

## Hitchings-Elion Fellows Follow the Road Less Traveled

by Susanna Smith, Communications Intern

With the last few Hitchings-Elion fellows winding down their fellowships, the Burroughs Wellcome Fund wanted to take this opportunity to reflect on the unique opportunity for international study it afforded to 66 scientific scholars.

While the Hitchings-Elion program is closed to new applicants, the Burroughs Wellcome Fund has incorporated the spirit of the Hitchings-Elion program into its ongoing Career Awards in Biomedical Sciences program. As part of the Career Awards Program, award recipients have the option to spend their postdoctoral research time in the United Kingdom or the Republic of Ireland, where all Hitchings-Elion postdoctoral fellows studied.

The Hitchings-Elion fellowships were created in 1992 to honor George H. Hitchings and Gertrude B. Elion, two of the 1988 Nobel Prize recipients in Medicine or Physiology, pioneering scientists who played major roles both in the Burroughs Wellcome Company and the Burroughs Wellcome Fund.

The international research opportunity offered by the Hitchings-Elion fellowship attracted adventurous scientists, who were interested in cultural exploration, new contacts, and scientific pursuits.

"The Hitchings-Elion fellows' minds tend to work a little differently," comments senior program officer Martin Ionescu-Pioggia, Ph.D. "They think less linearly. It takes a lot of guts to leave the country to do research and then come back. It is kind of a cultural and intellectual adventure."

At times it is the more unorthodox scientists that bring the greatest benefits to humanity, as shown by George Hitchings and Gertrude Elion themselves, who used original and previously uncharted methods in drug development to find new treatments for disease.

It was early dealings with death that pushed both towards thoughts of medicine, which eventually gave way to research careers in science.

When Gertrude Elion was 15 years old, her grandfather died of cancer; it was this event that largely directed her



George H. Hitchings



Gertrude B. Elion

career path. George Hitchings, likewise, coped with loss when at the age of 12 his father passed away after prolonged illness. While early tragedy may have drawn the two toward the healing professions, it was in the laboratory they found their true calling.

**Hitchings-Elion** (Continued on page 5)

## From Egg Farm to Lab to Editor's Desk: the Circuitous Career of a Hitchings-Elion Fellow

by Angela Eggleston, Ph.D.

The air of a bar, hazy with smoke. Bowling on the TV in the corner. Dad cradles a beer, while I sip a pink Shirley Temple topped with a maraschino cherry. These are some of my earliest associations with science—I was five or six years old. My father was quality control manager at an egg processing plant, and he used to take me with him on Saturday mornings to check the plates and slant tubes that had been streaked out for contamination tests. Afterwards, we would always go to a small local bar for a drink, just the two of us, and it was a bonding experience.

Naturally, I ended up studying microbiology at college, although more as a pre-med option than with the intention to follow it as a career. As a "micro" major, I had to take a molecular genetics course in my senior year. While in high

school (around 1979), I had read a *Time* magazine cover story about "genetic engineering," and I thought it sounded so exotic and futuristic. Now, once I had that first taste of molecular biology, my fate was decided—this was an area of science that I really felt I understood intuitively.

I got a Ph.D. in biochemistry from Northwestern University Medical School under Dr. Steve Kowalczykowski's guidance (although we picked up sticks and decamped to the University of California-Davis about half way through my studies).

As writing had always been one of my strengths, I collaborated with Steve on a variety of review articles, something

**Egg Farm** (Continued on page 6)

### The Focus of this Issue...

As BWF's last Hitchings-Elion fellows finish up their training in the United Kingdom, we would like to focus on the contributions of some of these talented individuals to the scientific enterprise.

- Dr. Angela Eggleston describes her career trajectory into scientific publishing. p. 1
- Dr. Kenro Kusumi follows his interest on patterns in nature into research on birth defects. p. 2
- Dr. Michael Black turns to teaching and mentoring young scientists. p. 4

## Dr. Kenro Kusumi: Working to Understand Nature's Patterns Gone Awry

by Susanna Smith, Communications Intern

As a child Kenro Kusumi, Ph.D., one of Burroughs Wellcome Fund's Hitchings-Elion fellows, had a small telescope and a microscope. The telescope, in particular, fascinated him as he searched the night sky for stars, galaxies, and planets. Today the microscope, which was neglected for so many years, has become Dr. Kusumi's tool of choice as he studies the intricate details of developing organisms.

In junior high school, science attracted Dr. Kusumi's attention, which he attributes to his seventh grade biology teacher, Pat Ashton, at Ravenscroft School in Raleigh, North Carolina. With the help of Ashton and her husband, who was a curator at the N.C. Natural History Museum, he joined the junior curator program.

Through this program, Dr. Kusumi was able to embark on adventures into the world of biology. He hunted around eastern North Carolina for whale and shark fossils and looked at carnivorous plants in the pine barrens. He traveled to Andros Island, the Bahamas, and to the Great Smoky Mountains for field research.

"I think it was during these years of doing field work that I came to appreciate the diversity and beauty of patterns and form in nature, which remains my current interest," he explains.

Dr. Kusumi's fascination with patterns in biology began to form his career choice during his first year in college at Harvard. After taking an embryology class, he became interested in body patterns and shape, and how they evolved.

In graduate school at the Massachusetts Institute of Technology (MIT), he worked in the lab of Dr. Eric Lander, exploring his interests in genetics and development.

"In Eric's lab, I was able to combine training in genetics and genomics, to be applied to questions of development," he says. "At that time, I chose several mouse mutants to study and clone the genes for."

Dr. Kusumi began his current track of research by seeking out the best laboratory to understand the brain. "I used my Hitchings-Elion fellowship to travel to England and work with Robb Krumlauf, an expert on brain development. I wanted to work in



Dr. Kenro Kusumi visits Stonehenge while studying in England

what is known as one of the world's centers for developmental biology. It's a unique experience to have independent funding."

"As I worked in England, it became clear that I could identify a gene involved in the human disease, spondylocostal dystosis, also known as Jarcho-Levin syndrome," he says. "Sometimes these things just fall into your lap. This is the creativity that the Hitchings-Elion fellowship fosters because it allows you to choose how you explore your findings."

Like many Hitchings-Elion fellows, Dr. Kusumi places a high value on the international contacts he was able to make through his time as a fellow.

Perhaps the greatest benefit that Dr. Kusumi derived from the BWF funding was the opportunity it presented when he was ready to obtain a faculty position.

"The funding offered by BWF is helpful in finding a job, in that you already have the vote of confidence of an institution that schools respect. Schools realize that working on topics of interest to funding agencies is a big deal," he says.

Today as assistant professor at the University of Pennsylvania School of Medicine, Dr. Kusumi works to uncover the origin of birth defects at the Children's Hospital of Philadelphia, researching mainly defects of the brain and spine.

"I am looking at things that are medically oriented with a basic science approach, and I am also curious what happens during development," he says. "What has to take place for successful development? There are common genes involved in the patterning of the brain and the backbone, and they both get laid down early in development."

The backbone is made from repeated embryonic parts called somites, in which there are subtle differences. The same is true of the brain; the hindbrain is organized of repeating units, although made in a different way, he explains.

Dr. Kusumi looks specifically at the NOTCH pathway, which is named for a mutant in the fruit fly *Drosophila*. When this mutation occurs in fruit flies, the flies develop a notch in their wings, which is considered a difference from normal body patterning, but there are also things wrong with the flies' brains.

Currently Dr. Kusumi is working to set up a congenital vertebral malformation group at the Children's Hospital of Philadelphia to identify the genes involved in a number of spinal disorders.

Looking toward the future, Dr. Kusumi predicts that "within five years, we expect to have identified a number of other genes involved in vertebral malformation syndromes."

## Questions for Kenro Kusumi, Ph.D.



**BWF award:** Hitching-Elion Fellowship

**Academic title:** Assistant Professor

**Affiliation:** University of Pennsylvania School of Medicine

Read this profile online at BWF 24x7  
[www.bwfund.org/news\\_bwf24x7.htm](http://www.bwfund.org/news_bwf24x7.htm)

### What is the best thing about your job?

Although I have only been at my job since February, the best thing about my job is the “startup” aspect of it. In other words, it is exciting to be able to take your own ideas and set up new collaborations and research consortia in an academic environment that wants to see you succeed. This type of academic opportunity has been greatly enhanced by the prestige and support of an award from the Burroughs Wellcome Fund.

### What is your philosophy with respect to your research?

Given the complexity of modern biology and the near impossibility of having all skills, I think that this is the era of collaboration. If someone is smart enough to be your competitor, they could probably be an even better collaborator. The philosophy that I live by is to collaborate whenever possible. However, it is a tricky balance to collaborate and do completely independent work, since the academic promotion system still favors the latter more than the former.

### What kind of advice would you give a scientist just entering academic research?

I would suggest that the person really think about what they want to do, learn how they should go about doing it, and be absolutely sure that they enjoy doing it. There definitely seem to be too many people in academic science without a good plan of action, and who are not enjoying their efforts.

### What area of science is in most need of new researchers?

Although I am biased, I think that developmental and functional genetics are in need of new researchers. While the human and others genomes have been sequenced, we are still struggling to figure out what the genes do.

### If you had unlimited resources, what one big scientific question would you pursue?

With unlimited resources, I would develop genetic model systems amongst every major important phylogenetic branch of a key feature, and work to sequence their genomes to give researchers the tools to study these questions. This could help us to answer how we and other organisms evolved the

structures and functions that we have, and which genes were conserved or not conserved for these processes.

### What do you feel is your greatest failure? Why?

It is a shame that things didn't work out for me to finish M.D.-Ph.D. training at Harvard Medical School (HMS) and MIT, but I don't regret it. Given the lengthening time of training for both M.D. and Ph.D. training, and the severe time pressures on M.D.s nowadays, you end up having overwhelmed 40-year-olds just hitting the job market as M.D.-Ph.D.s.

### What do you feel is your greatest accomplishment? Why?

I hope that my greatest accomplishments are still ahead. Please ask me this question in the year 2031.

### Who do you admire? Why?

I admire people who enjoy what they do, and are able to lucidly articulate their ideas to a number of audiences. I think Eric Lander is brilliant at doing this and making genetics understandable and exciting to everyone. Shirley Tilghman has been thoughtful and outspoken on issues important to scientists. This list could go on and should definitely include teachers like Pat Ashton in my youth whose audience was 7th grade, to communicators like Carl Sagan, whose audience was a nation of television viewers.

### What do you do for fun?

I love hiking, birdwatching, and being in natural places, traveling to different places around the world, going to music concerts and opera, eating good food, and reading good books. My sister is an opera singer, so I have been trying to learn more about opera and music.

### What do you plan to do when you retire?

Actually, I hope that I don't retire. It would be fun to be puttering about at an old age (around the year 2030 and beyond).

### What is your favorite book?

Hmmmm...I'm not sure if I have a favorite book, since my pick would change month to month. Books that I have enjoyed recently include “The Bonesetter's Daughter” by Amy Tan, “Me Talk Pretty One Day” by David Sedaris, and “Changing Places” by David Lodge.

## Dr. Michael Black: Studying Cell Transport to Stop Parasite Invasion

by Susanna Smith, Communications Intern

Movement of traffic in cells is like an airport terminal. There is a constant flow of proteins, lipids, and sugars being taxied, loaded, or unloaded in and out of cells. Closely regulated cellular trafficking is essential for cell survival; and it is these cellular traffic patterns that have sparked the curiosity of Dr. Michael Black.

For the past two years, Dr. Black has been working as a postdoctoral fellow at the Medical Research Council's Laboratory of Molecular Biology in Cambridge, England. Dr. Black, a 1999 Hinchings-Elion fellow, has involved himself in protein trafficking using yeast as a model system.

Dr. Black decided to focus his study on traffic between the Golgi and endosomes

because this step is the most applicable for his future work on the parasite, *Toxoplasma gondii*. The proper trafficking of proteins from the Golgi is critical for this organism to parasitize a cell. A more complete understanding of the cellular trafficking may lead to the discovery of

**Dr. Black** (Continued on page 5)

### Questions for Michael Black, Ph.D.



**BWF award:** Hinchings-Elion Fellowship

**Academic title:** Assistant Professor

**Affiliation:** California Polytechnic State University

Read this profile online at BWF 24x7  
[www.bwfund.org/news\\_bwf24x7.htm](http://www.bwfund.org/news_bwf24x7.htm)

#### What is the best thing about your job?

In my opinion, the best thing about academic life is the freedom of exploration and the continual intellectual growth that accompanies this provision.

#### What is your philosophy with respect to your research?

Keep the model in the discussion section, after the results have been obtained. I have found that vision tends to get blurry and observations can be missed if your mind is set before the experiments are complete.

#### What kind of advice would you give a scientist just entering academic research?

Try not to get too excited with your results early in the game. Nature has a wonderful way of humbling you before your peers.

#### What area of science is in most need of new researchers?

Parasitology: in particular, the study of parasites that do not directly affect the United States.

#### If you had unlimited resources, what one big scientific question would you pursue?

What are the signals that induce the sequential secretory events required for host cell invasion by *Toxoplasma*, and how are these signals transduced?

#### What do you feel is your greatest failure? Why?

Failing to identify a single mutant gene from the *Toxoplasma gondii* strains that I had isolated from a genetic screen during my Ph.D. thesis.

#### What do you feel is your greatest accomplishment? Why?

Being offered an assistant professor position at CalPoly in San Luis Obispo. My professional goals are to play an active and productive role in education using both the classroom and the research laboratory.

#### Who do you admire? Why?

Dr. John C. Boothroyd, my Ph.D. advisor and chair of the Department of Microbiology and Immunology at Stanford University School of Medicine [and chair of BWF's molecular parasitology advisory committee]. John has taught me the value of patience and pedagogy that extends outside of the research environment. He is a devoted father, brilliant researcher, and the best teacher I have come across.

#### What do you do for fun?

Spend time at the beach/parks with my family and read the classic and not-so-classic literature.

#### What do you plan to do when you retire?

Enjoy my family and the nature around me.

#### What is your favorite book?

"Foucault's Pendulum" by Umberto Eco. This book has shown me the folly of the human mind and how a strong desire for the existence of certain phenomena can sometimes falsely bring about the semblance of proof: a scientific nightmare. By far this was not the easiest read, but I could not put the book down.



**Dr. Black** (Continued from page 4)

an "Achilles' heel" to block parasitic invasion.

In order to survive, cells must coordinate the regulation of a number of complex cellular pathways so they may adjust to the ever-changing environment. Dr. Black uses yeast as a model organism to study coordinated regulation between the secretory apparatus, the Golgi body, and the site of protein synthesis. The Golgi bodies package proteins to be shipped to other organelles within the cell, or to be excreted from the cell.

Ultimately the cell must decide whether to send cargo to the vacuole, to the outer surface of the cell, or back to an early compartment in the Golgi body, he explains. With his Hitchings-Elion fellowship, Dr. Black has been studying the cell's decision-making processes. Through his laboratory's work and that of scientists in other laboratories, a new protein coat required for vesicular transport from the Golgi to the late endosome has been identified.

Dr. Black's research during his time as a Hitchings-Elion fellow has led to two publications. In October 2000 he published, "A selective transport route from Golgi to late endosomes that requires the yeast GGA proteins" in the *Journal of Cell Biology*, which was followed a month later with his publication of "Polar transmembrane domains target proteins to the interior of the yeast vacuole," in *Molecular Biology of the Cell*.

"It has been a successful year as far as publications are concerned," says Dr. Black. "Sometimes that is luck; I have found myself very lucky these last few years. Without Hitchings-Elion fellowship, I don't believe I would be in this position today."

Starting in September 2001, Dr. Black will begin an appointment as assistant professor of cell biology in the Biological Sciences Department at California Polytechnic State University in San Luis Obispo, California. He considers the greatest thing to come out of his time in England being offered this faculty position.

The fellowship, he says "relieved financial pressure of the first two to three years of research by providing funds for this start-up period, a very rare quality of postdoctoral fellowships, and the size of the award demonstrates that BWF is confident in my abilities as a scientist."

"In addition to the monetary support, BWF provided me with techniques for achieving success in the application and interview processes," he adds. "They were always available to help me during the job searches, and voluntarily played an active role in the final negotiations with CalPoly. The BWF team has demonstrated an obvious concern over my well-being, and I believe they have been indispensable in my attainment of this position."

"This is the exact type of position and location that I have been seeking from the moment I started my undergraduate education," explains Dr. Black. "My position at CalPoly has a strong emphasis in teaching but they are recruiting people who are heavily involved in research. I will be training undergraduate and masters students which will be somewhat limiting to research but

also exciting. I enjoy the lab but it consumes me. This will provide me with an opportunity to expand my scientific career outside of the laboratory environment."

Although Burroughs Wellcome Fund typically funds scientists who take positions at more research-oriented universities, those who choose to teach contribute to the scientific community by training the next generation of scientists.

"At a basic level what Burroughs Wellcome Fund is investing in is human capital and the future of science," says Dr. Martin Ionescu-Pioggia, senior program officer at BWF. "This is one of the reasons we require the fellows to take faculty positions. What we are contributing to with Michael is the training of future generations of scientists."

**Hitchings-Elion** (Continued from page 1)

Adventurous and industrious, both Gertrude Elion and George Hitchings began their careers during the Great Depression, when there was little money to be had for a modest salary, much less research funding.

In 1933, when Gertrude Elion was just starting her undergraduate career at Hunter College in New York, Dr. Hitchings received his Ph.D. from Harvard. For the next decade, as America struggled to get back on her feet following the stock market crash, Dr. Hitchings held a string of temporary laboratory appointments while Gertrude Elion searched for ways to finance graduate studies.

Eventually she was able to enter graduate school at New York University where she was the only female in her graduate chemistry class. After working a few jobs, she accepted an assistant's position in Dr. Hitchings' lab at Burroughs Wellcome Co.

The laboratory association between the two scientists, which began in 1944, would prove fruitful for them both.

Initially they aimed their research at elucidating the difference between normal human cells and cancerous, protozoan, viral, and bacterial cells. This information was then used to develop drugs specifically targeted at cancerous cells or disease-

causing organisms. Their approach to drug development has led to the production of drugs to treat leukemia, malaria, gout, and herpes, as well as a drug to prevent the rejection of implanted organs.

Initially the Hitchings-Elion fellowships were a collaboration of The Wellcome Trust, Burroughs Wellcome Fund, and The Fogarty International Center.

In 1993, The Wellcome Trust made a \$400 million gift to the Burroughs Wellcome Fund to enable the Fund to become an independent private foundation. In 1994, BWF assumed full responsibility for the Hitchings-Elion program.

The fellowship, which began as a three-year grant totaling approximately \$150,000, funded each fellow for two years of postdoctoral research in the United Kingdom with a collaborating British laboratory. Each awardee was then expected to return to the United States or Canada to accept a faculty position at a North American University, where they would continue to receive funding for one additional year. During its last two years, 1998 and 1999, the time-frame was extended, offering \$332,500 over a five-year period.

While the Hitchings-Elion program is now ending, BWF hopes that its spirit will continue through the fruits of research of investigators such as those profiled in this issue of *Focus*.

**Egg Farm** (Continued from page 1)

that required synthesizing and communicating a vast body of the literature. In addition, I often reviewed manuscripts sent to him, and enjoyed the process of critically analyzing science. Consequently, even while in graduate school the idea of a career in scientific publishing was starting to germinate in my mind.

First, however, Dr. Steve West was able to tempt me to London and the Imperial Cancer Research Fund (ICRF) for a postdoctoral fellowship. It was for these studies that my Hitchings-Elion fellowship was awarded in 1994. Although I had been awarded funding from ICRF for three years, being awarded the Hitchings-Elion fellowship provided me with an added degree of freedom and independence. In career terms, it is a coup as well to demonstrate one's ability to win a competitive grant. And who could forget the Wellcome Fellows meeting every January in London? These were a great opportunity to meet the other awardees, chat about various "typical" English experiences, and exchange information (tax advice being particularly high on the list). But particularly, it is a tremendous credit to Burroughs Wellcome Fund to arrange these meetings so that the fellows can develop a personal relationship with the team back in North Carolina who nurture your postdoctoral years along.

Although I wanted to live permanently in the United Kingdom, I decided to use the last year of my fellowship to do a brief postdoc with Dr. Fred Alt, at Children's Hospital in Boston. This was my first foray into mammalian cell work, and I gained a lot of new knowledge from my 10 months there! I had started to look for another postdoctoral position to take me back to England, when a friend who worked at *Nature* mentioned that *Nature Cell Biology* was looking for an associate editor. This seemed an ideal chance to try and enter the publishing world, so despite being totally unsuited in scientific background for the job (cell biology was a foreign beast to me), I applied. A week and a half later, I was offered the position and have never regretted it in the 20 months I've been here. Being an editor is a job

for which there is no real training—you just pick it up as you go along. You must have a breadth of scientific curiosity, because you need to cover manuscripts in many different subject areas. And there is more to it than handling manuscripts; for our journal, there are commissioned articles to be lined up, the Web content to update, some writing to be done, databases to handle, and coordination with production. My greatest satisfaction comes from nurturing a promising, interesting paper through the review process and seeing it emerge eventually in print.

Soon I will be moving on. In July 2001, I will become a senior editor at *Cell* and *Molecular Cell* in what I consider my dream job. I will be responsible for handling manuscripts that are within the field of research I studied, and more generally that utilize biochemical approaches. This position will take me back to Boston, and I look forward to the fact that I will now get to play football (sorry, soccer) year-round again (Britain has yet to learn the benefits of indoor soccer)!

## **BWF/ASTMH Fellow in Tropical Infectious Disease Research Announced**

Krystn R. Wagner, M.D., Ph.D., a fellow in the Division of Infectious Diseases at Johns Hopkins University, has been selected as the first Burroughs Wellcome Fund/American Society for Tropical Medicine and Hygiene (ASTMH) Postdoctoral Fellow in Tropical Infectious Diseases. The fellowship provides \$50,000 in research support to an individual enrolled in an infectious diseases fellowship program for a 12-month period. The award allows infectious diseases trainees to perform research in tropical infectious disease areas. At least three months of the fellowship must be spent doing research in a tropical area or developing country.

Wagner, who received her Ph.D. from Yale University, was an American Association for the Advancement of Sciences Diplomacy Fellow at the United States Agency for International Development, working on AIDS in the developing world, before returning to Yale for training as a physician. Her fellowship-sponsored work will focus on molecular beacons for rapid diagnosis of *Mycobacterium tuberculosis*, working toward developing new diagnostics to detect infection by the bacterium. Her advisors for the project will be Dr. Richard Chaisson at Johns Hopkins University and Dr. Afranio Kritzki at the University Hospital Clementino Fraga Filho in Rio de Janeiro, Brazil.

The fellowship was established in late 2000 to stimulate interest in tropical disease research and to support individuals who are planning long-term involvement in infectious disease research pertinent to tropical or developing areas of the world.

ASTMH is currently running a competition for the second offering of this award. The application deadline is September 15, 2001. Application information is available at <http://www.astmh.org/funding/application.rtf> or by writing to ASTMH, 60 Revere Drive, Suite 500, Northbrook, IL 60062; e-mail: [astmh@astmh.org](mailto:astmh@astmh.org)

## BWF Awards Nearly \$4 Million for Infectious Disease Research

At the University of Vermont, Dr. Gary Ward will be using a novel approach to study parasite invasion by making use of chemical genetics, a systematic screening technique to activate and deactivate gene products to understand their function. Ward will be specifically looking at *Toxoplasma gondii*, one of the most widely distributed intracellular parasites. *T. gondii* is a major opportunistic pathogen in people with AIDS; an estimated 20 to 25 percent of AIDS patients develop toxoplasmic encephalitis, which is fatal if left untreated.

At the University of Texas Health Science Center-San Antonio, Dr. Jose Lopez-Ribot is developing a biofilm to study the opportunistic pathogenic fungus, *Candida albicans*, which can invade every site of the body, including deep tissues or organs, under the nails, or on the skin. *C. albicans* is widespread problem, particularly in patients with medical implant devices such as catheters, prostheses, and artificial valves, joints, and dentures.

These are just a couple of the health problems that will be addressed through research funded by BWF's 2001 infectious disease award programs. This year 15 grants totaling more than \$3.8 million were awarded for research in the areas of malaria, molecular parasitology, and mycology.

By funding research in infectious disease, BWF hopes to encourage the pursuit of more high-risk investigations that may significantly advance the understanding of the interactions between infectious diseases and the human body on a biochemical, immunological, physiological, or pharmacological level.

### NEW INITIATIVES IN MALARIA RESEARCH AWARDS

**Joseph L. Derisi, Ph.D.**

University of California-San Francisco  
School of Medicine

**Timothy A. J. Haystead, Ph.D.**

Duke University Medical Center

**William R. Jacobs, Ph.D.**

**David A. Fidock, Ph.D.**

Albert Einstein College of Medicine

**Keith A. Joiner, M.D.**

Yale University School of Medicine

**Kami Kim, M.D.**

**Vern L. Schramm, Ph.D.**

Albert Einstein College of Medicine

**Stewart H. Shuman, M.D., Ph.D.**

Sloan-Kettering Institute

### SCHOLARS IN MOLECULAR PARASITOLOGY

**Paul J. Brindley, Ph.D.**

Tulane University School of Public

**Marc Ouellette, Ph.D.**

Laval University School of Medicine

### NEW INVESTIGATORS IN MOLECULAR PARASITOLOGY

**Vernon B. Carruthers, Ph.D.**

Johns Hopkins University  
School of Public Health

**Barbara Papadopolou, Ph.D.**

Laval University School of Medicine

**Gary E. Ward, Ph.D.**

University of Vermont  
College of Medicine

### SCHOLAR IN MOLECULAR PATHOGENIC MYCOLOGY

**Carol S. Newlon, Ph.D.**

University of Medicine and Dentistry of  
New Jersey

### NEW INVESTIGATORS IN MOLECULAR PATHOGENIC MYCOLOGY

**James A. Alspaugh, M.D.**

Duke University Medical Center

**Ashraf S. Ibrahim, Ph.D.**

University of California-Los Angeles  
School of Medicine

**Jose L. Lopez-Ribot, Pharm.D., Ph.D.**

University of Texas Health Science  
Center-San Antonio

## New Infectious Disease Program Announced

Through its Investigators in Pathogenesis of Infectious Disease program, BWF hopes to advance research that will shed light on the interaction of pathogens with their human hosts. This new program will be an umbrella program to cover research that was supported under the New Investigator and Scholar Awards in Molecular Pathogenic Mycology, New Investigator and Scholar Awards in Molecular Parasitology, and New Initiatives in Malaria Research programs, which are no longer accepting applicants.

The new program hopes to take advantage of developments in genomics, immunology, and other fields to encourage multidisciplinary approaches to studying infectious disease. The awards are intended to give recipients the freedom and flexibility to pursue new avenues of inquiry and higher-risk research projects that hold potential for advancing significantly the biochemical, pharmacological, immunological, physiological, and molecular biological understanding of how infectious agents and the human body interact.

The program provides \$400,000 over five years to researchers at the assistant professor level. The new program is intended to be a multidisciplinary venture, inviting scientists to come up with aggressive approaches to understanding infectious disease.

The deadline for applying for the new program is November 1, 2001. For more information, visit BWF's Web site at [www.bwfund.org](http://www.bwfund.org), or contact Victoria McGovern, Ph.D., program officer, at 919-991-5112.

## BWF Awards \$11.5 Million to Support 23 Promising Postdoctoral Scientists

Virtually all of us know someone who has had the common ailments of high blood pressure or stomach ulcers. These are among the many research topics being tackled by scientists through the 2001 Career Awards in the Biomedical Sciences program.

Dr. Karen Guillemin of Stanford University will study the bacteria, *Helicobacter pylori*, which has been linked to stomach ulcers and stomach cancer, the second leading cause of cancer deaths worldwide.

While at the University of North Carolina-Chapel Hill, Dr. Kathleen Caron will examine the role of a protein, adrenomedullin, which has been found in high levels in patients with cardiovascular disease resulting in high blood pressure.

The Career Awards in the Biomedical Sciences program aids promising researchers in their transition from postdoctoral researchers to independent investigators in tenure-track positions at U.S. or Canadian universities by providing \$500,000 over five years. The awards are offered to scientists in the last one to two years of their postdoctoral research, and for the first three years of a faculty position.

During their postdoctoral research, awardees may work in the United States, Canada, or the United Kingdom. Awardees must accept faculty position in either U.S. or Canadian institutions.

This year BWF funded 23 career awards totaling \$11.5 million, which will help "young scientists make the critical transition from being postdocs to becoming faculty members," says BWF program associate Rolly Simpson. "Previous career award recipients report that when interviewing for a faculty position the award gives them a jump start."

Since the program's inception in 1995, BWF has supported 149 U.S. and Canadian scientists with grants totaling more than \$70 million. Of the awardees that have become eligible for faculty appointments, all have received tenured track positions or the equivalent. The average start-up package has been about \$350,000.

The awards are made in honor of Gertrude B. Elion (1918-1999) and George H. Hitchings (1905-1998), co-recipients of the 1988 Nobel Prize in Physiology or Medicine for their work in drug development.

The application deadline for the next series of career awards is October 1, 2001.

For more information, visit BWF's Web site at [www.bwfund.org](http://www.bwfund.org), or contact Rolly Simpson, program associate, at 919-991-5110 or [rwsimpson@bwfund.org](mailto:rwsimpson@bwfund.org)

### 2001 CAREER AWARDS RECIPIENTS

**Matthew L. Albert, M.D., Ph.D.**  
Rockefeller University

**David Bilder, Ph.D.**  
Harvard Medical School

**Carrie B. Brachmann, Ph.D.**  
Washington University School of Medicine

**Kathleen M. I. Caron, Ph.D.**  
University of North Carolina-Chapel Hill School of Medicine

**Ricardo E. Dolmetsch, Ph.D.**  
Harvard Medical School

**Charles G. Eberhart, M.D., Ph.D.**  
Johns Hopkins University School of Medicine

**Peter J. Espenshade, Ph.D.**  
University of Texas Southwestern Medical Center-Dallas

**Miguel Estevez, M.D., Ph.D.**  
University of Pittsburgh Medical Center

**Kathryn M. Ferguson, Ph.D.**  
University of Pennsylvania School of Medicine

**Nicholas R. Gaiano, Ph.D.**  
New York University School of Medicine

**Joshua I. Gold, Ph.D.**  
University of Washington School of Medicine

**Karen J. Guillemin, Ph.D.**  
Stanford University School of Medicine

**Victoria G. Herman, Ph.D.**  
University of California-Los Angeles School of Medicine

**Joel N. Hirschhorn, M.D., Ph.D.**  
Harvard Medical School

**Jennifer S. Hovis, Ph.D.**  
Stanford University

**James D. Jontes, Ph.D.**  
Stanford University School of Medicine

**William R. Kobertz, Ph.D.**  
Brandeis University

**Bernardo L. Sabatini, M.D., Ph.D.**  
Cold Spring Harbor Laboratory

**Douglas E. Smith, Ph.D.**  
University of California-Berkeley

**Xin Sun, Ph.D.**  
University of California-San Francisco School of Medicine

**Heidi A. Tissenbaum, Ph.D.**  
Massachusetts Institute of Technology

**Stephen H. Tsang, M.D., Ph.D.**  
University of California-Los Angeles School of Medicine

**Anthony P. West, Ph.D.**  
California Institute of Technology

## FOCUS

This newsletter is published quarterly by the Burroughs Wellcome Fund, an independent private foundation dedicated to advancing the medical sciences by supporting research and other scientific and educational activities.

Send comments to:  
FOCUS editor  
Burroughs Wellcome Fund  
Post Office Box 13901  
Research Triangle Park, NC 27709-3901  
Telephone (919) 991-5119  
Fax (919) 991-5160  
E-mail: [khede@bwfund.org](mailto:khede@bwfund.org)

Information about BWF and our award programs is available at [www.bwfund.org](http://www.bwfund.org).