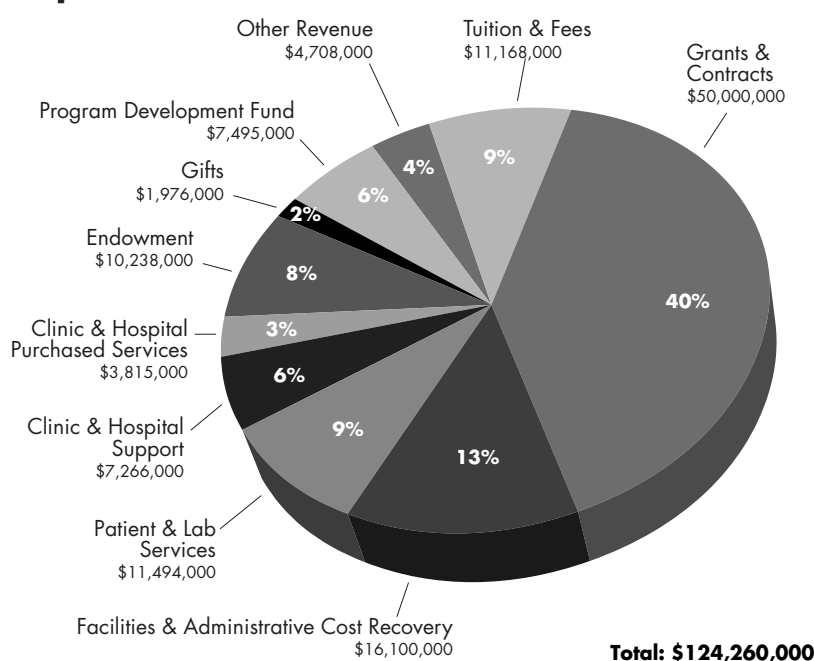
and indicates the extent to which you can generalize." Strong similarities suggest "broad applicability." The work is supported by the National Institutes of Health and the National Science Foundation.

## Balanced Budget Approved

Dartmouth College Trustees have approved a balanced DMS budget calling for 10 percent growth in both revenues and expenses during the 2000-01 fiscal year. The \$124.3 million budget represents significantly increased support for the research enterprise, with the largest portion going towards building the new Department of Genetics.

Additional dollars are earmarked for shared equipment, core facilities, new faculty recruitment and the school's student financial aid package, as well as rental space and clinical trials management. Continued success in sponsored funding is anticipated to help support the increases. Also, the three-year interentity agreement with the clinical enterprise will remain intact; both the hospital and the college approved a one-year extension.

### Projected Revenues 2000 - 2001



## FACULTY

### Appointment

David Roberts, MD, surgery, has been appointed senior associate dean for clinical affairs, a newly created position at DMS, effective September 1. Roberts will continue as section chief of neurosurgery and with his research program on computer-assisted surgery.

### Promotions

DMS faculty promoted, effective July 1, are as follows:

**Professor:** Paul Beisswenger, MD; William Black, MD; Paul Gerber, MD; Jennifer Loros, PhD; Charles Marrin, MBBS; Thomas McAllister, MD; Nancy Speck, PhD; John Sutton Jr., MD; Gilbert Welch, MD.

**Associate Professor:** William Abdu, MD; Emily Baker, MD; Michael Beach, MD, PhD; George Blike, MD; Patricia Carney, PhD; Nancy Cochran, MD; Lawrence Dacey, MD; William Dewhirst, MD; Pamela Ely, MD, PhD; Julie Fago, MD; Gilbert Fanciullo, MD; Barbara Gerling, MD; Diane Harper, MD; Peter Holzberger, MD; Eric Larsen, MD; Nathaniel Niles, MD; Douglas Noordsy, MD; Brian Remillard, MD; Rosalind Stevens, MD; Rand Swenson, MD, PhD; William Torrey, MD; Wendy Wells, MBBS.

### Retirements

The following DMS faculty retired at the end of June: **Harte Crow**, MD, professor of radiology; **Leland Hall**, MD, associate professor of surgery (orthopedics); **John Ketterer**, MD, assistant professor of obstetrics and gynecology; **Herb Maurer**, MD, professor of medicine; **Robert Porter**, MD, associate professor of surgery (orthopedics); **Roger Smith**, PhD, Irene Heinz Given Professor of Pharmacology and Toxicology; **Judy Tyson**, MD, assistant professor of obstetrics and gynecology; **Robert Wilkinson**, MD, professor of radiology and of pediatrics.

Beginning this issue, *DMS Digest* will be published bimonthly. It will appear as an insert in *CenterView* every other month and will also be distributed separately.

## Dartmouth Medical School Research Awards

DMS received the following new and competing awards in May. Awards to date for FY2000 total \$59,646,622, compared to \$52,934,397 for the same 11-month period in FY1999.

<b>ANESTHESIOLOGY</b>		
G. Blike	University of Utah	Data Display to Detect-Diagnose-Treat Critical Events
<b>BIOCHEMISTRY</b>		
B. Trumpower	University of Michigan	Yeast Models for <i>Pneumocystis carinii</i> Drug Resistance
<b>COMMUNITY &amp; FAMILY MEDICINE</b>		
P. Carney	National Cancer Institute	Strategic Studies in Breast Cancer Surveillance
M. Karagas	National Cancer Institute	Women's Melanoma Risk
<b>GENETICS</b>		
J. Dunlap	National Science Foundation	Seventh Meeting of the Society for Research in Biological Rhythms
<b>MEDICINE</b>		
J. Buckley	DOD, Office of Naval Research	Dexamethasone for Motion Sickness
M. Ernstoff	Schering Corporation	Phase II Study of Temozolomide for Malignant Melanoma with Brain Metastasis
P. Holzberger	Massachusetts General Hospital	Fatty Acid Antiarrhythmia Trial
M. Vincenti	Nat'l Inst. of Arthritis and Musculoskeletal and Skin Disease	Chondroprotection by a Novel Retinoid and Triterpenoid
<b>MICROBIOLOGY &amp; IMMUNOLOGY</b>		
W. Green	National Cancer Institute	The Pathogenesis of MAIDS and Specific T Cell Responses
L. Kasper	National Institute of Allergy and Infectious Diseases	<i>Toxoplasma gondii</i> : Diagnosis and Prevention in AIDS
<b>PHARMACOLOGY &amp; TOXICOLOGY</b>		
E. Barry	National Osteoporosis Foundation	Regulation of Calcium Transport in Renal Cells by Estrogen
E. Dmitrovsky	National Institutes of Health	Retinoid Cancer Prevention Mechanisms
M. Ripple	Department of Defense	Survival Pathways and Apoptosis of Cancer Cells as Targets for Therapeutic Modulation
T. Stadheim	National Institutes of Health	Modulation of HER2/NEU Signaling in Human Breast Cancer
<b>PSYCHIATRY</b>		
R. Drake	Thresholds Psychiatric Rehabilitation	Comparison of Two Employment Models for Clients with Severe Mental Illness
	Robert Wood Johnson Foundation	Implementing Evidence-Based Practices in Routine Mental Health Settings

### DMS DIGEST

Published bimonthly by Dartmouth Medical School  
 John C. Baldwin, MD, Dean, DMS; Vice President for Health Affairs, Dartmouth College  
 Hali Wickner, Editor  
 Karen Parker, Assistant Editor  
 For inquiries or submissions:  
 Phone (603) 650-1492  
 Fax (603) 650-1730  
 E-mail: [dms.communications@dartmouth.edu](mailto:dms.communications@dartmouth.edu)  
 Dartmouth Medical School  
 Communications Office  
 HB 7065, Hanover, NH  
 03755-3833