One of the most important developments in the treatment and prevention of hepatitis B infection and liver cancer began at Stanford University. For the past five years, a tiny, two-room, 680-square-foot office in the basement of Stanford Hospital & Clinics was the home of The Asian Liver Center, founded by surgeon Samuel So, MD, the Lui Hac Minh Professor in the School of Medicine and director of Stanford’s Multidisciplinary Liver Cancer Program and the Liver Tumor Clinic. From this office, with a staff of two and an army of enthusiastic students and dedicated volunteers, So launched a global offensive to eradicate the hepatitis B virus, the leading cause of liver cancer.

In early June, the Asian Liver Center moved into its new, spacious, 3,000-square-foot headquarters, located on the corner of California Avenue and El Camino Real in Palo Alto. Here the Asian Liver Center’s 15 current staff members and interns, working with a network of hundreds of national and international agencies, state and federal legislators, private corporations and foundations and community partners, will have room to expand the Center’s groundbreaking initiatives to reduce the occurrence of hepatitis B infection and liver cancer in California, the United States, Asia and Africa.

PERVASIVENESS OF HEPATITIS B
Approximately 350 million people worldwide carry the hepatitis B virus, which is 100 times more infectious than HIV. Hepatitis B and related liver cancer claim nearly 1 million lives each year, but are entirely preventable through vaccinations given at birth.

Globally, large groups of pregnant women with chronic hepatitis B are unaware that they’re infected and that their infants should be immunized. For example, the World Health Organization projects that...
There are many factors that influence cancer occurrence, including, most prominently, genetic predisposition and environmental interactions.

DEAR FRIENDS,
This issue of the Stanford Cancer Center newsletter emphasizes the importance of taking ethnic background into account when assessing individual cancer risk. There are many factors that influence cancer occurrence, including, most prominently, genetic predisposition and environmental interactions. Cultural differences may also affect the approach to screening and early detection of cancer, which in turn have an impact on overall mortality.

We are fortunate at Stanford to be able to track many of these risk factors in large population groups with the help of the SEER cancer registry run by the Cancer Prevention Institute of California, our closely affiliated organization located in Fremont. As one example of research using this comprehensive database, Dr. Scarlett Lin Gomez has found an increased risk of breast cancer among Chinese and Filipina women born in the United States as opposed to those born outside the country, whereas foreign-born Chinese and Filipina women are more likely to present at an advanced stage of the disease. Thus, factors such as environment, cultural awareness and access to health care are important variables when assessing cancer risk in communities.

Dr. Samuel So’s work to raise awareness within the Asian population of hepatitis B infection and its associated increased risk of liver cancer is another very important example of an identified cancer risk factor that is far more prevalent within a specific population.

We will continue to address the issues of health disparities as a major part of our mission, both by identifying new risk factors and by offering the potential of participating in clinical trials of new therapies to diverse populations.

In addition, we must also provide culturally sensitive access to the best cancer care.

Along those lines, we have joined forces with the JoyLife Club, a cancer support group dedicated to Asians living in the Bay Area, to increase awareness of and access to cancer clinical trials in a series of meetings conducted at Stanford in both Mandarin and Cantonese. We were delighted to receive recognition from the Mayor of Millbrae for our contributions to this effort.

We will continue to address the issues of health disparities as a major part of our mission, both by identifying new risk factors and by offering the potential of participating in clinical trials of new therapies to diverse populations. We are grateful to all of you who are supporting our Cancer Center efforts and look forward to bringing you news of future advances in the cancer field as we move toward our overall goal of reducing the incidence and mortality of cancers of all kinds.

SINCERELY,
Beverly S. Mitchell, MD
Director

If you prefer not to receive the Stanford Cancer Center News in the future, please let us know via e-mail at ecrown@stanford.edu or in writing to: Elizabeth Crown, Stanford Cancer Center, 800 Welch Road, 2nd floor, Stanford, CA 94305-5796.
So co-authored, concluded that physicians in the United States are unaware that Asian immigrants, especially those from China, are much more likely to have the hepatitis B virus and to have acquired it at birth.

**EFFORTS REDUCE RISK**

The San Francisco Bay area has the dubious honor of being home to the highest rate of liver cancer in the country, caused by the increased prevalence of chronic hepatitis B infection among the city’s large Asian population. One third of the city is of Asian descent.

The Asian Liver Center, through its outreach program called the Jade Ribbon Campaign, was instrumental in developing San Francisco Hep B Free, a citywide initiative to turn San Francisco into the first hepatitis B-free city in the country. This unprecedented campaign provides free and low-cost hepatitis B testing and vaccinations to Asian and Pacific Islander adults at locations throughout the city. The program is now being used as a model for Hep B Free projects in several major U.S. cities, including Los Angeles and Philadelphia.

Despite the fact that most women in the United States receive prenatal care starting in the first trimester, each year approximately 800 to 1,500 infants develop chronic infection due to perinatal transmission. If given within the first 12 hours of birth, the hepatitis B vaccine (birth dose) and hepatitis B immunoglobulin (HBIG), administered within the first six months of life, are 95 percent effective in preventing mother-to-child transmission. Only about half the babies in the United States are vaccinated at birth against hepatitis B.

The Asian Liver Center is currently collaborating with the Centers for Disease Control and Prevention on a perinatal hepatitis B prevention project, called HepBMoms, to eliminate mother-to-child transmission of hepatitis B in Alameda and Santa Clara counties, where the combined population of about 3.2 million experiences some of the highest rates of chronic HBV and liver cancer in the United States.

HepBMoms is a unique online resource for pregnant mothers, perinatal hepatitis B prevention program coordinators, healthcare providers and anyone who is

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**NEW HEADQUARTERS GIVES ASIAN LIVER CENTER PROGRAMS ROOM TO GROW**

CONTINUED FROM PAGE 1

up to 1 million infants born in Asia and the Pacific Islands will acquire chronic hepatitis B infection if they are not immunized right after delivery.

The largest burden of hepatitis B is in China, where 100 million people are chronically infected, most via mother-to-child transmission at birth or during early childhood. So calls the hepatitis B virus the greatest health threat and the “silent killer” in the Chinese community.

The hepatitis B virus can be detected by a simple blood test. In the United States, physicians typically test only patients who engage in risky behaviors such as intravenous drug use or unprotected sex because the virus is spread through infected blood and bodily fluids.

However, a recent report from the Institutes of Medicine, titled “A National Strategy for Prevention and Control of Hepatitis B and C,” which

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(Pictured above) Dr. So (upper right) with students in Qinghai, China, who have just received hepatitis B vaccinations.
Liver cancer is notoriously resistant to currently available therapies.

In the laboratory, So’s research group has identified chemical inhibitors and an antibody that act by targeting different points in a key cell growth signaling pathway.

Between 2006 and 2008, So received large donations from Ping and Amy Chao, a Los Altos couple, and the Zeshan Foundation in Hong Kong to provide free hepatitis B vaccinations for approximately 600,000 unvaccinated schoolchildren in Qinghai, a remote Chinese province.

In 2009, So and co-researchers published a scientific article on the cost-effectiveness of providing nationwide free hepatitis B catch-up vaccinations to children and adolescents in China. Data collected from this research showed that such a program would save tens of thousands of lives and return twice as much in savings to the Chinese economy as the program would cost. As a direct result of the study, So’s work has inspired China’s Ministry of Health to implement a nationwide effort beyond Qinghai to provide free catch-up inoculations against hepatitis B to more than 85 million unvaccinated children under 1.5 at risk for developing hepatitis B.

With the World Health Organization and the Centers for Disease Control and Prevention, So founded a new global initiative, the Asia and Pacific Alliance to Eliminate Viral Hepatitis. The alliance works to eliminate new hepatitis B infections and discriminatory practices, and to provide access to affordable treatment. The project aims that by the year 2015, all young children in the Asia and Pacific region will receive hepatitis B inoculations at no cost.

So acknowledges that his quest to conquer the hepatitis B virus faces numerous obstacles.

“Even though we have had a very safe and effective vaccine for hepatitis B for more than 20 years, we haven’t been as successful as I’d like in implementing an effective screening and vaccination program worldwide,” So said. “Hepatitis B brings up one of the vexing issues we have in modern medicine: the giant gap between what we have discovered and what we have implemented.”
Successful projects may go on to win funding from federal and other major sources.

Gifts provide flexibility to support greatest needs in cancer research and treatment

Dr. and Mrs. Benjamin Hammett recognize the promise inherent in supporting research opportunities over the long term through investing in great minds like those at the Stanford Cancer Center.

Ben Hammett, PhD, ’57, and his wife, Ruth Hammett, MA ’61, have strong ties to Stanford. Dr. Hammett studied the physical sciences here before heading to the University of North Carolina to obtain a doctoral degree in psychology. Although Mrs. Hammett would also earn her own graduate degree – in biology – at Stanford, the couple met not on the Farm but on a cruise to Europe aboard the Queen Mary. However, they wed at Stanford’s Memorial Church in 1957 and, ultimately, settled down in Palo Alto while raising their four children.

As a clinical psychologist, Dr. Hammett has had a professional interest in health and, together, the Hammetts have long supported various aspects of medicine at Stanford, including cancer care and research. However, it was a shocking coincidence in 2007 that suddenly made cancer research personally relevant to the Hammetts: Ben and both of his brothers were all diagnosed with cancer, two with prostate cancer and one with medullary thyroid cancer. Dr. Hammett was successfully treated at the Stanford Cancer Center by Joseph Presti, Jr., MD, the Thomas A. Stamey Research Professor of Urology and director of Stanford’s Urologic Oncology Program, and Steven Hancock, MD, professor of radiation oncology. Dr. Hammett says, “At Stanford, the medical staff explains in detail what is happening each step of the way – what your options are, how long treatment is likely to take, what your prognosis is, and what the side effects of therapy might be. When you’ve had cancer you know how important that is.”

Inspired by this level of excellence in care and by the innovative research they have learned about at the Cancer Center, the Hammetts broadened their support to include cancer research conducted through the Cancer Center Director’s Fund. Due to its unrestricted nature, this fund enables the leadership of the Cancer Center to apply resources where they are most urgently needed, especially during periods of increased budget constraints; to fund shared resources on which many programs and projects depend; and to take advantage of unforeseeable opportunities. Dr. Hammett says, “I think the leaders of the Cancer Center are in the best position to know which areas have the greatest needs.”

A major use of unrestricted funds has been support for the Cancer Center Seed Grant Program, which awards modest grants that allow researchers to launch projects and accumulate enough data to allow them...
Seed grants are a particularly important source of support for multidisciplinary projects that do not fall into conventional funding categories.

We’ve found that cancer research here is multidisciplinary, drawing on many different science departments, and that cancer physicians can collaborate easily, situated together in close proximity within the Cancer Center. A multidisciplinary arrangement just makes sense.’

to successfully apply for additional funding elsewhere. Seed grants are a particularly important source of support for multidisciplinary projects that do not fall into conventional funding categories and for strikingly original research that, while possibly unconventional, may well be high in potential to improve cancer diagnosis, treatment or prevention. Successful projects have gone on to win funding from federal and other major sources, allowing these seed grants to be leveraged sometimes more than tenfold.

The Hammetts continue to learn about the latest discoveries of Stanford Cancer Center investigators from faculty members like Beverly Mitchell, MD, director of the Stanford Cancer Center and George E. Becker Professor in Medicine. When she discussed immunotherapy with them as one likely core platform for the eventual future of cancer care, the Hammetts took note.

Why have they put their faith in Stanford? A big part of it is the collaborative nature of medicine here. Dr. Hammett says, “When I was a young man, my mother had Parkinson’s disease and said they should include engineers in helping to solve this problem. Even back then, she had the idea that collaboration among different scientific areas was important.” The Hammetts first heard about various disciplines working together in the School of Medicine when Dean Pizzo arrived at Stanford. “We’ve found that cancer research here is multidisciplinary, drawing on many different science departments, and that cancer physicians can collaborate easily, situated together in close proximity within the Cancer Center. A multidisciplinary arrangement just makes sense,” says Dr. Hammett. He also points to the fact that Stanford physicians are willing to share their discoveries with other cancer centers for the benefit of patients elsewhere, like his brother with medullary thyroid cancer.

The Hammetts remain keenly interested in the potential of immunotherapy in cancer, but they trust the leaders of the Stanford Cancer Center to be good stewards of their unrestricted gifts, wherever they apply them. Meriting this kind of confidence enables donors to participate in achieving important goals they may never have even dreamed of.

If you would like to make a gift to the Cancer Center, please visit us at cancer.stanford.edu or call the Office of Medical Development at 650-234-0651.

(Pictured above) Front entrance of the Stanford Cancer Center.
In 2009, the Stanford University School of Medicine and the Palo Alto Medical Foundation established a scientific collaboration designed to improve outcomes for patients with breast cancer. Although investigators from the medical centers have worked together for decades, the new project is the first official joint research effort for the two centers.

“This is not just a collaboration – it is a true partnership of outstanding institutions, each with expertise in cancer treatment and research,” said Hal Luft, PhD, executive director of the Research Institute at PAMF.

The primary goal of the project is to collect data that will give doctors a comprehensive view of how biomarkers, cancer genetics, patient choices and patterns of care interact and relate to outcomes.

Data from the study are derived from a synopsis of patients’ clinical history, and are collected in a new, secure electronic database known as OncoShare, which links the records of breast cancer patients treated at the Stanford Cancer Center and PAMF. The names of patients and their treating doctors are kept anonymous.

OncoShare is the first large-scale research database to incorporate a broad range of detailed information on breast cancer characteristics, practice variation and treatment effectiveness.

The research partnership was the brainchild of Richard Levy, PhD, a long-time community philanthropist and business leader, who envisioned the project as a way for the two institutions to share experience on a subject of great interest to him – improving cancer survival. He and his wife, Susan, provided a gift of $2.1 million – shared by the two institutions – for the three-year study.

Levy is the former president and CEO of Varian Medical Systems in Palo Alto, where he has spent the last 40 years. He has longstanding ties to both Stanford and PAMF. A nuclear chemist by training, he and his colleagues at Varian worked closely over the years with Stanford scientists in the department of radiation oncology to pioneer linear accelerators for cancer treatment.

CHALLENGING THE ‘GOLD STANDARD’

The researchers chose to study breast cancer because it is a common disease in which there are basic protocols, although there are many variations in how patients and their doctors choose to pursue them, Luft explained. For instance, women may choose breast-conserving surgery or full mastectomy, he noted, or they may opt for different chemotherapy plans with different toxicities and frequencies.

“Women with breast cancer face a set of decisions – how
Cancer System Biology center created

Cancer as a complex molecular system

The Stanford University School of Medicine has been awarded $12.8 million over five years by the National Cancer Institute to establish a Center for Cancer Systems Biology. The center is one of 12 recently funded by the NCI to stimulate integrative systems approaches and the application of computational modeling to cancer research.

“Our work views cancer as a complex system,” said Sylvia Plevritis, PhD, associate professor of radiology and principal investigator on the project. “Instead of focusing on the function of one gene or protein, we want to identify a molecular network that captures interactions between many genes and proteins.’’

Plevritis is the director of the center; professor of microbiology and immunology Gary Nolan, PhD, is the co-

director. The center includes Stanford faculty and researchers across multiple disciplines, including Ronald Levy, MD, Robert K. and Helen K. Summy Professor in the School of Medicine; Dean Feshers, MD, PhD, associate professor of medicine-oncology and of pathology; Ravindra Majeti, MD, PhD, assistant professor of medicine-hematology; Daphne Koller, PhD, professor of computer science; David Dill, PhD, professor of computer science; Robert Tibshirani, PhD, professor of health research and policy (biostatistics) and of statistics; Andrew Gentles, PhD, senior research engineer in radiology; and Gunnar Carlsson, PhD, Ann and Bill Swindells Professor, mathematics.

The center meshes biological and computational research to reconstruct molecular networks in the study of non-solid tumors such as adult myeloid leukemia, follicular lymphoma and T cell acute lymphoblastic leukemia. The center will also establish resources for complex data analysis and an education and outreach component targeted to the Stanford cancer research community and the community at large.

“We are delighted that Dr. Plevritis has received this award on the basis of the pioneering work she has conducted with her group,” said Stanford Cancer Center director Beverly S. Mitchell, MD. “She has leveraged the unique strengths at Stanford to build an integrated program of computational and cancer cell

(Related above) A signaling network model.
The JoyLife Club, a cancer support group specializing in the needs of the Bay Area Chinese community, has recognized the Stanford Cancer Center for its efforts to address cancer health disparities of Asian Americans. Paul Seto, Mayor of the City of Millbrae, presented the commendation to Stanford Cancer Center director Beverly S. Mitchell, MD, during a recent cancer clinical trials educational forum sponsored by both organizations.

Also on hand for the presentation were Stephen Cheung, JoyLife co-founder, and Rachel Mesia, Program Coordinator for Community Partnerships and Cancer Outreach at the Stanford Cancer Center.

The forum was one of an ongoing educational series on cancer clinical trials and caregiving (in Mandarin and Cantonese) hosted by the JoyLife Club in San Mateo County and funded by Stanford Hospital & Clinics.

Currently, only 3 to 4 percent of adults participate in clinical trials. Accrual rates for ethnic minorities are much lower – 1 percent or less.

Lack of participation in clinical trials limits scientific advances in cancer prevention, screening and treatment.

The most recent JoyLife Club forum featured Alice Fan, MD, an instructor in medicine at the Stanford University School of Medicine, who discussed “Development of New Therapies for Lymphoma,” including vaccines and targeted therapies. Guests included California Senator Leland Yee, Mayor Seto and former Millbrae Mayor Janet Fogarty. Dr. Mei Wu of Seton Hospital provided spontaneous translation of Fan’s presentation into Cantonese.

For information on the JoyLife Club and its programs, contact joylifelclub@gmail.com or visit www.joylifelclub.org.
Asian women need more access to breast health programs

Breast cancer incidence is rising among Asian-American women, especially those born in the United States, and survival after diagnosis is worse among foreign-born Asian-American women, indicating a need to target greater awareness, cancer control and research to this population.

This emerging public health issue was the focus of a discussion by Scarlett Lin Gomez, PhD, presented at an event organized by the Asian Pacific Islander American Health Forum, the Kellogg Foundation and the American Journal of Public Health, held in early May at the National Press Club in Washington, D.C. Gomez is a research scientist at the Cancer Prevention Institute of California (CPIC) and a member of the Stanford Cancer Center.

Gomez discussed significant findings from two recent studies that focused on hidden breast cancer disparities in Asian women. Both studies were based on statewide California SEER data collected from the Greater Bay Area Cancer Registry, the Los Angeles Cancer Surveillance Program and the California Cancer Registry.

In the first study, Gomez and her CPIC colleagues found that breast cancer rates were higher among U.S.-born Chinese and Filipina women than in foreign-born Chinese and Filipina women. In contrast, U.S.- and foreign-born Japanese women had similar breast cancer incidence rates. Additionally, U.S.-born Chinese and Filipinas younger than 55 years had higher rates of breast cancer than white women of the same age. Overall trends indicated that breast cancer incidence rates have been increasing over time for most groups of Asian women in the United States.

In the second study, Dr. Gomez and her colleagues found that foreign-born Asians were more likely than their U.S.-born counterparts to be diagnosed at advanced stage. Furthermore, survival after breast cancer was poorer among foreign-born Asians, even after adjusting for stage, age, socioeconomic status and other factors.

These findings emphasize the importance of continuing to increase access to and knowledge about screening, particularly among foreign-born women, and further research to understand the factors contributing to their poorer survival.

Foreign-born Asians are more likely than their U.S.-born counterparts to be diagnosed at advanced stage.

Based on an article by Ruthann Richter

Continued from page 9

Management of cancer in all its messiness.

“We are developing new methods to answer old questions,” said Plevritis, who pointed out that it’s also important to understand normal cell biology in the study of cancer. The major research goal of the center is to understand what role cellular differentiation plays in cancer progression.

“We want to understand the regulators of differentiation and how they contribute to what we think of as a hierarchical structure of cancer. We suspect that cancer manifests itself in a cellular organization that emerges from the disregulation of normal cellular differentiation processes,” she said.

In addition to research and computation, the center is also working to educate students and faculty members about cancer systems biology. It is planning a course in computational biology for graduate students in the medical school’s cancer biology program, a regular schedule of seminar speakers for interested faculty and staff and an annual symposium.

Based on an article by Ruthann Richter

(Pictured above) Scarlett Lin Gomez, PhD.

(Pictured above) Sylvia Plevritis, PhD.
‘We will try to capture this information and analyze how women’s preferences and best clinical practices can be combined with other factors to achieve optimal treatment.’

Continued from Page 7

do they choose among these options?” Luft said. “We will try to capture this information and analyze how women’s preferences and best clinical practices can be combined with other factors to achieve optimal treatment.”

The researchers hope that this pilot project, which is part of the community outreach efforts of Stanford’s Clinical and Translational Science Award from the NIH, will pave the way to future joint studies between PAMF and Stanford.

“The wide range of expertise brought together for this effort has enabled PAMF and Stanford to establish a premier scientific collaboration at the intersection of translational and outcomes research,” said Amar Das, MD, PhD, principal investigator at Stanford and assistant professor of medicine and of psychiatry and behavioral sciences.

One year out, the breast cancer research effort has reached all of its goals for creating a framework on which to build the study, Das said. Thus far, OncoShare houses de-identified records on 2,520 breast cancer patients from 2006 to 2009.

The project has also sparked the interest of clinical investigators focused on breast cancer treatment outcomes. Cancer Center researcher Allison W. Kurian, MD, MSc, assistant professor of medicine-oncology and of health research and policy, recently received a three-year, $1.1 million Translational Research Award from the California Breast Cancer Program that builds on the collaboration with PAMF.

One year out, the breast cancer research effort has reached all of its goals for creating a framework on which to build the study.

The grant will enable study of key controversies in breast cancer care, and expansion of the OncoShare database resource by creating a survey that patients can use to report their personal treatment preferences and experiences of breast cancer care. No existing data resource asks patients to report their own preferences and experiences. The survey, to be developed in partnership with patient advocates at Breast Cancer Connections, a non-profit resource center in Palo Alto, will be administered to a group of women starting therapy at Stanford and PAMF.

The researchers will evaluate patterns of care in both retrospective and incoming groups to determine the impact of patient-reported information on care. Patients will be followed up for several years to determine which specific care patterns yield the best long-term outcomes.

The group also plans to extend OncoShare to include other California and U.S. health care systems.

“This project has the potential to transform the kinds of questions that can be asked and answered about breast cancer outcomes across populations, and thus offers a major translational leap, adapting the electronic patient record into a tool to measure and optimize real-world breast cancer outcomes,” Kurian said.

In addition to Das and Kurian, the Stanford researchers working on the project include: Susan C. Weber, PhD, director of Information Systems Development; Weech Lee, MD, post-doctoral scholar; and Kim Rhoads, MD, assistant professor of surgery and Cancer Center member. Besides Luft, the PAMF research group includes: Tina Pierce, MBA; Cliff Olson, MFA; and Peter McNair, MPH, MHS. Also collaborating are Jeff Belkora, PhD, University of California San Francisco, and Ellen Chang PhD, research scientist at the Cancer Prevention Institute of California and a member of the Stanford Cancer Center.
NCI awards $3 million grant for quantitative imaging research

The imaging of tumors is crucial for assessing patients with cancer and for monitoring their response to treatment. Current quantitative imaging methods have the potential to vastly improve the accuracy of assessing the response of tumors to new cancer treatments, but are hampered by the lack of a software infrastructure that would enable evaluating and adopting such methods in clinical trials of new and existing therapies.

To fill this need, the National Cancer Institute has enlisted School of Medicine researcher Daniel Rubin, MD, MS, and scientists from seven other research institutions for a multimillion-dollar project called the Quantitative Imaging Network (QIN). Rubin, an assistant professor of radiology and a member of the Stanford Cancer Center, received a five-year, $3 million grant from the NCI to fund his group’s contribution to the QIN project.

QIN aims to create approaches to validate and standardize methodologies, imaging data and related imaging meta-data for quantitative measurements of responses of tumors to cancer therapies.

Rubin’s collaborators on the QIN project are Cancer Center members Edward Graves, PhD, assistant professor of radiation oncology; George Fisher, MD, PhD, associate professor of medicine-oncology; R. Brooke Jeffrey, Jr., MD, professor of radiology; Andrew Quon, MD, assistant professor of radiology; and Sandy Napel, PhD, professor of radiology. Other members of Rubin’s QIN group are Andrew Evens, MD, assistant professor of medicine at Northwestern University, and Mia Levy, MD, assistant professor of biomedical informatics and medicine and the Cancer Clinical Informatics Officer at Vanderbilt University.