Leaders in Biomedicine
Dr. Paul Nurse to Speak at the Program’s New Lecture Series

Under the sponsorship of the Harvard MD-PhD Program, a new school-wide lecture series named “Leaders in Biomedicine” will feature Dr. Paul Nurse as the inaugural speaker on Thursday, March 15, 2007. The lecture will take place at 4:00 p.m. in the New Research Building of Harvard Medical School, 77 Avenue Louis Pasteur, Boston, Massachusetts. The title of Dr. Nurse’s presentation is “Great Ideas of Biology.” (see abstract in sidebar on page 2).

Dr. Nurse shared the 2001 Nobel Prize in Physiology or Medicine, became president of The Rockefeller University in September 2003. He had previously served as chief executive of Cancer Research UK, the largest cancer research organization outside the United States. Dr. Nurse is noted for his discoveries about the molecular machinery that regulates the cell cycle, the process by which a cell copies its genetic material and then divides to form two cells.

In addition to the Nobel Prize, Dr. Nurse has received many other honors, including the Albert Lasker Award for Basic Medical Research and the Royal Society’s Wellcome, Royal and Copley medals. A fellow of the Royal Society, he is a founding member of the U.K. Academy of Medical Sciences, a fellow of the American Academy of Arts and Sciences, and a foreign member of the U.S. National Academy of Sciences. He was knighted in 1999 and received France’s Légion d’Honneur in 2002.

A special lunch seminar for students to meet...
with Dr. Nurse is also planned for the day. Athar Malik, Year 2, will facilitate what is sure to be a lively discussion in advance of Dr. Nurse’s lecture in the afternoon.

The goal of this new lectureship, according to Christopher A. Walsh, MD, PhD, Bullard Professor of Neurology and director of the MD-PhD Program since 2003, is to provide students and members of the HMS academic community with direct exposure to a wide range of existing leaders in contemporary biomedicine by offering a public lecture series in which such individuals are invited to speak on a subject of general interest. The MD-PhD Program anticipates an enthusiastic response from the students and the HMS community who participate in the first lecture of the “Leaders in Biomedicine Series.”

ABSTRACT OF
Dr. Nurse’s Lecture:
“The Great Ideas of Biology”

Three of the ideas of biology are the gene theory, the theory of evolution by natural selection, and the proposal that the cell is the fundamental unit of all life. When considering the question of “what is life?”, these ideas come together because the special way cells reproduce provides the conditions by which natural selection takes place allowing living organisms to evolve. A fourth idea is that the organization of chemistry within the cell provides explanations for life’s phenomena. A new idea is the nature of biological self organization on which living cells and organisms process information and acquire specific forms.

IRENE CHEN, Harvard MD-PhD class of 2007, was awarded the Grand Prize for her paper on “The Emergence of Cells During the Origin of Life.” She received the award and the $25,000 prize money from Peter Ehrenheim, President of GE Healthcare Life Sciences and Monica Bradford, executive editor of the journal Science.

The GE & Science Prize for Young Life Scientists was established twelve years ago by GE Healthcare, formerly Pharmacia, and Science Magazine together with its parent organization/publisher AAAS to help bring science to life by recognizing outstanding PhDs from around the world and rewarding their research in the field of molecular biology. The prizes were awarded at Stockholm’s Grand Hotel, the venue of the original Nobel Prize ceremony in 1901, on December 11, 2006.
Below are accurate portraits and brief autobiographies that describe each of the members of the first year MD-PhD class. We wrote these ourselves, but deftly employed the third person to convey a sense of deep significance and import.

Jonathan Abraham was born in Montreal, and raised in a nearby city called Laval in Quebec, Canada. In 1998, his family moved to Queens, NY. He went to Harvard as an undergrad and studied biochemistry. In his free time, Jonathan likes to speak “freole” or “frenglish”—mixtures of French and Haitian Creole, and French and English, although he quickly loses track—with his three brothers and parents. Jonathan’s other hobbies include martial arts, and importantly, poking fun at gullible people.

Milena Andzelin was born in Canada just after her parents emigrated from Poland. In an effort to gain Milena her third passport, everyone moved to the United States where Milena grew up in San Diego, aptly named America’s Finest City. Milena came to Harvard for college, where she concentrated in Biochemical Sciences and researched the molecular mechanisms of Natural Killer cell immune synapse formation. Perhaps because the past winter was unseasonably warm in Boston, Milena decided to stay on the east coast for her MD-PhD. She still loves immunology, but could stray as far as chemistry for her PhD, and keeps coming up with exciting new research areas to explore. In the carefree days of her first year in the HST program, Milena likes to find new running routes on this side of the river, continuously prove that you can walk everywhere in Boston, bake (but not cook), and spend time with her super smart, entertaining, and generally fabulous fellow MD-Phders.

Erin Chen was born in Beijing and grew up in Utah and Connecticut. She experienced the “life of the mind” at the University of Chicago while studying molecular biology and math, researching stem cell regeneration of skeletal muscle in the McNally lab, and painting. For her graduate work, Erin would like to apply both computational and experimental approaches to investigate molecular circuitry.

Sarah Hill was born and raised in Bismarck, North Dakota. She got her AB in biochemical sciences from Harvard College in 2005 and her MSc in biochemistry from Oxford University on a Rhodes Scholarship in 2006. Sarah is scientifically interested in chromosome molecular structure and dynamics during the cell cycle and after damage. She will likely pursue a PhD in some form of cancer biology. Aside from science Sarah loves running marathons, golfing, seeing movies, and going to the theater in London and New York.

Stephen Huffaker was born in Boulder, Colorado where his life revolved around hiking, skiing, camping, sailing, family, and enjoying life. When he was 17 his family moved to Crawfordsville, Indiana where his parents live today (despite pleas from Steve and his sister to move back to a more topographically interesting locale). Still missing the granola-head lifestyle, he went to University of Wisconsin-Madison for undergrad and thoroughly enjoyed his three-year tenure there despite the ice age temperatures. More recently, he completed his PhD in spring of this year at the University of Cambridge and the National Institutes of Health focusing on the genetics and molecular biology of schizophrenia. Steve is now a “guinea pig” student in a new MSTP partnered program through the NIH, Cambridge, Oxford, and Harvard. Though he’s obviously a glutton for punishment, it takes little convincing for him to drop the books and head outdoors, particularly in the snow.

Mark Lee grew up in the quiet town of Mountain Top, PA, where he has fond memories of biking around the neighborhood and reading Hemingway. At an early point in his life, he could be quoted as saying that he either wanted to be a philosopher or a theoretical physicist. As it turned out, he became fascinated by biology at Yale, did research on regulatory RNA molecules in the Breaker lab, and graduated with a BS/MS degree in her free time, Erin likes making art, playing the piano, cooking really good food (and then eating it), and galvanizing her colleagues into dressing like pirates.

**The entering class of 2006 would like to thank the entering class of 2004 for their wit and humor in writing intro paragraphs for MD-PhD newsletters, from which we have borrowed liberally.**
in molecular biophysics and biochemistry. He spent the next year at the Dana-Farber studying HIV, and is currently interested in infectious diseases and immunology. He feels honored to be a part of such an amazing class of future physician-scientists, and as the unofficial photographer, is in the process of documenting their audacious, crazy journey together.

Karolina Maciag was born in Plock, Poland. Once a medieval capital rife with kings and dukes, the city and its refinery are now rife with...organic chemists. Count three of four of her grandparents among the latter—it must be science in the genes. Karolina moved to the Washington, DC area with her parents as a child. At Harvard College, she enjoyed her research project, investigating mechanisms of RNA processing using computational systems biology, so much that she stayed in the lab for a full year after graduating in 2004, rendering the University’s efforts to get rid of her by granting a “diploma” in vain. Her interest in infectious disease immunology and global health led her to spend the subsequent half year volunteering in rural medical clinics in Guatemala, on a Radcliffe Fellowship. Grateful that lab science is a mobile skill, Karolina returned to Europe to do more computational biology research in the remaining half year. She’s now glad to be back in Boston, where she is working to find a synthesis of her research interests. Beyond lab/class, she enjoys hiking, tennis, and many outdoor sports, good books, and visiting her kid brother.

Devarati Mitra is not quite sure where she’s from, though her best guess is somewhere between Northern California, Belgium and Washington DC. She graduated last year from Stanford University where she studied biology and political science. Her excitement for research was sparked while studying the mechanism of protein translocation at the National Institute of Health, though since then she has also worked on nuclear transport and DNA repair. Her current research interest is focused on neurodegenerative disease though given her track record so far it’s very possible that will be subject to change. So far she’s been having a great time exploring Boston, getting to know her amazing classmates and looking forward to the rest of her time here at HMS.

Yin Ren grew up in China and moved to the true north of the great land of Canada when he was fifteen. He came to Boston and attended MIT, not knowing that he would stay here for another 12 years. He majored in Course VI (electrical engineering and computer science) because the stuff he learned was really fun. Later, he found out that bio-electrical engineering was even more fun, so he did research in several different areas such as using microfluidics and bioMEMS to study biomolecules, engineering circuits for image-guided radiation therapy, and designing robotics to model breathing and the delivery of radiation. He is not exactly sure how an engineer like himself became so interested in MD-PhD, and he is still trying to figure out what he wants to do in the future. His current interests are applying bioMEMS and nanoparticles to study and cure cancer. In his free time, he likes to play a lot of soccer and basketball, cheer on the Pistons, sleep, eat good food, meet new people, and read Science and Nature.

Cameron Sadegh graduated from MIT this past June with bachelors in biology and chemical engineering. During his time at the ‘Tute, he competed on the gymnastics team, and in between crashes and injuries, he researched cell signaling in the Lodish Lab. Motivated by sports, research, and medicine, Cameron finds great interest in one day understanding what guides cellular and neuronal acrobatics!
**Jenny Yang** grew up in China where she had to trudge through snow, uphill (both ways), in order to get to school everyday. Then, one day, she saw the light when she and her family moved to the sunny hills of California to a city properly named Sunny Hills (of course), only to finally settle down in an even sunnier and even more beautiful city, San Diego. In 2006, Jenny graduated from UCLA with both a bachelor’s and a masters degree in molecular, cellular, and developmental biology. Today, Jenny has made a full circle and is back to trudging through snow for school, even if it is just across Longwood Ave. When the days get cold, Jenny often looks up residency options in CA; and when the schooling gets tough, she dreams of her other career aspirations: architect, fashion designer, food critic, talk show host, wedding planner, interior decorator, fortune-cookie-fortune writer, cancer-curer, and Nobel Prize winner. Channeling her nerdy side, Jenny, of course, is always dreaming about the science that she works on. She is honored to have such amazing people to call her colleagues and most importantly, her friends.

**Amy Saltzman** was born in Cleveland, Ohio, where her family has lived for the past three generations. She spent a lot of time doing genetics and biochemistry in high school, but in 2001, she left Cleveland to head further east for college. During her four years as an undergraduate at Princeton, she studied Anthropology and was able to travel to Fiji to focus on experiences of postpartum illness and motherhood among ethnic Fijian women amidst the country’s rapid economic and social transitions. Before coming to HMS, Amy’s interests in medicine, anthropology, and motherhood drew her to South Africa to spend a year working for a non-profit organization called mothers2mothers, which provides peer-based psychosocial support and education for pregnant women and new mothers who have recently been diagnosed with HIV. Here in Boston, Amy is part of the joint MD-PhD program in medical anthropology. She is proud to be one of the few New Pathways MD-PhD students and thrilled to be a part of such an inspiring group of MD-PhD candidates.
LEADERSHIP CHANGES

Having served for three years as director of the MD-PhD Program, Christopher A. Walsh, MD, PhD has decided that new responsibilities he has assumed at Children’s Hospital and in his laboratory, will preclude him from continuing as director of the basic-science track of the program. He stepped down effective February 1, 2007. Dr. Walsh is continuing as Bullard Professor of Neurology at HMS and Beth Israel Deaconess Medical Center, as Chief of the Division of Genetics at Children’s, and as a Howard Hughes Investigator. He will also be leading a major new collaborative research effort to understand autism.

According to Dr. Joseph Martin, the MD-PhD Program was strengthened markedly during Dr. Walsh’s tenure. He fostered the successful renewal of the MSTP grant, the launch of the social sciences track of the program under the leadership of Dr. Allan Brandt, and the identification of new sources of funding for students who enter the program after the first two years. His active, caring and effective mentoring will be remembered by the students as hallmarks of his tenure. We are fortunate that he will continue to be a part of our community.

We thank Dr. Walsh for his dedication and commitment and wish him well in his continuing activities within the HMS community.

Gastroenterology Attracts Future Trainees

Harvard MD-PhD students Onyinye Iweala, Sahar Nissim, Marlys Fassett (left-to-right) and Devarati Mitra (not shown) attended the first annual “Investing in the Future: Attracting MD/PhD Students into Gastroenterology” Workshop on February 10-11 in Miami, FL. The workshop was co-organized by Dr. Rick Blumberg of Brigham & Women’s Hospital and sponsored by the American Gastroenterological Association (AGA) Institute. It offered 20 MD-PhD students the opportunity to receive thoughtful career guidance from senior academic physician-scientists in the AGA, including AGA President Mark Donowitz. Highlights included scientific talks, a primer on NIH funding opportunities for junior scientists by Judith Podskalny of the NIDDK, and a night out on South Beach with GI fellows and young faculty. MD-PhD student participants ranged from some who remain completely undecided about a clinical specialty to those actively pursuing gastroenterological research — students, keep this meeting in mind for future years!

MINORITY RECRUITMENT

Lilit Garibyan (left) and Jose Aleman (right) traveled with Linda Burnley to Anaheim, California last November to represent the program at the 6th Annual Biomedical Research Conference for Minority Students (ABRCMS), a national meeting designed to encourage undergraduate and graduate students to pursue advanced training in the biomedical and behavioral sciences. It is the largest professional conference for biomedical students attracting approximately 2,600 individuals, including 1,650 undergraduate students, 280 graduate students, 30 postdoctoral scientists and 750 faculty and administrators. Students come from over 285 U.S. colleges and universities. All are pursuing advanced training in the biomedical sciences, and many have conducted independent research. Other participants from Harvard included Drs. James Hogle (Biophysics) and Jocelyn Spragg (DMS) in addition to John McNally (HILS). The next ABRCMS conference will be held November 7-10, 2007 in Austin, Texas. Students or faculty interested in assisting in recruitment for the MD-PhD Program should contact Linda Burnley.
Poster Sessions 2006

Poster sessions are the life blood of any medical scientist training environment and the MD-PhD Program is no exception. On any given week, students are invited to participate in presenting or attending poster sessions. Shown below are some of the posters exhibited at the MD-PhD Program/Joslin Diabetes Poster session held on the HMS campus last August, 2006.

Marie Hollenhorst (left) – Synthetic Studies of the Galbulimima Alkaloids (Movassagi lab); Sarah Hill (right) “Dynamics of Cohesin Chromosomal Association (Nasmyth lab-Oxford, UK)

Jonathan Abraham – Characterization of the Machupo Virus Surface Glycoprotein Receptor Binding Domain (Farzan and Choe lab)

Jennifer Villasenor – Exploring the molecular mechanism of aire (Mathis/Benoist lab)

Vincent Auyeung – Gene Expression Profiling of NOD CD4+CD25+ Regulatory T Cells (Mathis/Benoist lab)

Zachary Morris with his family taking a break from “Molecular function of Merlin in membrane organization” (McClatchey lab)

Above, left to right: Chinfei Chen, Rebecca Spencer, Judy Lieberman, Lilit Garibyan, Linda Burnley, Hanna Chang, Marlys Fassett, Onyi Iweala, and Roya Khosravi-Far. Below: Dr. Judy Lieberman and Lilit Garibyan.

Camaraderie & Careers: The Women’s Dinners

Since 1994, the MD-PhD program has sponsored an annual women’s dinner to help strengthen connections between the junior and senior women. In previous years, the dinner has also provided students with the opportunity to talk openly about women’s issues among each other and with women faculty and to learn from others’ experiences. Finally, after a two year hiatus, the women’s dinner came back as a wonderful success, due to the efforts of Linda Burnley and the generous offer of Judy Lieberman, Professor of Pediatrics, to open her home in Brookline to the program.

On the evening of January 23, over 40 women students and faculty gathered to enjoy excellent food and company. The older students on the wards and dispersed in labs had the opportunity to catch up with each other, as well as bounce research ideas off faculty and fellow students. The new students had the opportunity to spend time together outside of class, as well as solicit advice from both older students and faculty. Topics discussed, including many recurring key themes, ranged from what to look for in a thesis lab to how to balance children and family with a career, and the evening was a pleasant balance of catching up, camaraderie and personal and career advising. Thank you again to Judy Lieberman for hosting such a wonderful event! — by Milena Andzelm
After another year spent in MD or PhD courses, in the lab and on the wards, it was great to get together last fall, October 13-15, 2006, with our MD-PhD classmates, faculty and program administrators and relax. We began the weekend with our lovely fleece vests and dinner in the dining room. It’s really amazing how many desserts there are to choose from! Our evening of talks from both senior and junior students included subjects from immunology to metabolomics. That evening, people found many ways to entertain themselves, as always. The next morning we all grabbed a quick breakfast (or slept through it!) and then enjoyed a morning of senior student presentations, from biochemistry to infectious disease.

Dr. Judah Folkman, the Julia Dyckman Andrus Professor of Pediatric Surgery, gave an inspiring talk [the Eva Neer Memorial Lecture: “Angiogenesis: An Organizing Principle in Biology and Medicine?”], taking us all through his career and demonstrating the unanticipated outcomes of clinical work and basic bench investigation. His career makes it clear that it is possible to merge clinical and research interests into a seamless, fulfilling path—which is a great thing to remind us on our long path to our combined degrees. After our outdoor group picture and a quick lunch, we headed out for hikes, hot tub soaks and shopping and chats. Most of us even made it back for the poster session.

It’s great to actually get a sense of what our friends spend all their time in lab working on. Our lobster bake was a nice break and was followed by an after dinner game of medical trivia hosted by Athar Malik. The traditional dance was held later…to protect the participants, I’ll say no more! The next morning our faculty panel on career transitions was a great introduction to key decision points to look out for, and we all headed back to Boston with a new sense of purpose and great memories. We are looking forward to the next retreat in 2007 to celebrate the retreat’s 25th anniversary. — by Sarah Henrickson
Annual Q&A Session
Shown at right are Drs. Maria Rupnick, associate program director, and Nancy Oriol, HMS dean for students, at the program’s annual Q&A session held on February 8, 2007 for students in the final stage of thesis preparation who are returning to clinics in 2007. Dr. Rupnick directs the HMS Longitudinal Course in Clinical Medicine that starts on April 9 and runs for seven weeks held at the Brigham and Women’s Hospital. A major goal of the course is to refresh the clinical skills of students who are beginning their transition back to full-time clinical clerkships. Shown at the right are Dan Seeberg, Adam Friedman, Zuzana Tothova who attended the meeting.
Predictors for Harvard MD-PHd Program newsletter


John W. Hanna, PhDs during the last semester. We congratulate the following students who completed their PhDs during the last semester.

Leo L. Tsai, Oxford University [Geoffrey Walford, Ph.D.] Folding and Maturation of Olig2 in Motor Neuron Development at Harvard University. [Stephen C. Blacklow, Ph.D.]

Vidyasagar Koduri, Folding and Maturation of Olig2 in Motor Neuron Development at Harvard University. [Stephen C. Blacklow, Ph.D.]

John W. Hanna, Peabody, BBS-Cell and Developmental Biology (DMS) at Harvard University. [Daniel J. Finley, Ph.D.] Functional Analysis of Ubp6, a Proteasome-Associated Deubiquitinating Enzyme (8/06).

Nicholas E. Houstis, HST, Biology at MIT. [Eric Lander, Ph.D.] Reactive oxygen species play a causal role in multiple forms of insulin resistance (11/06).

Vidyasagar Koduri, HST, Biophysics (GSAS) at Harvard University. [Stephen C. Blacklow, M.D., Ph.D.] Folding and Maturation of Proteasome-Associated Deubiquitinating Enzyme (8/06).

Anna L. Stevens, HST, Department of Biological Engineering at MIT. [Steven R. Biophysics, M.D., Ph.D.] Engineering and Computer Science at MIT. [Sanjoy K. Mitter, Ph.D. and Emery N. Brown, M.D., Ph.D.] From Thought to Action (7/06).

Leo L. Tsai, HST, Biophysics (GSAS) at Harvard University. [Ronald L. Walsworth, Jr., Ph.D.] Development of a Low-Field 3He MRI System to Study Posture-Dependence of Pulmonary Function (7/06).

Ellen Yeh, HST, Biophysics (GSAS) at Harvard University. [Christopher T. Walsh, Ph.D.] Enzymatic halogenation during natural product biosynthesis (7/06).

Congratulations on your achievements! You are part of a distinguished group of individuals who have contributed significantly to their respective fields. Keep up the excellent work.

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**Publications (as of July 2006)**

Incoming MD-PhD Students, 2006-2007

Jonathan Abraham of Rosedale, NY, received his AB degree Cum Laude in Biochemical Sciences from Harvard University in June, 2006.

Milena M. Andzelm of San Diego, CA, graduated from Harvard University in 2006 with AB degree Summa Cum Laude in Biochemical Sciences.

Erin (Yiyin) Chen of Greer, SC, graduated from the University of Chicago in June 2006 with BA degree with General Honors; Biological Sciences with Honors.

Sarah J. Hill of Bismarck, ND graduated from Harvard University in June 2005 with AB degree Magna Cum Laude Highest Honors in Biochemical Sciences and as Rhodes Scholar received her MSc degree from Oxford University in 2006.

Stephen J. Huffaker of Crawfordsville, IN graduated from University of Wisconsin in 2002 with a BS in Natural Sciences with Honors (highest distinction) and then received his PhD in Neuroscience from Cambridge University, UK and NIMH, US in 2006.

Mark N. Lee from North Wales, PA graduated from Yale in 2004 with a BS and MS degrees Summa Cum Laude in Molecular Biophysics and Biochemistry.

Karolina Maciag, born in Poland and moved to Sterling, VA at the age of 5, graduated from Harvard University in 2004 with AB degree Magna Cum Laude in Biochemical Sciences.

Devarati Mitra of Rockville, MD received her BS degree with High Honors from Stanford University in 2006 in Biological Sciences.

Yin Ren, born in China and moved to Canada at age of 15, was awarded the degree of Bachelor of Science in Electrical Engineering, Minor in Biomedical Engineering from the Massachusetts Institute of Technology in June 2006.

Cameron Sadegh of Franklin Lakes, NJ graduated in 2006 with a BS degree in Biology, minor in Biomedical Engineering and BS in Chemical Engineering from the Massachusetts Institute of Technology.

Amy B. Saltzman of Gates Mills, OH, received her AB degree with Highest Honors in Anthropology in May 2005 from Princeton University. She joined the new social sciences track.

Jenny (Yawei) Yang from San Diego, CA, received her BS Degree, Summa Cum Laude, and MA degree in Molecular, Cell, and Developmental Biology from the University of California, Los Angeles in 2006.