**Washington University in St. Louis**

**Record**

**Aug. 13, 2009**

**Medicine News**: Exhibit tells history of women physicians

**Ethnic profiling**: Series of events examines issue this fall

**Washington People**: Blankenship shares his expertise in photosynthesis

**Record**

Decoding leukemia patient genome another step forward in cancer fight

**By Carolee Aranas**

Decoding the complete DNA of cancer patients is giving Washington University School of Medicine scientists a clearer picture of the complexity of the disease and allowing them to see emerging and unexpected genetic relationships among patients.

The scientists have sequenced the genome of a second patient with acute myeloid leukemia (AML), discovering a suite of genetic changes in the cancer cells. Their research, reported online Aug. 5 in the New England Journal of Medicine, has revealed that one of these mutations also is common in certain brain tumours called gliomas and that another occurred in a second patient with the same type of leukemia. Neither mutation had been previously linked to leukemia.

The fact that these genetic mutations occurred in other patients strongly suggests that they influence the development and progression of cancer, the researchers say.

Although this information does not yet point to better treatment options, it highlights the strong potential of sequencing many cancer genomes to unravel the genetic basis of cancer.

"By sequencing complete genomes of cancer patients we are going to find unexpected, recurring genetic mutations that are highly likely to be important for cancer to develop and grow," said senior author Timothy Ley, M.D., the Alan A. and Edith Wolf Professor of Medicine, who led the team that performed the first genome of a cancer patient last year.

"Gaining a genome-wide understanding of cancer lay the foundation for developing more powerful ways to diagnose, classify and treat patients," Ley said.

Interestingly, a large majority of the mutations were found in long stretches of DNA between genes in regions of the genome that may influence how genes work. These are areas not yet well understood by scientists and are only now becoming mined for their connections to cancer.

A large team of researchers at

**Orientation welcomes new students**

**By Neil Schoenbein**

Members of the Class of 2013 and new transfer and exchange students soon will be arriving on campus and will be welcomed with a variety of activities during New Student Orientation Aug. 20-25.

New events this year include a reception for students who took a year off from school for study abroad or other reasons; a program on the history of the University; a text message-based scavenger hunt; and daily morning runs and yoga.

Once again, a highlight of the week will be the Freshman Reading Program.

The annual program is designed to reach freshmen before they arrive on campus to help them focus on skills they will continue to cultivate throughout the academic year and in their entire college careers. It also encourages interaction with members of the WUSTL faculty in informal discussions outside the classroom.

This summer, incoming students are reading "When the Emperor Was Divorced" by Tadashi Otaka. The book was chosen by the Freshman Reading Program steering committee and explores the experience of a Japanese-American family interned during WWII.

"We're very excited about this year's book choice and all of the related events and programs this fall being offered in partnership with the Center for Ethics and Human Values," said Alice Schnell, director of special projects. "We hope the book, which explores the experience of a Japanese-American family who was interned during World War II, will spark good discussion and thought among the first-year students about history, race, justice and many other related themes."

In planning for this year's Freshman Reading Program, Schnell and others discovered a set of historical documents in the Chancellor's archives that shed light on Washington University's relationship to the Japanese internment during World War II. The University elected to accept the transfer of a significant number of Japanese-American students who would have otherwise been sent to internment camps.

Many of these documents can be viewed online at frp.wustl.edu/ internshiparchive.

As part of orientation, students will attend small discussions on the book led by nearby 40 faculty members Aug. 24. Freshmen will encounter themes from "When the Emperor Was Divorced" during the semester in lectures, classroom discussions and on-campus programming and exhibits. The programs are further explorations of the issues raised in the book. Otaka also will give an Assembly Series lecture at 3:30 p.m. Sept. 15.

See Orientation, Page 2

**Chancellor plays key role in report on energy challenges**

**U.S. energy future hinges on rapid rollout of emerging clean energy technologies**

America has the potential to solve its energy crisis over the next decade, but doing so requires a substantial immediate investment in the development and deployment of emerging clean energy technologies, said Chancellor Mark S. Wrighton, vice chair of a new National Resource Council report on America's energy challenges.

The key message of the report, said Wrighton, is that America's long-term energy viability hinges on its willingness to expedite the rollout of new and emerging technologies for improving energy efficiency, harvesting new forms of energy and reducing greenhouse gas emissions.

Initiating deployment of these technologies is urgent; actions taken—or not taken—between now and 2020 will determine the path America chooses, according to the report.

Titled "America's Energy Future: Technology and Transformation," the capstone report summarizes findings from the National Research Council's comprehensive review of the nation's energy future, an ongoing research effort sponsored by the National Academy of Sciences and National Academy of Engineering.

Led by Harold T. Shapiro, Ph.D., president emeritus and professor of economics and public affairs at Princeton University, the project's committee of advisers includes Wrighton and more than two dozen other leading academic and government science experts.

Our committee began its work with the aim of establishing a realistic technological basis for development of policies and plans for assuring that America would have abundant, affordable energy resources with minimum adverse consequences to the environment," Wrighton said. "Further, the committee was concerned with the need to assure America energy security." The committee's work revealed that much can be gained by deploying existing technologies over the next 10 years to improve efficiency of buildings, vehicles and devices that consume energy.

"Fossil energy resources, including coal, gas and petroleum, will remain important, and therefore addressing the accumulation of CO2 from the use of these fuels is important," Wrighton said. "New sources of energy need to be developed.

See Energy, Page 6
Kharasch named interim vice chancellor for research

By Jim Detjen

Evan D. Kharasch, M.D., Ph.D., has been named interim vice chancellor for research. Effective July 20. Evan D. Kharasch, M.D., Ph.D., was previously executive vice chancellor for academic affairs and the Barbara and Donald Frohman Dean of the School of Medicine. He is a professor in Arts & Sciences, the school's primary research mission, overseeing an enterprise that generates more than $500 million for sponsored research every year. He will become the institutional official responsible for all contracts and grants, as well as for the university's relationship with the research community's adherence to guidelines governing laboratory animal care and use and research in human volunteers.

"Our mission is to accelerate discovery and translate our research findings into clinical care and improve the health of our patients," said Evan D. Kharasch, M.D., Ph.D. "I look forward to working with our deans, department chairs, principal investigators, and the many people who are dedicated to our mission." The appointment is subject to the approval of the university's advisory committee that selects deans and vice chancellors.

"I want to thank Ed Macias for moving so quickly to identify such an outstanding candidate," said Chancellor Mark S. Wrighton. "He and I have known each other for many years, and I am confident that Professor Kharasch will continue the wonderful work done by Sam Stanley and Ted Kaczynski before him," Wrighton said. "He is committed to working with our deans, department chairs, principal investigators, and the many people who are dedicated to our mission."

Kharasch has directed the Department of Anesthesiology's Division of Clinical and Translational Research since 2005, when he came to WUSTL from the University of Washington in Seattle. In 2007, he was named to the School's Professorship. His own research includes basic, translational, and clinical pharmacology, with an emphasis on mechanisms and development of drug disposition and toxicokinetics, pharmacogenetics, toward a better understanding of individual differences in responses and drug effectiveness.

"Assuring that the policies and procedures adopted through our research enterprise are robust and effective is an important responsibility that I assume in this new role," said Evan D. Kharasch, M.D., Ph.D. "I am confident that Professor Kharasch will serve our university and our students well in this important role as Dean of Graduate Studies." The appointment is subject to the approval of the university's advisory committee that selects deans and vice chancellors.

"In addition to his commitment to research, Lecture 8 p.m., students will attend "The Night." The presentation will be at 8 p.m. in Diehl Hall.

Stretches department funds by hiring a work-study student

By Jessica Davey

Student Financial Services can help locate departments and hire part-time student workers for the 2009-10 academic year — and, at the same time, help departments stretch their budgets even further.

With this budget-challenged year, departments hiring eligible financial aid students will only pay 25 percent of the student's total earnings. The other 75 percent will be paid by WUSTL's U.S. Department of Education funding.

Genome

Mutations relevant to cancer development — From Page 1

The Genome Center and the St. Louis Science Center can protect the research. The same team broke the news last year when it became the first to use WUSTL's technology to describe the entire genome of a cancer patient, a groundbreaking victory in the fight against the disease.

That research, published in the Journal of Nature, demonstrated the feasibility of decoding the genome of a patient and identifying all the factors that contribute to cancer. It is the first step in the process of identifying all the genetic mutations unique to the disease.

In their latest endeavor, the scientists sequenced the genome of a man diagnosed with AML at age 38 who has been in remission for more than three years. His genome was chosen for sequencing because he had typical clinical and molecular features of the disease, including two AML-linked mutations that already were known.

Researchers sequenced 13,000 cases of AML that will be diagnosed in the United States this year. The vast majority of them will die of the disease. It occurs most often among those aged 60 or older and becomes more difficult to treat as patients age. The team's initial survival rate for AML is about 30 percent.

The researchers sequenced the patient's genome using a sample of healthy skin cells. In all, the scientists sequenced about 5,000 genes in the patient's AML genome. The team then analyzed the vast majority of genes in each 240 samples and identified the 184 most likely to be important for the patient's cancer. Twelve were found in genes that code for proteins, including a mutation in the IDH1 gene that only recently has been linked to gliomas, and 52 mutations were in long stretches of DNA that do not contain genes at all but potentize and control how and how neighboring genes are expressed.

"Other than the two mutations, each patient was known to have been cured when his genome was sequenced, we never would have guessed at these mutations. They were a huge surprise," said co-author Richard K. Wilson, Ph.D., director of the Genome Center. "That so many of the mutations were found outside of protein-coding genes underscores the need to find all the mutations that occur in cancer and ask the question, do genes with known with suspected links to cancer, will help us many mutations."

The football team's Red/Gray and tailgate party will be held at 4:30 p.m. at Francis Page.

The day's closing event is the Club 80 Dance at 10 p.m. in the Bowden Clock Tower Plaza.

Aug. 22 will feature drama screenings and residence hall film festival.

The Baltimore Sun's Red/Green and tailgate party will be held at 4:30 p.m. at Francis Page.

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School of Medicine Update

Researchers team to battle childhood hunger

A team of plant and physician-scientists with a vision of eradicating malnutrition throughout the developing world has formed the Global Harvest Alliance (GHA), a humanitarian effort involving the School of Medicine, the Bill & Melinda Gates Foundation and the Donald Danforth Plant Science Center. The focus of the newly formed Alliance is to create low-cost, nutritious foods to prevent and treat all forms of undernutrition. These foods will incorporate crops that are protein and micronutrient rich and can be disseminated through smallholder farmers.

Lizzie Sextro of Rosati-Kain High School and David Ayakey of St. Louis University High School work in the lab during the Ferring Scholars Program.

By Beth Miller

For Donald Woodson, taking part in the Ferring Scholars Program at the School of Medicine in June was "the perfect opportunity to learn about medical and health professions," Woodson said. "All of the doctors who talked to us were so excited about their jobs — you could see the fire in their eyes when they talked about what they do."

Woodson said his favorite speaker was Alan L. Schwartz, Ph.D., M.D., the Harriet B. Spoehrer Professor of Pediatrics, of biostatistics and of neurology, and the director of the Pediatric Neuropsychiatric Care Program. "He could picture myself in that type of job working with children and the brain," he said.

About half of the students in this summer's program will be selected to continue. Those chosen will spend next summer working in a lab on campus. At the end of the summer, they will present their research at a poster session.

In the final summer, the students spend at least six weeks working in the lab on a project that they will present at the end of the summer to peers and mentors. In addition, students will work with their mentors to prepare their college admission materials. They are also encouraged to submit their research findings to regional or national scientific meetings or competitions.

Ten students completed the program in 2006, and 15 students completed the program in 2008.

Library hosts 'Changing the Face of Medicine' exhibit

Women doctors are the focus of a new traveling exhibition that opened Aug. 10 at the Bernard Becker Medical Library. The Becker Library and the Academic Women's Network are hosting the exhibit at the School of Medicine. "Changing the Face of Medicine: Celebrating America's Women Physicians" tells the story of how American women who wanted to practice medicine have struggled over the past two centuries to gain access to medical education and to work in the medical specialties they choose.

The exhibit, on display through Sept. 18, features several prominent female physicians from the School of Medicine, including Virginia Weldon, M.D., and the late Gerty Cori, M.D., who won the Nobel Prize with her husband, Carl Cori, M.D., for discovering the enzymes that convert glucose to sugar and back into glycogen. Interactive kiosks traveling with the exhibit offer access to the National Library of Medicine's "Local Legacies," a website, which features outstanding women physicians from every state, including Jessie Ternberg, M.D., Ph.D., professor emerita of surgery and of neurology, and the director of the School of Medicine. A section of the Web site called "Share Your Story" allows the public to add the names and biographies of women physicians they know.

An opening reception and lecture will be held at 6 p.m. Aug. 13, featuring Ellen S. Moore, Ph.D., head of the office of Medical History and Archives and professor of psychiatry at the School of Medicine Medical School. A panel discussion will be held 4:30 p.m. Sept. 3, featuring Walter Schield, M.D., Ph.D., assistant professor of medical history; University of Wisconsin-Madison, as moderating dean; Ternberg, Pat Cole, M.D., assistant professor of clinical medicine; Dayna Early, M.D., associate professor of medicine; and Lisa Moscoso, M.D., Ph.D., assistant professor of pediatrics.

The traveling exhibition has been held at the National Library of Medicine and the National Institutes of Health. It is sponsored by the American Medical Women's Association provided additional support.

New paging system coming to Medical Center

A 10-million-square-foot cellular network will be built on the Washington University Medical Center campus this year as part of a new paging system. Sprint and Telecommunications Facilities Corp., joint School of Medicine- and BJC Healthcare-operated company that supports telecommunications services, will build the network, estimated to be complete in early 2010.

More than 8,000 pagers will be replaced next year with Sprint devices enabled with text messaging. The new network and devices will provide more reliable paging and messaging.

In addition, TFC and Sprint are developing an on-site customer service and retail center in the Clinical Science Research Building to provide one-stop support for all devices and billing as well as assistance with personal devices and equipment.

The TFC-Customer Center, scheduled to hold an grand opening Aug. 18-20, will be from 7 a.m.-7 p.m. weekdays and 7 a.m.-5 p.m. on weekends.

"This Next-Generation Paging Project brings a cellular signal into an area on every floor of every building on the main medical campus," said Chris Messengers, TFC project manager. "This private network is being engineered to specifications unique to building layouts, clinical environments and to customer and patient needs."

Employees of the School of Medicine, Barnes-Jewish Hospital and St. Louis Children's Hospital, who have pagers provided by TFC will have their devices replaced with a new Sprint device beginning next spring. Training also will be provided for those receiving new devices.

For more information about the Next Generation Paging Project or the new Ferring Scholars Program, call 314-747-5000 or visit nextgenerationpaging.wustl.edu.

Farmer's market at the Medical Center

Local growers will bring fresh produce to a Farmer's market at the School of Medicine campus from 11:30 a.m.-4:30 p.m. The market will be in the Fountain Plaza outside of the Barnes & Noble bookstore. Open to all employees and visitors, the market also will be offered Aug. 20 and Sept. 3 and 10.
Transformative power of live theater will be hallmark of PAD's season

By Liam Otten

life has always been a multidisciplinary event, adding great drama, music and dance — forever shifting and combining in new and unexpected ways.

For its 2009-10 season, the Performing Arts Department (PAD) in Arts & Sciences will produce a series of works that together highlight both the boundless possibility and the transformative power of live stage.

"Great art does not merely copy human experiences," said Robert Henke, Ph.D., chair of the PAD and professor of drama in Arts & Sciences. "It transforms it, quite literally, by concentrating and distilling experience through pre-existing but always changing forms."

The season will open with the annual A.E. Hotchner Playwriting Festival, which will showcase four new plays written by Washington University students. Students in honor of alumnus A.E. Hotchner (A.B. '11), the festival consists of a two-week workshop — led by Liz Fiegelman, a former student and current board chair of Literary Managers and Dramaturges of the Americas — followed by two evenings of staged readings.

The first evening, Sept. 25, will feature "Razor Lower" by Max Rosenman and "Steppe" by Margret Stammel. The following evening, Sept. 26, will feature Jonathan Rahat, "Match or Karamazov Never Played Black" and Jessica Alkin, "What You Need is the Children"

The PAD season will continue Oct. 16-19. With the musical "Ragtime," Terrence McNally's "Tout Adventure-winning adaptation of the 1975 novel by E.L. Doctorow, jointly produced with the San Francisco-based choreographer Rulan Tangan will serve as a

A.E. Hotchner Studio Theatre. The exhibition will include two filmic installations, "LUNCH Breaks," socialize or leave for the day. The exhibition is neither static nor fixed — it's an evanescent assembly of food for office events.

Order an appropriate amount of food for office events. Green Your Office

The Tambourine Theatre concert, will run Dec. 4-6. Directed by Cecil Slaughter, the show will feature "Ragtime," a celebrates the 20th century but centers on jazzman. Courtland Waller Jr., a successful piano player who turns to violence after a white mob destroys his custom Model E. Ron Himes, founder of the Black Rep as well as the PADs, Tony E. Hampton Jr. artist-in-residence, will direct the show, which includes music and lyrics by Stephen Flaherty and Lynn Ahrens.

Next up is Martin McDonagh's "The Pillowman," Nov. 19-22. Directed by Annamaria Pileggi, senior lecturer in drama, this haunting and funny tale — winner of the 2004 Olivier Award for Best New Play — is set in a Kafkaesque police state and centers on a writer, Katurian, who must sacrifice his life in order to save his fiction.

"Transmission," the 2009 Washington University Dance Theatre concert, will run Dec. 4-6. Directed by Cecilia Slaughter, the show will feature "Ragtime," a

sharpening and combining in new and unforeseen ways.

"The season will continue Feb. 18-29 with Eric Oremyer's "On the Verge (or The Geography of Learning") — a kaleidoscopic comedy following three Victorian women as they trek through time, space and pop culture — directed by Andrea Vice, senior lecturer in drama.

"Journeys in the Newborn Brain." Terrie Whittaker, senior lecturer in drama, will direct "Lynn Nottage's "Tabulation," a special "season pass" for $58. A ticket purchase of $29 or more includes the cost of the play and a special "season pass" for $58. A ticket purchase of $29 or more includes the cost of the play and a special ticket to the PAD's 2009-10 theatrical season at Washington University in St. Louis, including "Ragtime." For more information, call the Box Office at 935-6543 or visit www.pad.tambourine.org.

The PAD also will hold its annual wreath sale from 9 a.m. to 2 p.m. Aug. 24 in Mallinckrodt's A.E. Hotchner Studio Theatre. Wreaths are $15, and the PAD will give 10% of sales to the Padwick Foundation. For more information, contact Jeffery Matthews, senior lecturer in drama, at jmatthew@wustl.edu or 935-4059.

For more information about dance auditions, contact Jeffery Matthews, senior lecturer in dance, at clcoughen@wustl.edu or 935-8375. The PAD will also hold its annual wreath sale from 9 a.m. to 2 p.m. Aug. 24 in Mallinckrodt's A.E. Hotchner Studio Theatre. Wreaths are $15, and the PAD will give 10% of sales to the Padwick Foundation. For more information, call the Box Office at 935-6543 or visit www.pad.tambourine.org.

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Experience runners set sights on nationals

The Missouri State men's and women's cross-country teams each return a wealth of talent. The women nation teams each return a

returning runners that earned

and sophomore Erica Jackey each

Molly Schlamb, senior Hope

Midwest Regional meet and 12th

from last year, and the men saw

return all five of their top runners

12 goals through its first 15 games.

The men's team opens its sea-

7:30 p.m. Sept. 1 when it hosts Illinois Wesleyan University at Francis Field. Volleyball expects run at national title

Last season marked the first time since 1995 that the Bears returned to the NCAA Division III quarterfinals. Heading into 2009, the Bears expect to improve on last year's regional finals appearance and make a run at a national championship.

WUSTL returns three starters, the lone (10) letter winners overall to a team that posted a 32-7 record in 2008 and captured the University Athletic Association (UAA) championship with a great 5-2 record during the UAA season. Head coach Carrie Richardson, a former player on the Bear team that won the 1997 national title, says the Bears are ready for their title and fifth in the past six years. The Bears are back after losing seven returning seniors. A sampling of photographs by Ansel Adams and paintings by Chinese artist sets a backdrop for "Dual Storm: Art and

Strength in a Time of Paranoia," a photographic exhibit on the public. For updates, a complete schedule or more information, call 935-9358 or visit humanvalues.wustl.edu. Fall Sports Preview

The men's soccer team enters the NCAA Division III tournament with a great 5-2 record during the UAA season. Head coach Carrie Richardson, a former player on the Bear team that won the 1997 national title, says the Bears are ready for their title and fifth in the past six years. The Bears are back after losing seven returning seniors. A sampling of photographs by Ansel Adams and paintings by Chinese artist sets a backdrop for "Dual Storm: Art and

Strength in a Time of Paranoia," a photographic exhibit on the public. For updates, a complete schedule or more information, call 935-9358 or visit humanvalues.wustl.edu.
Tuition benefit helps juggle career and MBA program

By Melody Walker

A re you a seasoned professional ready to advance your career and knowledge of the global energy world? You may be eligible for the 50 percent tuition benefit offered to WUSTL staff and faculty to pursue one of two programs toward a master's of business administration (MBA) degree at Olin Business School.

The executive MBA (EMBA) and the professional MBA (PMBa) programs have full-time employees at different career stages. The 50 percent benefit is available to all, including part-time students, and excludes meals, parking, lodging, travel and books.

Significant work experience (typically ranging from eight years to more than 20), demonstrated career advancement and professional accomplishment are a few of the prerequisites for the EMBA program. The executive program allows students to balance a full-time work schedule and courses over a period of 20 months, while full-time classes are available the weekend program, which meets every other weekend for Fridays and Saturdays, and the montessori program, which meets for three days, once a month, Thursday-Saturday.

The curriculum for the MBA (full-time credit hours) is centered on the complex challenges faced by an experienced professional. WUSTL professors, doctors, scientists and administrators from various schools have taken advantage of this new graduate school benefit in the last three years.

"There is much that can be done immediately that will contribute to the energy needs and environmental concerns of the United States," he said. "The advent of the need for more research on clean energy technologies and materials is the impetus to the need to moderate the extensive use of fossil fuels and distribution of electricity, and Wrightson emphasized that these systems should be put in place quickly.

Reductions in petroleum use could be obtained through increased vehicle efficiency; production of alternative liquid fuels such as cellulosic ethanol or coal- and biomass fuels and expanding deployment of battery electric and hydrogen fuel-cell vehicles.

Substantial reductions in greenhouse gases would likely be needed to meet targets set for 2020 and beyond. The Department of Energy analysis concludes that at least 45 percent of the electricity demand, and to enable the deployment of new energy technologies is also adequate scale. However, achieving an adequate scale the electricity and transportation sectors are achievable over the next two to three decades, the report states.

In both cases, adopting a portfolio approach — deploying a wide range of alternative technologies aimed at reducing emissions — would be necessary, for the electricity sector, enabling this approach require demonstrating, within the next decade, that carbon capture and storage technologies are technically and commercially viable in both new and existing power plants and in liquid fuel production. It will also be necessary to demonstrate the commercial viability of evolutionary nuclear reactors.

The States also promotes deployment of new energy technologies by 2020 and beyond. Officials with the Department of Energy believe that innovative ideas can be translated into practical, and public and private, and to demonstrate the carbon capture and storage technologies are economically and commercially viable in both new and existing power plants and in liquid fuel production. It is also necessary to demonstrate the technological viability of evolutionary nuclear reactors.

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Obituaries

Imergott, associate intramurals director, 60

Danforth recognized for his contribution to science

Felix, professor emeritus of economics, 91

Wilson, administrative coordinator for Olm admissions, 53

Kirk, 82
Robert Blankenship, Ph.D. (left), talks with Hai Yue, a second-year graduate student in chemistry in Arts & Sciences, in Blankenship's lab. "Bob brings more than deep knowledge of the field's, says Christine Kirmayer, Ph.D., research associate professor of chemistry. "He brings incredible energy and enthusiasm and the ability to bring together people from a wide variety of backgrounds to work on common goals."

In 2008, he was principal investigator of a project that led to the sequencing of a rare bacterium that harnesses light energy by making chlorophyll d, this type of chlorophyll absorbs "red edge" near infrared long wavelength light invisible to the naked eye. By doing this, the cyanobacterium Acaryochloris marina competes with hardly any other plant or bacterium in the world for sunlight; as such, its genome is massive in proportion to its size—approaching 3.5 million base pairs. It is the first organism containing chlorophyll d to be sequenced. Blankenship and his collaborators continue to seek the enzyme that causes a chemical structure change to make chlorophyll d, distinguishable from primarily chlorophyll a and b but also from nine other forms of chlorophyll.

At times, Blankenship's research interests have been described as "other worldly." In 2007, Blankenship co-authored two papers in the journal Astrobiology detailing the kinds of clues researchers are seeking that might tell them what kind of light the planet was exposed to or extra-terrestrial planets might look like. The planets could be as black as eggplants, he says. "It all depends on the planet's equivalent to our sun, the colors and intensity of light coming from it that the planet feeds off and the planet's atmosphere chemistry," he says. It's quite possible that the spectrum of light available to organisms on extra-terrestrial planets is different from light on Earth, and thus "lifers" planets would have different pigments to absorb that particular light spectrum.

Blankenship is part of a NASA working group based at Lawrence Berkeley National Laboratory and called the Virtual Plant Laboratory. He and his collaborators are searching for light absorption in photosynthetic extraterrestrial plants to estimate its composition. "Photosynth. life on Earth for Blankenship will continue to involve photosynthesis and energy and collaborations," he says.