Alumna supports doctors who join her on a road less traveled

Yale’s picks to beat cancer: a pair of aces

An illustrious new chief of medical oncology, a leader for the Yale Cancer Biology Institute boost efforts to develop better drugs for cancer

It has been an eventful December for the advancement of basic and translational cancer research at Yale. On the 13th, Yale University announced that Joseph Schlessinger, a world-renowned scientist with an unparalleled track record of identifying molecular targets for novel anticancer drugs, was named the first director of the University’s new Cancer Biology Institute (cbi), one of five major interdisciplinary research initiatives located on Yale’s West Campus.

Just a week before, Thomas J. Lynch Jr., M.D., director of Yale Cancer Center (YCC), broke the news that YCC has appointed Roy S. Herbst, M.D., Ph.D., who has also had a distinguished career in the development of new cancer therapies, as chief of medical oncology at Smilow Cancer Hospital and associate director for translational research.

Schlessinger’s appointment is effective immediately, will retain his positions as chair and William H. Prusoff Professor of Pharmacology at the School of Medicine, dividing his time between the medical campus and West Campus. Herbst comes to Yale in March 2011 from MD Anderson Cancer Center at the University of Texas in Houston, where he is professor of medicine, chief of the section of thoracic medical oncology, and Barnhart Family Distinguished Professor in Targeted Therapies. His appointment marks Herbst’s return to Yale, where he received his undergraduate and master’s degrees.

Marie-Louise Johnson

Marie-Louise Johnson, M.D., has spent the past 15 years in the lab developing ways to build new arteries using tissue engineering techniques, but as an anesthesiologist who works in the intensive care unit, she always had another idea rolling around in the back of her head.

Niklason, professor of anesthesiology and biomedical engineering, was troubled that a large number of her patients suffered damage to the lungs, organs that simply don’t fix themselves very well after injury or serious illness. Hundreds of thousands of Americans die from lung disease each year, and the only effective treatment for severe cases is transplantation. Unfortunately, this expensive procedure is associated with high mortality and is also limited by an

Built from scratch, lungs are a big leap in bioengineering

Laura Niklason, M.D., Ph.D., has spent the past 15 years in the lab developing ways to build new arteries using tissue engineering techniques, but as an anesthesiologist who works in the intensive care unit, she always had another idea rolling around in the back of her head.

Niklason, professor of anesthesiology and biomedical engineering, was troubled that a large number of her patients suffered damage to the lungs, organs that simply don’t fix themselves very well after injury or serious illness. Hundreds of thousands of Americans die from lung disease each year, and the only effective treatment for severe cases is transplantation. Unfortunately, this expensive procedure is associated with high mortality and is also limited by an

Inside this issue

2 Lifelines

For Drosophila expert Lynn Cooley, curiosity is key.

3 Paying it forward

School of Med. graduates put students and postdocs on a productive path.

5 The inside story

Endoscope with a tiny, powerful microscope gives doctors a new view of GI diseases.

Also

Advances, pp. 3-5
Out & About, p. 4
Grants and Contracts, p. 6

Medicine offers satisfying careers in both science and patient care, and at the School of Medicine, students and faculty are encouraged to creatively combine these two vocations as physician–scientists. But Marie-Louise T. Johnson, M.D., Ph.D., has forged a career path that is “utterly unique in our field, and an exceptionally lofty model,” says Richard L. Edelson, M.D., chair of the Department of Dermatology, who calls Johnson “a physician, scientist, humanist.”

At age 83, Johnson maintains a busy dermatology practice in Kingston, N.Y., a city of 23,000 on the Hudson River about 100 miles north of New York City, which draws patients from a wide swath of the surrounding Hudson Valley and Catskills region. But she also boils a curriculum vitae that bristles with honors, including the Master Dermatologist Award from the American Academy of Dermatology and membership in the National Academy of Sciences’ Institute of Medicine. What makes Johnson special, says Edelson, Aaron B. and Marguerite Lerner Professor of Dermatology, is that she blends clinical care with biomedical insight and inspirational teaching. “She sees every medical problem as a mystery inviting a solution, a teaching opportunity, and a very personal challenge.”

The rarity of the particular constellation of qualities possessed by Johnson is a testament to the challenges faced by physicians who are as dedicated to advancing medicine as they are to the well-being of their patients. To help others attain this uncommon balance, Johnson has recently made a gift of $1 million to the School of Medicine, creating an endowment to support “clinical scholars” at Yale.

“As a role model, she presents a very high bar,” Edelson says of Johnson, who on many Wednesday mornings drives over 90 miles from her home to attend Dermatology Grand Rounds at Yale, often transporting a patient with an unusual or difficult illness. “Though she will be quite hard for anyone to emulate, this gift will help future generations of potential Marie-Louise Johnsons reach for that bar.”

Johnson graduated from the medical school in 1956, having already earned her Ph.D. in microbiology at Yale in 1954. Since her medical school training preceded the arrival of Yale’s first chair of dermatology, she became troubled during her internship at Grace-New Haven Community Hospital (now Yale-New Haven Hospital) by her lack of comprehension of the many skin lesions and rashes she saw in patients admitted.

Marie-Louise Johnson graduated from the medical school in 1956, having already earned her Ph.D. in microbiology at Yale in 1954. Since her medical school training preceded the arrival of Yale’s first chair of dermatology, she became troubled during her internship at Grace-New Haven Community Hospital (now Yale-New Haven Hospital) by her lack of comprehension of the many skin lesions and rashes she saw in patients admitted.

Laura Niklason has spent the past 15 years in the lab developing ways to build new arteries using tissue engineering techniques, but as an anesthesiologist who works in the intensive care unit, she always had another idea rolling around in the back of her head.

Niklason, professor of anesthesiology and biomedical engineering, was troubled that a large number of her patients suffered damage to the lungs, organs that simply don’t fix themselves very well after injury or serious illness. Hundreds of thousands of Americans die from lung disease each year, and the only effective treatment for severe cases is transplantation. Unfortunately, this expensive procedure is associated with high mortality and is also limited by an.

Laura Niklason, M.D., Ph.D., has spent the past 15 years in the lab developing ways to build new arteries using tissue engineering techniques, but as an anesthesiologist who works in the intensive care unit, she always had another idea rolling around in the back of her head.

Niklason, professor of anesthesiology and biomedical engineering, was troubled that a large number of her patients suffered damage to the lungs, organs that simply don't fix themselves very well after injury or serious illness. Hundreds of thousands of Americans die from lung disease each year, and the only effective treatment for severe cases is transplantation. Unfortunately, this expensive procedure is associated with high mortality and is also limited by an.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.

For Drosophila expert Lynn Cooley, curiosity is key.

Sanitation is key.
Putting eggs in a new basket

Science for its own sake can also hatch payoffs, says a Yale geneticist

The laboratory of Lynn Cooley, Ph.D., is abuzz, not only with thousands of vials of live fruit flies, but with the excitement scientists experience when their research may cross a new threshold.

Cooley, an authority on oogenesis (egg development) in the fruit fly Drosophila melanogaster, says that until recently she would have characterized her work as “one hundred percent basic science.” But Cooley believes that recent findings in her lab have great potential for important new insights into human diseases such as muscular dystrophy.

Fruit flies are an all-too-common nuisance in kitchens around the world. But the ubiquity of these tiny flies belies their tremendous importance to biology. More than a century of work on Drosophila—a species that is unusually amenable to genetic manipulation and that reproduces and matures rapidly—has helped to unravel the molecular basis of core biological functions; over 60 percent of Drosophila genes have counterparts in the human genome.

As a graduate student at the University of Texas–Austin, Cooley, now professor of genetics, cell biology, and molecular, cellular, and developmental biology, studied proteins in the cytoskeleton, the “scaffolding” of cells. After earning her master’s degree, she left graduate school for a time and worked in the Yale lab of Dieter G. Soll, Ph.D., Sterling Professor of Molecular Biophysics and Biochemistry and professor of chemistry, “probably the most important influence in my career,” she says. Though Cooley eventually received her doctorate from Texas, she conducted her dissertation research in Soll’s lab, studying the formation of histidine transfer RNA, a molecule involved in protein synthesis, in both yeast and Drosophila. During a postdoctoral fellowship with Allan C. Spradling, Ph.D., at the Carnegie Institution for Science in Baltimore, Md., Cooley began her explorations of oogenesis, working exclusively with Drosophila, and settled on the research niche and the model species that have defined her work ever since.

Cooley and those in her lab study not only the formation of eggs but the chambers in which eggs form, the flow of information and nutrients from so-called nurse cells to oocytes (developing eggs), changes in the cytoskeleton during egg development, and the role of muscle tissue in the progression of developing egg chambers through the Drosophila ovary.

In a 2008 study reported in Developmental Biology, Cooley and colleagues used a technique known as protein trapping to selectively tag specific components of ovarian muscle in Drosophila with fluorescent molecules, revealing surprising details of these structures that had previously received little attention from scientists.

“Then a student started trying to use the ovarian muscles as a model for studying mutations in proteins that cause muscular dystrophies,” says Cooley, “so now I feel at least I have a toe in the door for developing what we love about Drosophila oogenesis as a more translationally oriented model.”

But Cooley, who also directs the student-run Hunger and Homelessness Auction, says, “For curiosity-driven science to continue, since you never know where efforts to figure out how biology works will lead.”

Annual auction nets more than $25,000 for New Haven charities

The annual student-run Hunger and Homelessness Auction, held on November 18, garnered more than $25,000 for New Haven charities.

The event started with a silent auction featuring California wines, fencing lessons, movie tickets, and an incomparable evening of watching sports or action movies on TV (plus dinner of corn dogs and turkey burgers).

Some off-beat services were offered by students to bidders: “I will be your running buddy for any distance and any speed”; “I will make a breakup phone call for you and explain to your significant other why the relationship is over.”

At an evening live auction, first-year students Kala Xula and Conor Brady served as auctioneers and led the bidding on items that included a faculty vs. medical student softball game; a dinner and wine tasting at the home of Dean Robert J. Alpern, M.D., Ensign Professor of Medicine; tickets to a Red Sox baseball game; and a four-hour cruise on the sailboat of James D. Jamison, M.D., Ph.D., professor of cell biology.

This year’s proceeds will benefit Loaves and Fishes, Columbus House, New Haven Home Recovery, Downtown Evening Soup Kitchen, Community Health Care Van, and the Community Soup Kitchen.

In an age of increasing emphasis on research explicitly directed toward treatments for human diseases, Lynn Cooley is a passionate advocate of basic, “curiosity-driven” research, which often provides insights that later prove useful in the clinic. Recent studies of ovarian muscle in the fruit fly Drosophila melanogaster in Cooley’s lab have shown that the fly could provide an important new model of human diseases such as muscular dystrophy.

Associate dean wins top honor in medical education

Rosemarie L. Fisher, M.D., professor of medicine and pediatrics and associate dean for graduate medical education, has received the Dena Daley Founders Award, the highest honor bestowed on medical educators by the Association of Program Directors of Internal Medicine. The award honors a member of the internal medicine community recognized internationally as an educator, innovator, and leader.

Fisher has spent 35 years on the School of Medicine faculty, including 12 as director of graduate medical education at Yale-New Haven Hospital (YNHH), a role in which she oversees all residency programs, and seven as associate dean.

She is the former program director for the Department of Internal Medicine’s residency program. As a member of the YNHH Nutrition Support Team, Fisher’s research has focused on the role of nutritional support such as intravenous feeding in gastrointestinal diseases.

She received her medical degree from Tufts University School of Medicine in 1971 and completed a residency in internal medicine at Montefiore Hospital and Medical Center in New York City. She completed fellowships in gastroenterology at both the Royal Free Hospital in London and at Yale. Fisher is board-certified in gastroenterology and internal medicine.

In 2006, Fisher was one of two people to win the first Parker J. Palmer Courage to Lead Award from the Accreditation Council for Graduate Medical Education, which honors excellence in overseeing residency programs.
Medical school’s mentors ‘pay it forward’

Seasoned pros are vital in preparing students to succeed on their own

Though few of the hundreds of busy people who pass through the doors of Sterling Hall of Medicine each day notice the Greek inscription on a plaque overhead, the language there says much about life at the School of Medicine. In translation it reads, “Those having torches will pass them on to one another.”

Some torches are passed straightforwardly. During their training, medical students, doctoral students, and even postdoctoral associates learn facts, many thousands of them. But as in all fields, from the law to violin-making, to ultimately succeed in medicine or science there is no substitute for learning the ropes from a seasoned mentor. Throughout its 200-year history, mentorship has been integral to the mission of Yale School of Medicine, where it plays a part today in nearly every sphere.

A hand up in medicine

Until recently, Associate Dean for Student Affairs Nancy R. Angoff, M.P.H., M.D., served as advisor to every member of every medical class at Yale, providing counseling in every realm from the academic to the personal. In 2009 the advising duties were split among four faculty, each of whom guides one quarter of each class. While they are not mentors in the strictest sense of the word, the new advisors—John S. Francis, M.D., Ph.D., associate professor of medicine; Karen J. Jablonski-Raber, M.D., assistant professor of emergency medicine; Michael K. O’Brien, M.D., Ph.D., assistant professor of surgery; and Patrick G. O’Connor, M.D., M.P.H., professor of medicine—meet with students individually during students’ first year, and in groups thereafter. Angoff still stands by to lend a hand with personal or social challenges, but the new advisors concentrate on “any kind of academic problems, struggles, issues,” Angoff says.

The School of Medicine requires that medical students complete a thesis based on original research. Students are encouraged to independently seek out and contact researchers they’d like to work with, but many begin their research after their first year, before they are familiar with the many research options available to them. One role of the advising team is to help pair up students with mentors who can best guide medical students through the projects that will ultimately be the basis for their fellowship applications.

Medical student Daniel “Pete” Duncan, who is spending an extra year at Yale devoted to research, chose to work with Christopher K. Breuer, M.D., assistant professor of surgery and pediatrics, who uses tissue engineering techniques to build new blood vessels for children with congenital heart disease. With colleague Toshiharu Shinoka, M.D., Ph.D., associate professor of surgery, Breuer has pioneered the use of tissue-engineered vascular grafts (TEVGs). Created by seeding a biodegradable scaffold with a patient’s bone marrow cells, TEVGs are living vessels that live and grow with the patient and are not prone to the immunological problems that affect transplanted tissue.

Despite Breuer’s busy schedule, which also includes clinical work as a pediatric surgeon, “somehow he is always keeping track of what we’re doing,” Duncan says. “When he’s in his office, he is always available. I’m interested in pediatrics, and he is very excited about it, very supportive, and willing to help in any way. He’s a very easy person to talk to.”

For his part, Breuer stresses that mentoring students is a two-way street, with great benefits for his lab. “It’s a wonderful give-and-take relationship,” he says. “I’ve got incredibly enthusiastic and accomplished people that come and help me with my project. I’m a huge beneficiary of working with these bright, hard-working people.”

Faculty and graduate students

In addition to future doctors, future scientists also train in many departments at the School of Medicine, ultimately earning the Ph.D. Graduate students study at the medical school via the Medical Scientist Training Program (MSTP); known more commonly on campus as the M.D./Ph.D. Program, which is devoted to educating physician–scientists, and the Combined Program in Biomedical and Biological Sciences (BBS), which gives Ph.D. students experience in several labs at both the university and the medical school before they settle into a BBS-affiliated department, many of which are at the School of Medicine.

Daniel Okin, a member of the medical school’s Class of 2014, in the M.D./Ph.D. Program, and Noah Palm, a doctoral candidate in the BBS program, both work in the laboratory of Ruslan Medzhitov, Ph.D., the David W. Wallace Professor of Immunobiology and a Howard Hughes Medical Institute investigator. Medzhitov is world-renowned for his work on the innate immune system, the body’s first line of defense against infection.

“When I heard about him and read some of his papers, I was immediately drawn to working with him,” Okin says of Medzhitov. “Ruslan is probably one of the most creative thinkers that I’ve ever encountered.”

After doing a rotation in Medzhitov’s lab, Okin decided to join the research team during his second year of medical school. Okin, who is conducting research on the innate immune system’s response to nonpathogenic stressors such as obesity, describes Medzhitov’s approach to mentorship as “very collaborative. It’s very much that you work with him, together, to define an area that you’re both interested in, and to define a project that would be interesting both intellectually and scientifically.” Having spent more than...
**OUT & ABOUT**

September 30  Faculty and staff of the School of Medicine and Yale Cancer Center joined employees of Tucker Mechanical, of Meriden, Conn. (an Emcor Company) to form a Human Pink Ribbon in support of Breast Cancer Awareness Month. More than 160 people participated in the event.

October 16  At Community Day, part of a series of events celebrating the School of Medicine’s Bicentennial, faculty and staff provided tours, demonstrations, and lectures for members of the New Haven community. 1. New Haven Mayor John DeStefano Jr. made remarks on the steps of Sterling Hall of Medicine. 2. Linda Pellico, Ph.D., A.P.R.N., assistant professor at Yale School of Nursing (right), led an educational session for children. 3. John Gallagher, M.L.S., deputy director of public services at the Cushing/Whitney Medical Library, led a tour of the new Cushing Center, which houses brain specimens, photographs, drawings, and memorabilia collected by famed neurosurgeon and Yale College alumnus Harvey W. Cushing, M.D.

October 16  At the Discovery to Cure Gala, held at the Stamford Marriott Hotel & Spa in Stamford, Conn., over $200,000 was raised for cancer screening for women at high risk, the training of high school students for careers in biomedical research, and the translation of basic research in gynecological oncology into practical treatments. 1. News analyst and political commentator Cokie Roberts delivered the evening’s keynote speech. 2. (Seated, from left) Discovery to Cure committee members Michelle Miles, Gladys O’Neil, Stephanie Ercegovic, Arlene Schwartz, and Judi Egbert. Top: Gil Mor, M.D., Ph.D., professor of obstetrics, gynecology, and reproductive sciences and creator of the Discovery to Cure program. Peter E. Schwartz, M.D., the John Slade Ely Professor of Obstetrics, Gynecology, and Reproductive Sciences, Thomas J. Rutherford, Ph.D., M.D., associate professor of obstetrics, gynecology, and reproductive sciences, Jacques Dickinson, and Charles L. Lockwood, M.D., the Anita O’Keeffe Young Professor of Women’s Health and chair of the Department of Obstetrics, Gynecology, and Reproductive Sciences. 3. (From left) Melissa Sheehan, William B. Sheehan. Discovery to Cure committee member Wendy Long, and James Long.

October 28  The Branford, Conn.-based Jack of All Hearts Foundation (JOAH) made a gift of $3,000 to support pediatric cardiology programs at Yale-New Haven Children’s Hospital and a fellowship in pediatric cardiology at the School of Medicine. Laura and Mark Hanson, whose son, Jack, was born with a rare congenital heart defect, cofounded the organization. In September, the first JOAH Walkathon netted $10,500. (From left) Clifford W. Bogue, M.D., associate professor of pediatrics; Mark Hanson; Laura Hanson; Alan H. Friedman, M.D., professor of pediatrics; and JOAH board member Melissa Thibeault.

November 4  A reception was held in the Medical Historical Library honoring John A. Persing, M.D., professor of surgery and neurosurgery, recently named the inaugural Irving and Silik Polayes Professor in Plastic Surgery. The new professorship was established with a $2.5 million gift from the late Maurice B. “Moe” Polayes, and is named in honor of his brother, Irving M. Polayes, M.D., and his late great-uncle, Silik H. Polayes, Ph.D. Irving is a retired New Haven surgeon and dentist who was a voluntary faculty member in the Department of Surgery’s Section of Plastic Surgery from 1965 to 1997. Silik earned his graduate degree from Yale in 1921 and worked as a pathologist in New York. From left: Persing with Maurice Polayes’s children, Amy Polayes Margolis and Roy Polayes.
Tiny scope is a big advance for GI cancers

New confocal laser endomicroscopes offer doctors an unprecedented view to diagnose early malignancies

Last year, when Harry Aslanian, M.D., associate professor of medicine, first looked at images produced by a new diagnostic device known as a confocal laser endomicroscope, he saw what no one had seen before: stunning, high-resolution images of cells, individual red blood cells within vessels, and sarcotubules within a pancreatic tumor, all magnified 1,000 times.

For the first time, a miniaturized prototype microscope was passed into a pancreatic mass via a small needle that traveled through the stomach wall, obtaining amazing real-time pictures of an organ that is notoriously difficult to reach, and tricky to evaluate even by CT scans or MRI.

“The quality was very good,” recalls Aslanian, associate director of endoscopy for Yale Medical Group (YMG), who was taking part in the world’s first visualization of the interior of a pancreatic mass using confocal laser endomicroscopy (CLE).

Aslanian and Uzma Siddiqui, M.D., specialize in combining ultrasound and endoscopy to evaluate and perform biopsies in pancreas disorders. Previously, endosonographic views of the pancreas showed only its overall texture, and needle biopsies were required to examine and stain individual cells outside of the body. Aslanian and Siddiqui are participating in a pilot trial using CLE to diagnose precancerous pancreatic cysts, which can be surgically removed. “Now we’re in the process of fine-tuning this, making a road map to identify precancerous change,” Aslanian says.

High-resolution confocal microscopes are a mainstay in biomedical research, but they have evolved from what Adana calls “tabletop versions” to scopes that measure only 2.5 millimeters in diameter. Yale Cancer Center and Smilow Cancer Hospital at Yale-New Haven are among only a handful of institutions in the world and the only centers in Connecticut using the technology. The microscopes fit through the biopsy channels of many endoscopes, the lighted optical instruments gastroenterologists use, to look deep inside the body to spot cancer and precancerous tissue at their earliest stages of development, when many cancers are curable with surgery.

Doctors at YMG are also using CLE to gain new views of the colon, bile duct, and esophagus. Siddiqui, YMG’s director of ultrasound, has used the technique to examine patients with Barrett’s esophagus, a disorder associated with long-term esophageal reflux disease that can be a precursor to esophageal cancer. Siddiqui says the microscopic probe helps her target the most suspicious regions of dysplasia, or precancerous tissue changes. Meanwhile, gastroenterologist Priya Jamidar, M.D., director of endoscopy at YMG, is using CLE to diagnose bile duct tumors, where current tissue sampling techniques are only reliable about half the time.

“It’s an impressive technology that is much less invasive for our patients, providing on-the-spot information that can guide the endoscopic evaluation, and, in some cases, treatment,” says Aslanian. In cases of early esophageal and colon cancer, he says, the earliest tumors can be removed through the scope during the same procedure with the specialized techniques of endoscopic mucosal resection. “The potential for the microscope is that we can look at the cells in real time and identify the ones that are likely to progress to cancer.”
Grants and contracts awarded to Yale School of Medicine

**March/April, 2010**

**Federal**

Steven L. Bernstein, M.D., Ph.D., treating low-income smokers in the Hospital Emergency Department, $5,000, 3 years, $13,433,592 — Linda K. Rockenfeldt, Ph.D., Real-time Imaging Analysis of Vector-Borne Lyme Borreliosis Pathogenesis and Persistence, $2,068,750 — Sonia Caprio, M.D., New Functional imaging of Feeding Centers in Obese Youth, $2,126,129 — Jessica A. Cardin, M.D., Impact of Local Obese Phenotype on the Native Visual Cortex Function, 3 years, $602,987 — Katarzyna Chawarska, Ph.D., Development of Face Processing in infants with Autism Spectrum Disorder, 5 years, $725,000 — John D. Hagan, Jr., Erythrocyte Alpha Spectrin, Functioning of Feeding Centers in Obese Youth, 3 years, $782,916 — Benjamin A. Turk, M.D., Advancing Tobacco and Alcohol Use to Promote Smoking Cessation, 2 years, $782,162 — Benjamin E. Turk, M.D., Global Peptide Microarray Profiling of Tyrosine Kinase Deregulated in Cancer, 2 years, $599,136 — Yula Suvretsova, M.D., Analysis of Mammalian Mitochondrial Transcriptional Mechanism, 3 years, $593,196 — Benjamin A. Turk, M.D., Advancing Tobacco and Alcohol Use to Promote Smoking Cessation, 2 years, $593,000 — Yula Suvretsova, M.D., Analysis of Mammalian Mitochondrial Transcriptional Mechanism, 3 years, $593,196

**Non-Federal**

Marcus W. Rosenberg, Pennsylvania State University, Targetted Chemoprevention for Melanoma, 5 years, $371,412 — Iger L. Brodky, Harvard Medical School, Molecular Biology of Human Microvascular Endothelial Cells, 5 years, $256,017 — Howard Hughes Medical Institute, Molecular Biology and Structure of cftr Ion Channel, 4 years, $256,637 — Kitt Falk Petersen, M.D., Mechanisms of Insulin Resistance in the Aged, 5 years, $1,696,375 — Marc I. Rosen, Ph.D., Benefits Management for People with Psychiatric Disabilities, 3 years, $280,144 — M.D. Anderson Cancer Center, Signaling in the Regulation of cftr Ion Channels: The cAMP Signal, 2 years, $752,555 — Lynn O’Conner, M.D., Immunological Monitoring of HLA Class II Receptor and cD4 Immune Responses, 2 years, $653,000 — Maria C. Sosa, M.D., The Role of Molecule Motoring in Breast Cancer, 3 years, $653,000 — Brian W. Forsyth, M.D., Noninvasive Monitoring of cftr Ion Channels in the Elderly, 2 years, $620,626 — Michael C. Li, Ph.D., Andrew Xiao, M.D., A Novel Fratagony Activity of cftr and its Role in Timurunogen, 3 months, $250,000 — Xiang Li, M.D., Ph.D., and STI Study on Novel Predictor of Treatment Outcome in Cancer, 5 years, $810,726 — Hongyu Zhao, Ph.D., Statistical Methods to Map Genes for Complex Traits, 4 years, $416,072

**Grants and contracts awarded**

Defining Chronic Obstructive Pulmonary Disease

20 months, $256,017

Fetal–Fetal Transfer of Toxicants & Outcomes

5 years, $2,068,750

Neural–Cortical Function

6 years, $2,068,750

Lyme Borreliosis Pathogenesis and Persistence

5 years, $2,068,750

Medzhitov’s lab, Palm has learned to see the big picture, to see why the problem is important and interesting, to be able to define important and interesting questions, and to see where that line of investigation will go and how it fits into the broader picture,” Medzhitov explains.

A continuing cycle

Mentorship continues to play an important role even after a person finishes their formal training. Medzhitov describes a “fairy tale” of holding a doctorate still need the guidance of mentors before they strike out on their own. Michael J. Caplan, M.D., Ph.D., knows this well. As a graduate student at Yale School of Medicine, Caplan was now chair and c.N.H. Long Professor of Cellular and Molecular Physiology and professor of cell biology, gained vital experience working jointly with Professors of Cell Biology James D. Jamieson, M.D., and Philip P. Beal, M.D., Ph.D. (Program in Clinical and Translational Science, HPH. Program) and George E. Palade, M.D., the late Romanian-American cell biologist and Nobel laureate.

Last April, Caplan received the first annual Yale University Postdoctoral Fellows Mentoring Award. The fellows who nominated Caplan described three ways in which he is an exceptional mentor: he checks in with his lab members daily to talk about experimental data and to challenge them to think creatively about interpreting their results; he helps postdoctoral scholars advance their careers by helping them to think strategically about their futures, providing extensive feedback on their grant proposals and participating in mock job interviews as they prepare for real interviews; and, not least, he strives to develop a certain set of skills that are “friendly” climate in his lab that acknowledges and accommodates the challenges of balancing a scientific career with family life.

Mentorship is cyclical: mentees become mentors, and knowledge is continually passed on. As with parents and children, the next generation of scientists raises the next, “just like we hear our parents’ voices in our heads when we talk to our children,” Caplan says. In the laboratory, as in parenting, maturity and confidence come with time — and when they do, the rewards are unparalleled, he says.

Caplan likens scientific training to apprenticeship in carpentry: “There are a real feeling of responsibility in the lab of helping out the new students and postdoctoral fellows to become used to the lab, to feel welcomed, but also to get up to speed,” Palm, who plans to begin a postdoc- toral fellowship in January, adds. “When I came in, the people who are now long gone helped me, so it’s kind of a ‘pay-it-forward’ scheme,” he says.

Last April, Medzhitov became one of the youngest members ever to join the elite National Academy of Science. But despite his accomplishments, Medzhitov is extraordinarily dedicated to those under his wing. “He has an amazing track record of producing really top-notch scientists,” says Palm.

“With his presence in the lab in the world to have been in during the past five to 10 years, in terms of going on to really great positions at great universities and continuing to put out great work,” says Palm.

Medzhitov sees developing a student’s individual interest as vital to the role of an advisor. “The challenge is to nurture that interest and to develop a certain set of skills that are necessary to do research, which are beyond just technical skills.” These skills, he says, are “the ability to see the big picture, to see why the problem is important and interesting, to be able to define important and interesting questions, and to see where that line of investigation will go and how it fits into the broader picture,” Medzhitov explains.

Grant program serves students, teaches discipline

Caplan likens scientific training to apprenticeship in carpentry: “There are a real feeling of responsibility in the lab of helping out the new students and postdoctoral fellows to become used to the lab, to feel welcomed, but also to get up to speed,” Palm, who plans to begin a postdoctoral fellowship in January, adds. “When I came in, the people who are now long gone helped me, so it’s kind of a ‘pay-it-forward’ scheme,” he says.

Last April, Medzhitov became one of the youngest members ever to join the elite National Academy of Science. But despite his accomplishments, Medzhitov is extraordinarily dedicated to those under his wing. “He has an amazing track record of producing really top-notch scientists,” says Palm. “With his presence in the lab in the world to have been in during the past five to 10 years, in terms of going on to really great positions at great universities and continuing to put out great work,” says Palm.

Medzhitov sees developing a student’s individual interest as vital to the role of an advisor. “The challenge is to nurture that interest and to develop a certain set of skills that are necessary to do research, which are beyond just technical skills.” These skills, he says, are “the ability to see the big picture, to see why the problem is important and interesting, to be able to define important and interesting questions, and to see where that line of investigation will go and how it fits into the broader picture,” Medzhitov explains.

A continuing cycle

Mentorship continues to play an important role even after a person finishes their formal training. Medzhitov describes a “fairy tale” of holding a doctorate still need the guidance of mentors before they strike out on their own. Michael J. Caplan, M.D., Ph.D., knows this well. As a graduate student at Yale School of Medicine, Caplan was now chair and c.N.H. Long Professor of Cellular and Molecular Physiology and professor of cell biology, gained vital experience working jointly with Professors of Cell Biology James D. Jamieson, M.D., and Philip P. Beal, M.D., Ph.D. (Program in Clinical and Translational Science, HPH. Program) and George E. Palade, M.D., the late Romanian-American cell biologist and Nobel laureate.

Last April, Caplan received the first annual Yale University Postdoctoral Fellows Mentoring Award. The fellows who nominated Caplan described three ways in which he is an exceptional mentor: he checks in with his lab members daily to talk about experimental data and to challenge them to think creatively about interpreting their results; he helps postdoctoral scholars advance their careers by helping them to think strategically about their futures, providing extensive feedback on their grant proposals and participating in mock job interviews as they prepare for real interviews; and, not least, he strives to develop a certain set of skills that are “friendly” climate in his lab that acknowledges and accommodates the challenges of balancing a scientific career with family life.

Mentorship is cyclical: mentees become mentors, and knowledge is continually passed on. As with parents and children, the next generation of scientists raises the next, “just like we hear our parents’ voices in our heads when we talk to our children,” Caplan says. In the laboratory, as in parenting, maturity and confidence come with time — and when they do, the rewards are unparalleled, he says.

Caplan likens scientific training to apprenticeship in carpentry: “There are people who come in knowing how to use all the tools and have a tremendous intuition for the wood, and there are people who don’t.” And with the latter, “the great pleasure comes from watching as, either suddenly or gradually, they acquire that intuition.”
Under Schlessinger's direction, the CBI plans to hire 150 research scientists, including 1 principal investigator, over the next three to four years, with the primary goal of pinpointing key molecular targets of cancer, identifying new molecular targets, and developing new drug treatments. These researchers will work in concert with scientists at the neighboring Yale Cancer Center, focusing on long-term studies of the medical effects of radiation released by the atomic bombs dropped on Japan at the close of World War II. Her experiences there led Johnson to become an active member of International Physicians for Prevention of Nuclear War. She vividly remembers the polio epidemic and “life before penicillin,” when people routinely died of what would now be considered minor infection. The experiences of doctors, nurses, and dermatologists in particular, have a vital role to play in ensuring the continuation of the advances in medicine she has witnessed since her youth.

"The skin is the body’s largest organ and it has major interactions with the body in its interactions with everything that’s outside," Johnson says. "It’s pretty important!" Nonetheless, she adds, medical dermatology is being absorbed into other specialties, as in the case of lupus, which is generally treated by rheumatologists despite the disease’s significant effects on the skin. "This is a disservice to dermatology," Johnson says, "because there’s so much to learn about this disease and to knowing what these serious diagnoses do in the skin."

Her gift, she says, is to “encourage the young, able, innovative dermatologist to pursue new avenues opened by his or her research, and give funding so he or she not be compelled to work in the clinic at the expense of time to think. You have to have support to do that.”

Edelson says he can think of no better person to inspire young physicians in the field. "She is precisely the physician any of us would want for ourselves, and she is precisely the teacher any of us would want to have—er, to be.”

He is a member of the National Academy of Sciences and of the Institute of Medicine and serves on the editorial boards of numerous journals, including Cancer, Molecular Oncology, and Cancer Research. He is also a fellow of the American Institute of Medicine’s National Cancer Policy Forum. He is a fellow of the American College of Physicians. He has authored more than 200 peer-reviewed papers and has current grant funding for his work from numerous sources, including the National Cancer Institute, the AACR, and multiple charitable foundations.

He received his medical degree from Cornell University Medical College and a Ph.D. in molecular cell biology from the Rockefeller University. He completed his medical oncology fellowship at Dana-Farber Cancer Institute and a medical hematology fellowship at Brigham and Women's Hospital in Boston, where he additionally received a master's degree from Harvard University’s clinical investigator training program.
Neurologist is named first Zimmerman and Spinelli Professor

David Green, M.D., M.A., a specialist in the areas of coma, neurocritical care, stroke, and neuroimaging, has been named the inaugural Dr. Harry M. Zimmerman and Dr. Nicholas and Viola Spinelli Associate Professor of Neurology.

Green’s research focuses on vascular neurology and on improving the ability of doctors to give an accurate prognosis for patients in coma, particularly after suffering a cardiac arrest. He is also interested in the use of hypothermia to improve neurological outcomes for various brain injuries.

After earning his M.D. and a master’s degree in English literature from the University of Florida, Greer trained in neurology at Massachusetts General Hospital (MGH), where he underwent specialized fellowship training in stroke and neurocritical care. He was an associate neurologist and attending physician in neurology at Brigham and Women’s Hospital in Boston, and an attending physician and director of Neurology Consultative Services and the Inpatient Stroke Service at MGH, where he was also the program director of the Partners Neurology Residency Program.

Greer was an associate professor at Harvard Medical School before coming to Yale earlier this year as clinical vice chair and associate professor of neurology. At Yale, he also serves as program director of the Neurology Residency Program and director of the Outpatient Neurology Clinic.

Greer has also served as a specialty consultant to the New England Patriots, the Boston Bruins, and the Boston Red Sox. His numerous honors include a 2010 Teacher of the Year Award from the Partner Neurology Residency at Massachusetts General Hospital, where he also received several Partners in Excellence Awards, among other distinctions.

The new professorship was established through the bequest of Nicholas “Nick” Spinelli, M.D., a beloved alumnus of Yale College and the School of Medicine who died in 2007, and his sister, Viola Spinelli, M.P.H., a 1964 graduate of the Yale School of Public Health. It honors Harry M. Zimmerman, M.D., a noted neuropathologist during Nicholas Spinelli’s student days at the medical school who became the founding director of the Albert Einstein College of Medicine in Bronx, New York. In addition to the professorship, the Spinellis’ $4.5 million bequest supports a scholarship fund for medical students.

Nicholas Spinelli, a native of Stratford, Conn., entered Yale College in 1937 at 16 years old. After graduating in 1941, he entered the School of Medicine, and, like the rest of his classmates, was inducted into the Army as part of Yale’s Company C, combining his medical studies with military drills on the New Haven Green. After graduating, Spinelli served as an Army physician in Germany, Spinelli practiced medicine in Stratford until 1968, when a heart condition forced him to give up his practice. He was able to continue working, however, and served thereupon as director of medical education at Bridgeport Hospital. He was a familiar face on campus, serving from 1938 to 1990 as an academic director and alumni relations officer for Yale School of Medicine.

Z. Jimmy Zhou

Z. Jimmy Zhou, M.S.C., Ph.D., newly designated as the Marvin L. Sears Professor of Visual Science, studies the physiology and development of the mammalian retina under normal and pathological conditions, as well as the organization and function of retinal synapses and circuits.

Research in his laboratory is focused on the cellular and network mechanisms underlying the generation of spontaneous rhythmic activities (retinal waves) in the developing retina and the functional role of such activities in the development of neuronal circuits in the visual system.

His team also explores the mechanisms of visual signal processing in the mature retina, particularly the physiology of the neuronal circuits responsible for detecting image movement and movement direction.

Zhou earned his B.S. at Fudan University in China and his master’s and doctoral degrees at the University of Houston. After postdoctoral studies at the University of California—Los Angeles, Zhou joined the faculty at the University of Arkansas. He came to Yale in 2008. He is vice chair and director of research in the Department of Ophthalmology and Visual Science and is affiliated with the Combined Program in the Biological and Biomedical Sciences and the Graduate Program in Cellular and Molecular Physiology.

David Green, the inaugural Dr. Harry M. Zimmerman and Dr. Nicholas and Viola Spinelli Associate Professor of Neurology, spoke at a celebratory reception in the Cushing/Whitney Medical Historical Library with a portrait of the late Nicholas Spinelli standing nearby. Spinelli established the chair with his sister, Viola, in honor of Zimmerman, a neuropathologist on the School of Medicine faculty during Nicholas Spinelli’s student years who later became founding director of Albert Einstein College of Medicine.

Joel Gelernter

Joel Gelernter, M.D., the newly named Foundations’ Fund Professor of Psychiatry, focuses his research on the genetics of psychiatric illness.

The director of the Division of Human Genetics in the Department of Psychiatry, Gelernter seeks to identify genes that predispose individuals to substance-dependence traits—primarily cocaine, opiate, nicotine, and alcohol dependence, as well as to other psychiatric traits, especially anxiety disorders. In addition, he explores the genetics of other phenotypes, such as neuroimaging measures and basic issues in population genetics. His laboratory is engaged in ongoing research collaborations on the genetics of substance dependence with colleagues at the Chulalongkorn Faculty of Medicine in Bangkok, Thailand, and he helps to train Thai investigators in substance-dependence genetics at Yale.

He has also conducted research in China and Israel.

Gelernter is a 1979 graduate of Yale College. He received his M.D. at SUNY Downstate Medical Center in 1983, and fellowship training at the National Institute of Mental Health. He has been a full professor at the School of Medicine since 2002, and is currently professor of psychiatry, genetics, and neurology.

He also is affiliated with the Molecular Cell Biology, Genetics, and Developmental track of the Combined Program in the Biological and Biomedical Sciences.

An associate editor of Neuropsychopharmacology, Gelernter is on the editorial boards of Biological Psychiatry, The American Journal of Medical Genetics Part B, Psychiatric Genetics, and Asian Biomedicine.

The professorship was established with contributions from The Foundations’ Fund for Research in Psychiatry, established by philanthropist Charles B.G. Murphy, a noted neurologist in the areas of coma, neurocritical care, stroke, and neuroimaging, has served as program director of the Neurology Residency Program and director of the Outpatient Neurology Clinic. Gelernter has also served as a specialty consultant to the New England Patriots, the Boston Bruins, and the Boston Red Sox. His numerous honors include a 2010 Teacher of the Year Award from the Partner Neurology Residency at Massachusetts General Hospital, where he also received several Partners in Excellence Awards, among other distinctions.

The new professorship was established through the bequest of Nicholas “Nick” Spinelli, M.D., a beloved alumnus of Yale College and the School of Medicine who died in 2007, and his sister, Viola Spinelli, M.P.H., a 1964 graduate of the Yale School of Public Health. It honors Harry M. Zimmerman, M.D., a noted neuropathologist during Nicholas Spinelli’s student days at the medical school who became the founding director of the Albert Einstein College of Medicine in Bronx, New York. In addition to the professorship, the Spinellis’ $4.5 million bequest supports a scholarship fund for medical students.

Neuropsychiatrist, stem cell researcher is named new Harris Professor of Child Psychiatry

Flora M. Vaccarino, M.D., who studies the pathophysiology of neuropsychiatric disorders and has elucidated how neural stem cells self-renew, survive, and differentiate, has been named Harris Professor of Child Psychiatry.

Members of Vaccarino’s laboratory study the proliferation and differentiation of neural stem cells during prenatal and postnatal development and after injury, as well as the diversity and function of astroglial cells in neuropsychiatric disorders. A member of the faculty at the Yale Child Study Center and in the Department of Neurobiology, Vaccarino was the principal investigator of a 2003 study which found that patients with Tourette’s syndrome have fewer GABA interneurons in their brains than those without the syndrome. She is known in the neuroscience community for discovering the role of glial fibrillary acidic protein in the growth of the cerebral cortex during mammalian development.

Flora Vaccarino earned her medical degree at Padua Medical University in Italy and studied neuropharmacology and cell biology at the National Institutes of Health as a research fellow before starting her residency in psychiatry at Yale School of Medicine. After her residency, Vaccarino studied developmental biology and genetics, and joined the Yale faculty in 1994. Also affiliated with the Yale Stem Cell Center, Vaccarino became a full professor in 2009.

Her honors include a National Alliance for Research for Schizophrenia and Depression (NARSAD) Young Investigator Award, a Lustman Award from Yale, two Tourette’s Syndrome Association Awards, a Women in Research and Education Award from the National Science Foundation, and a NARSAD Independent Investigator Award.

Development and function of the retina are research interests of Marvin Sears Professor

Z. Jimmy Zhou, M.S.C., Ph.D., newly designated as the Marvin L. Sears Professor of Visual Science, studies the physiology and development of the mammalian retina under normal and pathological conditions, as well as the organization and function of retinal synapses and circuits.

Research in his laboratory is focused on the cellular and network mechanisms underlying the generation of spontaneous rhythmic activities (retinal waves) in the developing retina and the functional role of such activities in the development of neuronal circuits in the visual system.

His team also explores the mechanisms of visual signal processing in the mature retina, particularly the physiology of the neuronal circuits responsible for detecting image movement and movement direction.

Zhou earned his B.S. at Fudan University in China and his master’s and doctoral degrees at the University of Houston. After postdoctoral studies at the University of California—Los Angeles, Zhou joined the faculty at the University of Arkansas. He came to Yale in 2008. He is vice chair and director of research in the Department of Ophthalmology and Visual Science and is affiliated with the Combined Program in the Biological and Biomedical Sciences and the Graduate Program in Cellular and Molecular Physiology.

Z. Jimmy Zhou

www.medicinenatyale.org