Breakdown of kidney's ability to clean itself may cause disease

BY MICHAEL C. PURDY

The kidney actively cleans its most selective filter to keep it from clogging with blood proteins. The kidney keeps the filter from clogging by an immune system that can recognize and destroy foreign objects. The kidney screens 150-200 liters of plasma per day. A protein known as FcRn was high on the list of likely suspects. Akilesh had studied FcRn previously in the laboratory of co-author Derry C. Roopenian, Ph.D., professor at the Jackson Laboratory in Bar Harbor, Maine. Prior research there and in other laboratories had revealed that FcRn

Genome of bacterium that makes rare form of chlorophyll sequenced

BY TONY PETERBRUCK

Researchers at Washington University and Arizona State University have sequenced the genome of a rare bacterium that harnesses light energy by making an even rarer form of chlorophyll called chlorophyll d. Chlorophyll d absorbs "red" edge-infrared, long-wave-length light that is invisible to the human eye. In so doing, the cyanobacterium Acaryochloris marina competes with virtually no other plant or bacterium in the world for sunlight. As a result, its genome is massive for a cyanobacterium, comprising 8.3 million base pairs. It is sophisticated, too. The genome is among the largest of 55 cyanobacterial genomes in the world sequenced thus far. It is the first organism containing chlorophyll d to be sequenced.

Robert Blankenship, Ph.D., the Lucille P. Mackey Distinguished Professor in Arts & Sciences and principal investigator of the research, said with Acaryochloris marina now sequenced and many more to follow, the immediate goal is to find the enzyme that causes a chemical structure change in chlorophyll d, distinguishing it not only from primarily chlorophyll a and b, but also from nine other forms of chlorophyll.

"The synthesis of chlorophyll by an organism is complex, involving 17 different steps in all," Blankenship said. "Somewhere near the end of this process, an enzyme transforms a vinyl group to a formyl group to make chlorophyll d. This transformation, as far as we know, is unique to Acaryochloris marina."

Blankenship said he and his colleagues have some candidate genes they will test. They hope to insert these genes into an organism that makes just chlorophyll a. If the organism learns to synthesize chlorophyll d with one of the genes, the mystery of chlorophyll d synthesis will be solved, and then the excitement will begin.

Typically, challengers don't have as much awareness in the minds of consumers as incumbents do. We've got a brand structure, which is the brand of Republicans and the brand of Democrats. When it comes to how a candidate looks, the research found that Republicans generally did better when they appeared more competent and trustworthy, while Democrats experienced success when they appeared more intelligent and likable.

"This is where we get into something that might be a little tough to talk about because it's easiest to think of this in terms of stereotypes," Lewis said. "In politics, you've got an incumbent versus a challenger. In marketing language, that's an established product versus a new entrant.

Money and appearance influence political campaigns, study says

BY SHELA NEUMAN

If politics were like high school, Republicans would be the football stars and Democrats would be cheerleader captains. Those stereotypes are the easiest way to summarize part of the conclusions from a study by Michael Lewis, Ph.D., assistant professor of marketing in the Olin Business School. By approaching political campaigns from a marketing perspective, Lewis was able to determine the effectiveness of branding and advertising. The goal of the research was to understand the relative effects of candidates' appearance and advertising spending strategies on election outcomes.

"The reality is that these campaigns are run like marketing campaigns," Lewis said. "They're driven by focus groups, there's a lot of advertising, and people use marketing language, such as 'positioning.'

"There is a lot going on in a political campaign that mirrors marketing," he said. "You've got an incumbent versus a challenger. In marketing language, that's an established product versus a new entrant.

Like many mechanical filtering systems, the kidney passes the blood through a series of progressively finer screens. After passing through a structure known as the glomerular basement membrane (GBM), fluid and serum proteins must finally pass through the most selective filter of the kidney, which is comprised of specialized epithelial cells called podocytes. These cells form a web-like barrier to the passage of large serum proteins into the urine.

"The kidney screens 150-200 liters of blood daily, and we were curious as to how the kidney keeps the filter from clogging up," said first author Shreeram Akilesh, an M.D./Ph.D. student. "The two most common blood serum and plasma proteins are albumin, which helps regulate blood volume and carry a number of different substances around the body, and immunoglobulin G (IgG), a type of immune system antibody. Because they're so common, we figured they would be among the most likely to get stuck on the filter and set out to look for proteins that might help clean them."

Researchers looked for proteins made in podocytes that could bind to albumin and IgG, which likely provide the "handles" the podocytes need to grab proteins and clear them from the filter. The protein known as FcRn was high on the list of likely suspects. Akilesh had studied FcRn previously in the laboratory of co-author Derry C. Roopenian, Ph.D., professor at the Jackson Laboratory in Bar Harbor, Maine. Prior research there and in other laboratories had revealed that FcRn

See Kidney, Page 6

See Bacterium, Page 6

See Politics, Page 2

See Kidney, Page 6

See Politics, Page 2
Politics

--- From Page 1

jests in a lab were shown pictures of pairs of opposing candidates and asked which appeared more competent, more intelligent, or more trustworthy. Lewis said that quick judgments helped determine which political party tended to be associated with which characteristics.

"We also asked subjects to guess which candidate was the Republican and which was the Democrat," Lewis said. "It turned out that Republican candidates tended to be perceived as more trustworthy, more competent, and more intelligent."

"We found that people who appeared more competent and more trustworthy were identified as Republicans."

In addition to considerations of the candidates' appearances, advertising spending and the use of negative ads impacted outcomes.

For incumbents, the relationship between spending and vote shares was more complex. Lewis said that while incumbents frequently overspent, Lewis said. For example, he cited the withdrawal of uranium and thorium. The decay of these elements proceeds at a rate that it's important. It's a slow process.

"Helium is non-renewable and irreplaceable," Sobotka said. "It is a non-renewable resource. We cannot produce helium."

"We cannot get helium from the atmosphere, which is viewed as a helium from the production of helium in space and gas, the helium comes out, and if it doesn't get captured, it can drift into the atmosphere and be lost," Sobotka said.

"We will eventually be able to produce helium directly in nuclear fusion reactors, but the quantities produced by such sources are dwarfed by our needs," he said.

"Unlike any other element, helium (4 two protons, two neutrons) becomes a liquid below 4.2 Kelvin, just four degrees short of absolute zero. When an object is placed next to liquid helium, energy is extracted from the object, making it colder. This energy is then transferred to the object, making it cold. This process is known as liquefaction."

"Helium is non-flammable and non-toxic," Sobotka said. "It is a non-flammable gas. It has the vision to capture it when extracting natural gas, and to convert it into a liquid for future use."

In addition to the Texas Panhandle, helium can be found in small regions of Colorado, Kansas, and Oklahoma. It is also found in marketed and marketed in Australia and Algeria. Russia has the world's largest reserves of helium, although some of natural helium and thorium. The decay of these elements proceeds at a rate that is roughly 5.370 pounds of snacks, baked goods, toiletries and more than 700 home-baked brownies and cookies. The total of 178 pounds to Iraq. Inside were snacks, toiletries, batters in diversity and administration — mailed 10 boxes weighing a total of roughly 5,370 pounds of snacks, baked goods, toiletries and more than 700 home-baked brownies and cookies.

From WUSTL with Love: Judy Musick (left), administrative manager in the Department of Biology in Arts & Sciences, and Judith Tigith, a WUSTL sophomore, examine items donated by the campus community for care packages to U.S. troops serving in Iraq. In February, the WUSTL military care package group — organized by Jill Edwards, project manager in diversity and administration — mailed 10 boxes weighing a total of 178 pounds to Iraq. Inside were snacks, toiletries, batters in diversity and administration — mailed 10 boxes weighing a total of roughly 5,370 pounds of snacks, baked goods, toiletries and more than 700 home-baked brownies and cookies. The total of 178 pounds to Iraq. Inside were snacks, toiletries, batters in diversity and administration — mailed 10 boxes weighing a total of roughly 5,370 pounds of snacks, baked goods, toiletries and more than 700 home-baked brownies and cookies.

Women's Building from 11 a.m.-1 p.m. outside Olin Library on Feb. 23: Lock & Chain will host a benefit party for City Faces from 11 a.m.-1 p.m. in the World Student Center. For more information, contact Friedman at dfriedman@arts.wustl.edu.
Howard named chief counsel to WUSTL School of Medicine

By Beth Miller

William F. Howard, a longtime higher-education attorney, has been appointed associate vice chancellor and general counsel of the School of Medicine. In addition to working as the senior attorney for the School of Medicine, Howard also will serve as deputy general counsel for the University.

Howard will assume overall leadership for the delivery of legal services to the School of Medicine, supervising the work of the University’s associate general counsel and serving as a key resource for the institution.

Howard named chief counsel to WUSTL School of Medicine

Michael Cannon (left), executive vice chancellor and general counsel, talks with William F. Howard, who was recently appointed associate vice chancellor and general counsel for the School of Medicine, at their weekly meeting.

Children’s Discovery Institute funds new research initiatives, scholars

WUSTL School of Medicine

BY BETH MILLER

Michael Cannon (left), executive vice chancellor and general counsel, talks with William F. Howard, who was recently appointed associate vice chancellor and general counsel for the School of Medicine, at their weekly meeting.

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Global Warming • Eating Green • Politics of Motherhood
4 p.m. Chemistry Seminar.
11 a.m. Computer Science & Engineering Seminar Series.
5 N. Jackson Ave. 935-4444.

Film
Friday, Feb. 15
7:30 p.m. Films and Media Studies Japanese Film Festival. "Hanging Garden." Brown Hall. Info. 938-4056.

Saturday, Feb. 16
7:30 p.m. Films and Media Studies Japanese Film Festival. "Linda Linda." Brown Hall. Info. 938-4056.

Exhibits
School of Medicine Arts Coordination Council presents an Art Show. Nancy Weingarten and Centering Teaching centers. Through Feb. 15. 7-4-20
"Thaddeus Strode: Absolutes and Inaugural exhibition featuring more than three dozen photographs courtesy of Howard French.

"Ori Photographs by Howard French." of Photographic Services. Through mid-

Friday, Feb. 15
9:15 a.m. Pediatric Grand Rounds.

Saturday, Feb. 16
11 a.m. Energy, Environmental & Chemical Engineering Seminar Series.

Thursday, Feb. 14
9 a.m.-4:30 p.m. Center for the Application of Information Technology Workshop. "Winning the IT Organization Transformation." (Continues Feb. 9-13.) Cost: $125, reduced fee available for CAIT member institutions. CAIT, 5 N. Jackson Ave. 938-4044.

How to submit "University Events"
Submit "University Events" items via:—
Deadline for submissions is to Angela Hall of the Record staff via:

University Events: a part of the activities taking place Feb. 17-21 at Washington University. Visit the link for expanded calendar for the Gender Center (www.wustl.edu/gender) and the School of Medicine (www.medicine.wustl.edu/tutorials.html).

"She Stoops to Conquer" opens Feb. 22
By LIAM OTTEN
C lass, courtship and decadence collide as "She Stoops to Conquer," the classic 18th-century comedy of errors by Irish author OliverGoldsmith.

This month, the Performing Arts Department (PAD) in Arts & Sciences with a new production of this prototypical "situation comedy" in the A.E. Hotchkiss Theatre. Performances begin at 8 p.m. Feb. 22 and 23 and at 7 p.m. Feb. 24. Performances continue the following weekend at 8 p.m. Feb. 29 and March 1 and at 2 p.m. March 2.

"She Stoops to Conquer" centers on Charles Marlow, an up-and-coming yet deeply reserved young gentleman trying to meet a potential bride, Kate Hardcastle. Arriving in town, Marlow and his friend, George Hastings, stop at the local tavern, where they encounter Kate's mischievous stepbrother, Tony Lumpkin. Lumpkin, recognizing the pain, decides to play a practical joke and directs them to a "slyly-fency" inn, which turns out to be the home of the wealthy Mr. Hardcastle.

"Mr. Hardcastle is expecting Marlow, who, after all, has come to woo his daughter," said director Jeffrey S. Matthews, senior lecturer in drama. "But Marlow, thinking that Hardcastle is just an indolent, derisory, incredibly rude, putting his foot on the furniture and ignoring the old man's war stories,..."

Yet Marlow has another, far greater problem. Upper-class women desperately intimidate him, and his initial mortal folly turns into the glamorous Kate (arranged this time by another practical joke) in a stumbling disaster. Incapaci-
ted by shyness, he is unable to look the lady in the face.

But Marlow later discovers Kate, now dressed in a new garb, for a lowly bard, at which point confidence returns. Kate, deciding to test the young man's wits, plays along and pretends to be a poor relation of the Hardcastles. Relaxed and at ease, Marlow concedes to her and asks the "harmful" to stepl. Everyone is involved in a mistake or a practical joke, everyone in playing some kind of role, and the fun of the play is that everything is done in fun, the pranks are never cruel, and you really do care about the characters.

"The play is an enormous, farcically funny — truly one of the great comedies," he said. Goldsmith, an aficionado who lived and worked in London, when "She Stoops to Conquer" in 1771 but initially had trouble get-
ing it produced.

"The premiere just seemed too far-fetched," Matthews said. "I then began to feed his work in his in his, made this very mistake."

Heading off to boarding school, the young author mistook a well-disguised private group for the local inn, and to the homewon-

Teen's (medschool.wustl.edu) • 4 p.m. Physics Seminar.
11 a.m. Computer Science & Engineering Seminar Series.
McDonnell Hall, Rm. 212. 935-9541.

5 N. Jackson Ave. 935-4444.

Senior Justin Joseph (left) as Charles Marlow and senior Noga Landau as Kate Hardcastle are the leads in the PAD production of "She Stoops to Conquer."
Actualizing Martin Luther King's vision. Sheba Wadley (left), a student at the George Washington University School of Social Work and co-chair of the Society of Black Student Social Workers (SBSWW), greets Bessie House-Soremekun, Ph.D., founder and CEO of the National Center for Medical Ethics (SBSSW), at an SBSSW-sponsored event held in honor of Martin Luther King Jr.

Jan. 21
4:55 p.m. — A person reported that money was stolen from a purse in Brown Hall.

Feb. 1
2:41 p.m. — A student reported that her laptop was lost between Rutledge House and Mallinckrodt Student Center.

Feb. 3
12:41 p.m. — A student reported that her lost red Palm Treo while at the Bear’s Den.

Feb. 4
9:36 p.m. — A student reported that his bicycle outside of Mudd House.

Feb. 5
5:57 a.m. — Two students were arrested on the South 40 for distributing drugs on campus.

Feb. 6
10:56 a.m. — A student was arrested off-campus for possession of drugs.

Additionally, University police also responded to one accidental injury, one auto accident, one pedestrian check, one report of a suspicious person, one report of a disturbance and one sick case.

Bacterium Genetic map of a unique organism from Page 1

Future applications Harvesting solar power through plants or other organisms that would be genetically altered with the chlorophyll d gene could make them solar-power factories that generate and store solar energy.

Consider a seven-foot-tall plant genetically tailored with the chlorophyll d gene to be expressed at the base of the stalk. While the rest of the plant synthesized chlorophyll a, absorbing short-wave light, the base is absorbing "red edge" light in the 710-nanometer range. Energy could be stored in the base without competing with any other part of the plant for photosynthesis, as the rest only makes chlorophyll a. Also, the altered corn would use the chlorophyll d gene could become a "super plant" because of its ability to create and store energy in the sun.

Azacariochloris marina actually operates in the South Pacific, specifically Australia's Great Barrier Reef. Discovered just 11 years ago, the cyanobacterium lives in symbiotic relationship with a sponge-like marine organism popularly called a sea spirit. The Azacariochloris marina lives beneath the sea spirit, which is a marine animal that attaches to rocks just below the surface of the water. The cyanobacterium absorbs "red edge" light through the tissues of its host, the sea spirit.

Fat and happy The genome, said Blankscheidt, is "at the fat end." Azacariochloris marina lies down there using that for red light that our eyes can use. The organism has never been under very strong selection pressure to be lean and mean like other bacteria are. It's kind of in a sweet spot. Living in this environment is what allows it to have such dramatic genome expansion.

Blankscheidt noted that once the gene that causes the late-stage chemical transformation is found and inserted successfully into other plants or organisms, it could potentially represent a 5 percent increase in available light for organisms.

We now have genetic information on a unique organism that makes this type of pigment that no other organisms does," Blankscheidt said.

"We don't know what all the genes do by any means. But we've just begun the analysis. When we find out what a new enzyme and then look into transforming it into other plants, we'll see if we're working to extend the range of potentially useful photosynthesis radiation," he said.

Kidney Filter system involved in own maintenance — from Page 1

binds to both IgA and albumin and is present in human isotype. After confirming that the FcRn protein also is made in mouse podocytes, scientists measured the secretion of a radioactively tracer in the kidneys of normal mice and in mice where the gene for FcRn had been disabled.

Mice lacking FcRn had difficulty clearing antibody from the kidney.

When researchers studied the mice lacking FcRn for longer periods of time, they saw evidence that antibodies were accumulating in the kidney. In another experiment, researchers gave the mice injections of large quantities of proteins to saturate the clearance system. They followed those injections with those injections with a harmless small dose of an antibody potentially toxic to the kidney. The mice developed kidney damage as a result. Researchers believe this was because they couldn't clear the toxic antibody from the GBM quickly enough.

"This is the first clear demonstration that the filter system in the kidney isn't just a passive mechanical filter; it's actually involved in its own maintenance," Ackleb said.

"It also provides us with a nice mechanism for explaining how the normal function of this filter may be breaking down in ways that lead to kidney disease and damage," Ackleb said.

Bioethicists' personal cancer experiences to be studied

Motivated by her own experiences living with a life-threatening illness, Rebecca Dresser, J.D., the Daniel Neyes Kirby Professor at the School of Law and Professor of Ethics at the School of Medicine, has convened a nationally-renowned group of bioethicists to study the topic "Bioethics and Cancer: When the Professional Becomes Personal."

Dresser received a $79,883 grant from the Greenwall Foundation to conduct groundbreaking research and prepare materials based on the unique perspectives of bioethicists who all have a personal experience with cancer. Of the five scientists on the panel, two have had cancer themselves, and two have cared for spouses with cancer.

Dresser was diagnosed and treated for cancer in 2006.

"In this project, a group of individuals who teach and write about bioethics will examine what can be learned through personal experience with cancer and how that can inform bioethical analysis," said Dresser, an expert on the legal and ethical dimensions of a variety of medical, bio-medical and health-related topics.

"Our group members will describe the ways of coping with cancer and how we were affected by medical and social responses to the disease. We also will discuss whether our experiences were consistent with the bioethics material we had previously read, thought and written," she said.

Dresser said a group of the President's Council on Bioethics, Dresser noted that cancer is an illness that raises many ethical issues, ranging from medical decision-making, the patient-physician relationship, clinical trials and access to health care. Due to its pervasiveness, it is also an illness that touches virtually every family in the United States. Cancer is the cause of one of every four deaths in this country. Men in the United States have about one in two chance and women have a one-in-three chance of having cancer. While bioethicists and others spend considerable time examining how to improve the care of cancerous illnesses such as cancer, few biologists actually experienced such illness, Dresser said.

"Though personal experience is essential to thoughtful analysis, living with a life-threatening illness adds a new dimension to a person's understanding of many bioethical concerns," she said.

"This personal experience is not essential to thoughtful analysis, living with a life-threatening illness adds a new dimension to a person's understanding of many bioethical concerns," she said.

"It also provides us with a nice mechanism for explaining how the normal function of this filter may be breaking down in ways that lead to kidney disease and damage," Ackleb said.
Two business startups collect $75,000 in seed funding

Student entries dominate the Olin Cup field in the 10th annual contest

By Shula Newman

T
two early-stage companies received commitments for funding at the annual Olin Cup final competition Feb. 7 at the Olin Business School. The top award of $50,000 went to That One Good Guy (TOGG), a Web site (togg.com) that allows users to rate product recommendations, hold useful discus-
sion about the products, and discover new items based on the individual's preferences. TOGG got the money by creating internal synergy so that book-lovers will have an opportunity to discover new magazines or restaurants without switching Web sites.

In addition to collecting the grand prize, Richard Feldman, M.B.A. 2008, won the $20,000 student cash prize. Feldman, a recipient of the $30,000 award is MedExceed, a medical device company that facilitates the recovery process for people affected by temporomandibular and disc degeneration.

Of note

Jacques Bascendiz, M.D., Ph.D., professor of pathology and immunology and of cell biology and physiology, received a one-year, $50,000 National Institutes of Health Director's Bridge Award for research titled “Oligosaccharide Structure and Function in Recognition.”

W. Robert Blumns, Ph.D., professor of physics in Arts & Sciences, has received a three-year, $961,963 grant from the National Aeronautics and Space Administration for research titled “ANITA: Antarctic Impulse Transient Antenna.”

Robert Blankenship, Ph.D., the Lucille P. Markey Distinguished Professor of Arts & Sciences, has received a three-year, $600,000 grant from the U.S. Department of Energy for research titled “Mechanism of Energy Storage by Chromatin Insulators of Green Photobiological Bacteria.”

Ken Cadwall, Ph.D., a postdoctoral scholar, with his sponsor, Herbert W. “Skip” Virgin IV, M.D., Ph.D., the Mallinckrodt Professor of head and pathology and immunology, was among 17 postdoctoral scientists named a Damon Runyon Fellow in November 2007 by the Damon Runyon Cancer Research Foundation. The fellowship is intended to encourage the nation’s most promising young investigators to pursue careers in cancer research by providing them with independent funding to work on innovative projects.

Tao Ju, Ph.D., assistant professor of computer science and engineering, has received a three-year, $300,000 grant from the National Science Foundation for research titled “Geometric Modeling for Spatial Analysis of Biomedical Data.”

Garland Marshall, Ph.D., professor of biochemistry and molecular biophysics, was recently inducted into the Medicinal Chemistry Hall of Fame’s inaugural class. The Hall of Fame recognizes medicinal chemists who have made overall outstanding contributions to medicinal chemistry through research, teaching, and service.

Berbara Schaal, Ph.D., the Spencer Professor in Arts & Sciences, along with researchers at New York and Cornell universities, received a four-year, $4,602,973 grant from the National Science Foundation for research titled “The Evolutionary Genomics of Rice Domestication.”

Robert E. Schmidt, M.D., professor of pathology and immunology and chair of the Division of Neuropathology, received a five-year, $1,276,648 grant from the National Institutes of Health for research titled “Semantic Neuroimaging.”

For the Record

Zaborszky, senior engineering professor, 93

John Zaborszky, D.Sc., professor of electrical and systems engineering, died Feb. 7. He was 93.

Zaborszky was born May 13, 1914, in Budapest, Hungary. After earning a doctor of science degree in 1936 from the Budapest Technological University, Zaborszky worked for the university as a lecturer and was the chief engineer for the Municipal Power System in Budapest. After moving to the United States in 1947, he was named professor of mathematics for the University of Missouri-Rolla until he joined Washington University in 1954.

In 1974, Zaborszky became the founding chairman of the Department of Systems Science and Mathematics, a position he held until 1980. Zaborszky’s research focused on power systems and their dynamics. He published two books and more than 200 technical papers. He was a member of the National Academy of Engineering and an honorary member of the Hungarian Academy of Science.

The School of Engineering established the Zaborszky Distinguished Lecture Series in 1990 to honor Zaborszky for his distinguished career. Earlier in his career, Zaborsky was active at WUSTL as a senior member. A memorial service was held in Graham Chapel on Feb. 11.

Bauer, leader in baby-tooth study, 82

Walter C. Bauer, M.D., a retired professor of pathology at the School of Medicine, died Feb. 2, at Barnes-Jewish Hospital after a brief illness. He was 82.

Bauer joined the School of Medicine faculty in 1958 as an instructor in surgical pathology and pathology and retired in 1989. In the 1950s and ’60s, Bauer was a leader in the St. Louis Baby Tooth Survey, which studied nearly 300,000 baby teeth in a search for evidence of fallout from nuclear bomb tests. The results led to a ban on above-ground nuclear weapons testing.

In print

Todd Brewer, Ph.D., Ian Dubhn, Ph.D., and Kathleen McPherson, Ph.D., all associate professors of psychology in Arts & Sciences, were featured as “Rising Stars” in the Association for Psychological Science’s monthly magazine, the Observer, Brewer was mentioned in the October 2007 issue and Dubhn and McPherson in the November 2007 issue.

Carter C. Revard, Ph.D., professor emeritus of English in Arts & Sciences, has a new book published in the December 2007 issue of The Mississippi Valley Review, a semi-annually literature magazine. “Go To College: Living in the American Land,” “Songs of the Wine-Threatened Flimflammer” and “Songs from ‘Tillie Defees Colonel Sanders’” were published, along with part of a science-fiction novel in progress, titled “The Visitor’s Other World.” All the pieces were previously unpublished and have been selected for a collection on the benefits of social networking websites, which was reprinted from his “Winning the Dust Bowl.”
A remarkable vision

Jack Ladenson brings hope to patients throughout the world

He in laboratory medicine strives for explicit and predictable plans of action: Test A leads either to Diagnosis B or C or to follow-up Test D. When he looks back on his life so far, though, Jack Ladenson, Ph.D., the Oree M. Carroll and Lillian B. Ladenson Professor of Clinical Chemistry, often finds an entertaining lack of predictability. He laughs loudest when he remembers how long he originally thought he'd stay at Washington University: "no more than three to five years."

Ladenson came to the University more than three and a half decades ago. A few years after his arrival, researchers developed the ability to make monoclonal antibodies. The immune system uses antibodies to seek out invaders and label them for attack and disposal. Monoclonal antibodies promised to put the abilities of these molecular bloodhounds at scientists' disposal. Around that time, rapid and reliable heart attack diagnosis was a high clinical priority. New treatments were in the pipeline for heart disease, a leading cause of mortality, but to maximize their effectiveness, physicians needed to know quickly if patients were really having a heart attack.

Ladenson and several colleagues found themselves ideally positioned to see if specific monoclonal antibodies could enable quick, accurate heart attack diagnosis. "All at once, a number of people were anxious to give us research money to develop monoclonal antibodies," Ladenson says. "That was kind of extraordinary." In the mid-1980s, Ladenson's lab developed a monoclonal antibody that bound to a form of an enzyme, creatine kinase (CK-MB), that was produced mainly in heart cells. Because they were working with several antibodies at the time, Ladenson asked research associate Vonnie Landt to give them names. Landt, an Arnold Schwarzenegger fan, named the CK-MB antibody Coen, after the Robert E. Howard sword-and-sorcery hero beloved in the big screen by Schwarzenegger.

Soon, Landt was taking the first of many overseas trips to countries like Eritrea, Kenya, and Bhutan to see what he and others could do to help. Among his discoveries: "The best way to learn what diagnostic services are most in need is to ask the country's health-care professionals."

"All of us who guessed what would be the most utilized tests in Eritrea guessed wrong," he says. "It was a very useful insight. Do not presume you know more than the people in a country just because they happen to be poor and born in an underdeveloped place..."

If a clinical test is needed in Eritrea and the test the patient's sample can survive the logistical challenges imposed by transport from that country, Ladenson has worked out a system to have the test performed at Barnes-Jewish Hospital and interpreted by WUSTL faculty. As testing starts to be performed in the country, Ladenson has developed a network of corporate donors of diagnostic equipment. "A few more of my friends with hearts," he says. "They're out there. If some initially tell me no, I don't mind. I just keep trying." In many ways, Ladenson has become an expert recruiter. He has learned how to find and develop relationships with foreign governmental officials who are most willing and able to help improve health care in their countries. And he regularly identifies young, established medical professionals interested in spending weekends or even years overseas. "Jack has this remarkable vision," Windus says. "He sees how many different things fit together: the quality of equipment, the stocking of testing materials, the training of clinicians and the ability of physicians to use the information the labs produce, to name just a few examples."

Windus attributes Ladenson's dedication to a strong egalitarian streak equal access to good care. Ladenson speaks with wonder of the life-saving tests to Third World nations that are taken for granted in the United States. "When I first became involved in this work, it was frustrating because 'What can I do?' was the central question," he says. "But now I think we've kind of figured out a general way to approach some of these problems." The Ladenson family on a ski trip to Keystone, Colo. (from left) Jack Ladenson; son, Jeff Ladenson; daughter-in-law, Lauren Ladenson; son-in-law, John Zhong; daughter, Michelle Ladenson; and wife, Ruth Ladenson.

A medical evaluation team from St. Louis in Eritrea: (from left) Jason Goldfelder, M.D.; Jack Ladenson, Ph.D.; Debbie Wiler; Cindy Merrill; Dave Knutten; David Windus, M.D.; and Ruth Ladenson.

New challenges
Ladenson is interim director of the Division of Laboratory and Genomic Medicine. "Jack is a sophisticated clinical chemist who made a strong commitment to the growth and development of our laboratory and genomic medicine division, which is one of the very best," says Emil R. Unanue, M.D., the Paul and Ellen Luxy Professor and former head of pathology and immunology. "Jack's apparent laissez-faire attitude, which we all enjoy, is combined with effective and accomplished leadership."

Ladenson hopes to step down from the interim directorship soon. He's going to stay active in research and in Pathologists Overseas, but he and his wife, Ruth, recently purchased a house in Eritrea, where they plan to spend some time with their family, friends and dogs. "My personal hobbies include collecting old material related to sports and athletics," he frequently has a table at national congresses. "I started this years ago as a communications device with my three-teenage son," he says. His son is now busy with other things, but Ladenson has continued it, finding it a great stress release.

His son, Jeff, a specialist in foreign disaster relief, now lives in Morocco with his wife, Lauren, a U.S. foreign service officer, and their three children. His daughter, Michele, a cultural anthropologist, lives in Texas with her husband, John, a pediatric anesthesiologist, and a newborn son. "We try to stop by Morocco or Texas when we can," Ladenson says. "That's the best way to visit the children and grandchildren as often as possible."

A medical evaluation team from St. Louis in Eritrea: (from left) Jason Goldfelder, M.D.; Jack Ladenson, Ph.D.; Debbie Wiler; Cindy Merrill; Dave Knutten; David Windus, M.D.; and Ruth Ladenson.

BY MICHAEL C. PURDY

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