

SYNAPSE

Asian bone marrow recipients face great odds

By Eric M. Yabu
and Karen L. Yee

Less than six months ago there were fewer than 150 Asians listed on the National Marrow Registry, a computerized list that attempts to match patients requiring life-saving bone marrow transplants with volun-

teer donors. Today that number has increased about 20-fold, totaling over 3,000. However, the odds of finding a genetically suitable donor in the general population are estimated to be 20,000 to 1—and this is for the average caucasian in the United States. Unfortunately for the

minority patient, bone marrow transplantation is nearly "racially-dependent." It is extremely rare that bone marrow from a donor of one racial group matches a recipient of a different racial group. Therefore, with its considerably smaller population, the Asians'

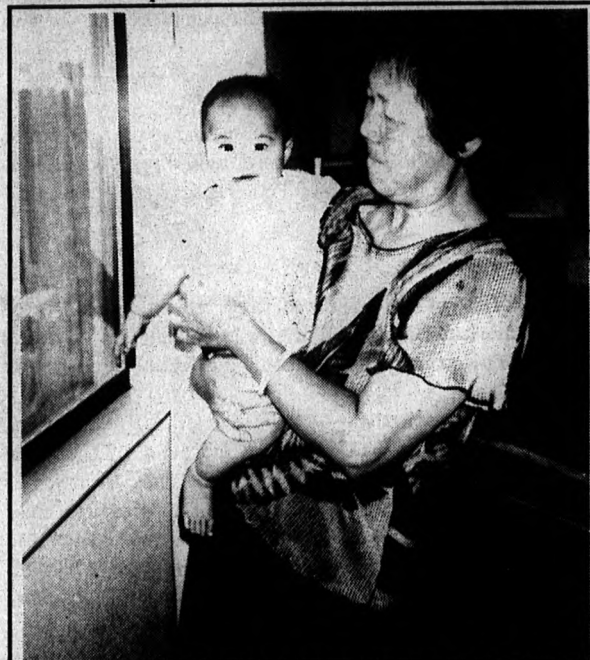
odds are even worse.

The national registry of potential bone marrow donors currently lists approximately 80,000 people. While this is a dramatic increase from the 56,000 registered as of last October, organizers of the donor program have estimated that over 100,000 donors are necessary to supply marrow to about 80 percent of transplant candidates.

The recent increase in potential Asian bone marrow donors is almost solely based on the efforts of two Northern California families and their friends. Last summer, a donor-recruiting campaign for leukemia patient Judith Jang-Berkholtz of Sacramento added over 1,000 names to the registry. More recently, the efforts of the friends and family of 13-month old Amanda Chiang, also from Sacramento, recruited an additional 2,000 potential donors.

Although neither families' bone marrow donor drives found a match, they were successful in terms of adding to the registry. However, the drives also proved

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13-month old Amanda Chiang with her grandmother, whose contribution of bone marrow saved the baby's life.

About Marrow Transplants

Bone marrow transplantation is a crucial, often lifesaving, form of treatment for persons diagnosed with leukemia, lymphoma, neuroblastoma, aplastic anemia, severe combined immunodeficiency disease (SCID) and other congenital diseases. A bone marrow transplant is a unique type of transfusion in which defective marrow, the spongy tissue inside the bones, is replaced with healthy marrow from a donor. The marrow is the site of production for white blood cells, red blood cells and platelets which are vital to the body's immune system. White blood cells (leukocytes) act as the body's defense against infections and consist of three major types, granulocytes, lymphocytes, and monocytes. Lymphocytes are divided into B-cells, which produce antibodies, and the T-cells, which attack virus-infected cells, foreign tissue and cancer cells.

Red blood cells (erythrocytes) carry oxygen from the lungs to



As you may have already noticed, this issue of Synapse is paginated like a traditional Asian newspaper.

all body tissues and then pick up carbon dioxide as a waste product to be carried back to the lungs and expired. Platelets (thrombocytes) prevent bleeding by playing a role in blood clotting.

The physiological basis for a bone marrow transplant is a match of HLA-antigens, found on the surface of white blood cells and most other cells in the body. The possibility that the transplant will be successful is

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View from a cutting edge

Yeast, genetics, and everyday life

By Charles Piller

He dresses in the "uniform" of UCSF bench researchers—jeans, sport shirt, tennis shoes. Biochemistry graduate student Mark Schena punctuates his comments with such phrases as "hasn't been firmly established," "that's pretty well understood," "there isn't much evidence for"—the bland phraseology of the scientifically initiated. Mild-mannered and soft-spoken, at a glance it's hard to tell that Mark lives life on the edge—the cutting edge of science, that is.

Mark works in Keith Yamamoto's lab on the ninth floor of HSW, where he studies the mysteries of how our genes do their jobs. Every human cell contains a full complement of thousands of genes, each playing a highly specific role in instructing the cell to produce skin, organs, blood or bone, or for generating proteins that perform a multitude of specialized functions in the body. But in a given cell type, certain genes are "turned off," while others are "turned on."

The process by which certain genes are turned on is called "expression." In skin cells, for example, genes that contain the instructions for producing skin are expressed, while the genes for producing muscle are dormant.

People are sometimes said to be "turned on" by a rush of hormones. In genes the effect is literal: they follow the cues of steroid hormones. Hormones link up with steroid receptor proteins that are normally floating around in the cell. The two together—hormone and receptor—then attach to specific sites near the genes they affect. Presto: the genes are "turned on" and do their

jobs. But how are genes activated and why does activation lead to differentiation? Those are the fundamental questions Yamamoto's lab is trying to answer.

"We're trying to understand, at the molecular level, how it is that the receptor protein actually causes gene expression," Mark says. "If you have 100 different receptors, each affecting 10 different genes, then you can have an enormously complex regulatory circuit."

In the pursuit of basic research—knowledge for its own sake—no practical goals are on the immediate agenda. But the benefits of knowing which receptors affect which genes and how they do their jobs could be enormous.

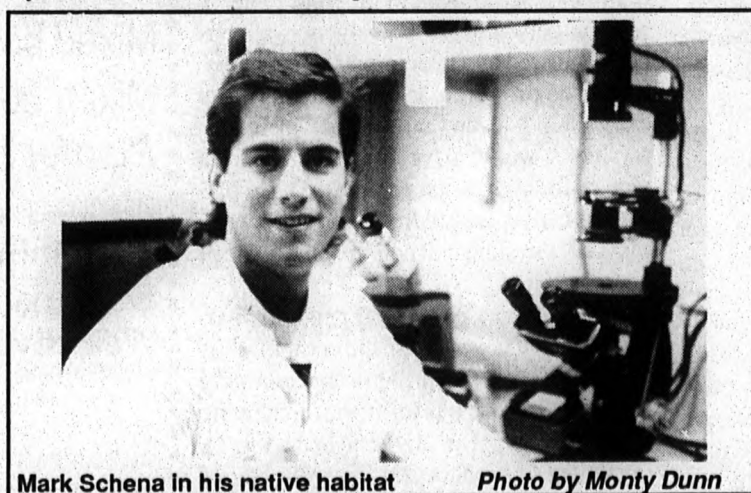
"It allows you to understand why hormones have the profound developmental consequences that they do," Mark explains. The answer to this basic riddle of biology will have important practical implications. When you throw out your shoulder in a pick-up game of basketball, for example, the doctor might suggest a steroid injection. Sometimes it helps, sometimes it doesn't. Knowing exactly what happens in that joint at the most basic level could eventually lead to more reliable therapies.

"We've actually identified most of the players in the game, and have been able to produce molecular clones of the various receptors"—using recombinant techniques to grow large amounts of the receptors in order to more easily study them, Mark adds. By "we" he means the scores of labs around the world working on this

subject—one of the hottest topics in contemporary biology. "But we don't quite know how the players are doing their business."

Growing into science

Mark, now 26, grew up in upstate New York. His parents, both professional educators, made an academic career seem natural. His fascination about things scientific began early. By junior high, he was reading Scientific American and other popular scientific magazines. By the time he made it into college



Mark Schena in his native habitat

Photo by Monty Dunn

the genetic engineering revolution was well underway, and he began to see himself as destined for a career in chemistry or biology.

Mark took his undergraduate degree at UC Berkeley. "I really enjoyed being at a place where there is a very high level of education going on that is affordable for at least a reasonable number of people," he recalls. "And there's a vibrancy at Berkeley that's lacking in a lot of private schools." After he graduated, Mark worked for a year at a biotech company, Advanced Genetic Research, where he helped develop a vaccine for feline leukemia.

If you are an up-and-coming student in biochemistry, you're likely to look closely at the big five schools in the field—MIT, Harvard, Stanford, Berkeley and UCSF. In the fall of 1985, Mark chose UCSF.

"I was really struck by a couple of things here," he says, explaining the decision. "The department goes to great lengths to cater to graduate students, really making students feel like they are part of the curriculum—an important part of the research environment." Graduate students at some other

Yamamoto's philosophy of giving each student an area of research for which they take primary responsibility.

In the early 1980s, Yamamoto was the first to show that steroid receptor proteins interact with specific DNA sequences, a discovery that led to dozens of revealing studies. "Then in 1985, this lab obtained a molecular clone of the steroid receptor from a rat," Mark explains. "It was another critical advance because it gave us one of the key players to work with." When the work was published, the scientific community snapped to attention. Yamamoto shipped the clone to hundreds of labs all over the world. "We're still sending it out, five years later," Mark says.

The yeast connection

Mark was lucky to come onto the scene soon after this breakthrough. At that time, specialists in the field were trying to figure out how to study the newly cloned receptor protein more efficiently. Mammalian cells were an option, but their complex genomes presented logistical problems.

"We really wanted to have a simple system for studying the nitty-gritty molecular aspects of how the receptor protein worked," Mark recalls. "Yeast was a possibility, because it has many fewer genes and receptors. It would be like working on a mini-bike instead of a Ferrari." The \$64,000 question: would a mammalian steroid receptor function within yeast? Mark and Yamamoto talked it over, and agreed Mark would set up some experiments to find out the answer.

"At the time we embarked on our experiments, it was a pretty heretical suggestion," Mark says.

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asian-american focus issue

What is your favorite Asian restaurant in the Bay Area?

Here's your dilemma: It's almost dinner time on a Friday, you've just finished a hellish week and now you and some friends want to go someplace good to eat. Oh no! Where should you go? There are hundreds of restaurants in San Francisco! Well, seeing that this is the Asian-American Focus issue of the Synapse, we felt it was appropriate to ask for some assistance from people in the UCSF community.

— Benson Wong with Angela Chen



Harold Itokazu (first-year dental student)

"I would recommend the Fook Restaurant (332 Clement) for the dim sum and the name...the name is important. For dinner I would recommend North China Restaurant (2315 Van Ness)... It's good food at moderate prices."

No photo available

Trang Nguyen (second-year pharmacy student)

"For Japanese food I like the House of Teriyaki (2191 Irving, at 22nd). They have a variety of good food at a reasonable price range...about \$15 a person including appetizer and sushi. Service is really good and you don't have to wait long. The sushi there is really good with pretty large servings. My favorite dish is the grilled seafood kabob with teriyaki sauce."

No photo available

Dr. Tom Christie (Department of Stomatology)

"My favorite Asian restaurant is Jenny Low's (on Miller Ave., in Mill Valley). All the dishes are great, service is great... prices are great."



Jay Kopf (first-year dental student)

"If you're looking for a good Chinese restaurant, I recommend San Wang Restaurant (2239 Clement). Order the Mongolian Beef prepared deep-fried, Szechuan shrimp, and hot & sour soup. Their deep-fried scallops are also really good; be sure to ask for it to be cooked well or you'll get it a little runny. Prices are fairly reasonable; you'll probably look at about \$6-7 per dish."



Diana Kobashigawa (Department of Infectious Disease)

"There's one Chinese restaurant at Polk and Broadway called Tai Chi (2031 Polk). Its pretty reasonable, only about \$5 a dish. My favorite dish is a chicken dish called General Chuo's spicy chicken; it's really spicy and garlicky. You may have to wait a while out on Polk for a seat because its a really popular place, but it's worth the wait. The Hunan prawns are also really good... spicy and garlicky."



Barbara Yee (second-year dental student)

"My favorite Asian restaurant is Ebisu (1283-Ninth Ave. between Irving and Lincoln). I like the restaurant because its really good Japanese food at affordable prices and just walking distance from school."



Staci Char (first-year dental hygiene student)

"At Just Won Ton (1241 Vicente), the wonton is excellent; the filling in the wonton is meaty and full of shrimp. It's about \$ 3.95 a bowl. I also recommend the Thai Cafe (3407 Geary, at Stanyan). It has a nice atmosphere. I would highly recommend the chicken dish and roast duck. Prices are moderate,



Will Wong (third-year medical student)

"My favorite Asian restaurant is Nippon Sushi, also called No-Name Sushi because it's not listed in the phone book. There are two locations: One is on Church St. and the other is off the Westborough exit on South 280. I recommend it because it's a Japanese restaurant that offers a lot of bargains, and fits a student's budget. Dinner might run you approximately \$5. My favorite dish is the hand-roll special...they're really big and a real bargain. They have sushi, teriyaki, and tempura...it's really a bargain because they give you a mountain of tempura and it's only about \$4-5."



Scott Cohen (first-year dental student)

"For dim sum I would recommend Yank Sing (427 Battery). It's not too expensive; I think lunch for two is about \$20. It has a nice calm atmosphere, not like other restaurants. I also know a good French-Vietnamese restaurant called the Golden Dragon (816 & 833 Washington). It's very reasonably priced; entrees are around \$7. I would recommend the lemon grass dishes. Decor is also very interesting."

synapse

Published by the Board of Publications
University of California San Francisco
415/476-2211

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ISSN: 0740-2619

Synapse is a student-run weekly with offices in MU-106W. It appears on Thursdays during the academic year and monthly during the summer. All UCSF students are invited to contribute to the paper; our pages are also open to faculty and staff members. Announcements and letters should be submitted six days before publication and can be sent to Box 0234, UCSF, San Francisco CA 94143. All material submitted, including letters, is subject to editing. Subscriptions cost \$20 per year (\$40 outside the U.S.).

Synapse seeks to act as a forum for the campus community. Articles and columns represent the views of the author and not necessarily those of the editors. Unsigned editorials reflect the majority view of the editors and not necessarily that of the Board of Publications or the University of California.

A Culture Lost

No more end of the year family reunion dinner
must study for that exam
No more firecrackers at dawn
BANG BANG neighbors complain
No more LoHan vegetarian dishes New Year's morning
Mama goes to work at 7 a.m.
No more "lay see" lucky money, visiting relatives
"Jook Sings" grown up now

Only "Gung Hay Fat Choy" which doesn't mean
Happy Chinese New Year

A culture which means
lucky candy under the pink peach blossoms
in Papa's favorite vase from China
fried twin fishes eaten after the year is "opened"
red date adorned "yearcake" sliced thin and fried in frothy eggs
pungent smell of incense burning on the altar
knives and cleaning tools hidden away on New Year's day
Dies slowly to leave only ashes
like burning josh sticks
in a foiled-lined family-size blue butter cookie tin

—Susan Lo

Was running the dog story “responsible?”

As part of the medical school course on mammalian physiology (Physiology 100), the Department of Physiology carries out a demonstration in which heart rate, blood pressure and EKG are monitored on an anesthetized dog while various drugs that alter these variables are administered to the dog. At the end of the demonstration, the chest cavity is opened, fibrillation of the heart is induced, the heart is defibrillated, and the animal is given a lethal dose of the anesthetic and allowed to die. This demonstration is given for about one quarter of the class four times each year. Attendance is voluntary.

The demonstration is included in the course for three reasons. First, and most importantly, it provides an unparalleled illustration of important physiological principles, not in the abstract, but in the actual organism. Demonstration in the living animal is more vivid, and gives a better sense of individual variability than instruction with a computer or even a video tape. Second, it is important for students to see the experimental preparation that was and is being used daily to discover much of what we know about normal physiology and its perturbations during disease. Tissue culture and computers cannot give us the information necessary to understand the regulation of blood pressure during shock, or the pathogenesis and treatment of cardiac arrhythmias. The understanding of physiological principles and how they are obtained is not taught to students just to broaden their perspective, but because these principles are at the heart of modern medicine. Their understanding is essential to the physician who wishes to practice sound clinical medicine. Third, many students have never seen the organs of a large, living mammal. Observing a living, anesthetized dog is an important intermediate step between the simple organisms used in undergraduate biology instruction and a living human on an operating table, in the emergency room or in an acute care unit.

Using animals for experimental or instructional purposes is a grave responsibility, and the decision to do so is not taken lightly. The animals used by the Department of Physiology in the demonstrations come from a California pound that kills approximately 1,400 adult dogs each year because they are not claimed by their owners. It is important to understand that the demonstration results in no pain or discomfort to the animals other than that required to anesthetize them. They never awaken and care is taken to be sure that they are no longer living at the end of the demonstration.

A first-year medical student, Ms. Susan Lo, has described in a recent article in *Synapse*, the distress that participation in this demonstration caused her. In spite of a reference to three hours of agony for the dog, the focus of the article is not on the pain caused to the animal (which is presumably negligible), but on her own intense feelings of discomfort. The humane treatment of experimental animals is thus not an issue in the article. The feelings that Ms. Lo describes so vividly are understandable, and are probably shared to some degree by many in the class. Many of us (researchers included!) have pets, and have strong empathetic feelings toward animals. Such feelings are important, and arise from the same base that leads us to have concern for our fellow man, particularly the weak and the helpless, a concern that is a strong component of the decision of many to become doctors.

One of the important lessons of medical school, however, is that one must be able to suspend emotional reactions that are appropriate and important in other situations in order to carry out the mission of helping sick and injured people. These include sexual feelings and feelings of disgust (to a suppurating wound, for example), as well as the feelings of intense anxiety and pity such as

those described by Ms. Lo. A surgeon working on an injured or sick child cannot be overcome by how pitiful the child looks with a tracheotomy or how menacing and cruel the surgical instruments seem to be, but must recognize these feelings and momentarily put them aside. The important point is that one does not have to give up love of children or sexual feelings or love of animals (or even disgust) in order to practice medicine. One does, however, have to learn to control and suspend those feelings in inappropriate situations.

To the extent that it is helpful to talk about common feelings that disturb us, Ms. Lo's article detailing her reactions may be a useful beginning to a public discussion. Unfortunately, the article may be used by many in a more sinister way. There is now a strong movement by a few to abolish the use of animals in medical research and teaching. Extremists in the service of this movement have resorted to violence and criminal tactics. Last year, arson and theft at the University of Arizona by animal rights activists caused hundreds of thousands of dollars worth of damage, and resulted in the disruption and loss of years of biomedical research. Just this month, the office of the Chair of the Animal Committee of the society for Neuroscience was vandalized, and files relating to researchers doing animal research (including those at UCSF) stolen. Those working with animals (also including those at UCSF) have suffered threats and harassment because of their research. Unfortunately, highly dramatized accounts such as that of Ms. Lo can serve to inflame such extremists. It is appropriate to discuss the use of animals in teaching and research, how they can be treated humanely, and of our own feelings about their use. These discussions must be carried out, however, in a responsible, respectful and dispassionate way.

Zach W. Hall, Ph.D.
Chair, Dept of Physiology

Dear Zach Hall,

The student editors of Synapse were advised that Susan Lo's "Physiology Class with Dog" might drive certain fascistic goody-goodies to new heights of destructive frenzy. They regarded the piece as an honest expression of the ambivalence many students feel when they see animals sacrificed in the course of their education, and decided to run it. I think they did the right thing.

It's understandable that anyone who has been harassed and seen important work disrupted might wince at their decision. But censorship—even "responsible" self-censorship—would have been a mistake, a victory for your worst enemies. The explanations Lo has evoked from you are compelling and, I'm sure, will help resolve some of her misgivings.

Fred Gardner

PS: We have never used "the computer" as an excuse before, but in this instance an early draft of Lo's piece was set in print containing several errors. The dog's heart had to be *fibrillated* to produce the "wiggly bag of worms," and was later *defibrillated*. Discussing this with the editor who caught the mistake, Lo shook her head and said, "I guess I was more upset than I realized in class."

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Financial aid applicants tax returns due

Applicants for campus-based funds for the 1990-91 school year must submit a signed copy of your (and your spouse's) 1989 Federal Income Tax Return and Income Tax Certification form to the Financial Aid Office by February 20. For non-filers a Certificate of Non-filing is required. If you have questions, contact the Financial Aid Office at 476-4181.

The ASUC Executive Board meeting will be held on Feb. 15 at 6 p.m. in S118. Topics on the agenda include MU operations, Outdoors Unlimited, ASUCSF elections, SCA-1, Senior Health Fair, Student Health/Mental health and the ASUC/EMPACT Ball.

Copies of the "Report and Recommendations of the Chancellor's Task Force on Cultural/Ethnic Diversity" are available in the Office of Student Relations (MU 125 A) for your review. Comments and recommendations must be submitted to the Chancellor's Office by Thursday, Feb. 15.

A Regent's lecture on "Medicine, Science and Sport" will be given by Sir Roger Bannister in Cole Hall at 2 p.m. on Tuesday, Feb. 13. Bannister is a distinguished English neurologist whose recent work has focused on disorders of the autonomic nervous system. He also happens to be the man who ran the first four-minute mile.

For Valentine's Day gifts, the Pharmacy Class of 1992 will be offering five- and two-pound boxes of See's chocolates, half-pound boxes of truffles, assorted lollipops and double-dipped walnuts at significantly reduced prices. Stop by the Medical Sciences lobby on Feb. 9 and 12 or HSW second floor on Feb. 13 or 14 to make your purchase.

A multi-media presentation entitled "Sick and Tired of Being Sick and Tired," celebrating the life of civil rights and women's power advocate Fannie Lou Hamer, will be held in Toland Hall, noon to 1 p.m., Feb. 15. Sponsored by the UCSF Women's Resource Center in honor of Black heritage month.

Students and faculty are invited to submit nominations for the UCSF Academic Senate "Distinction in Teaching" award. A list of eligible candidates have been sent to the ASUC, GSA and to all Senate Members and departmental chairs. Submit nomination letters to the nominee's departmental chair who will then forward it to the Academic Senate, Box 0764. All nomination letters must be received by the Academic Senate no later than Wednesday, Feb. 28. For further information call Erlene at 476-4245 or Marie at 476-3808.

Jeanne Hallacy, a writer who spent five years in the rural Philippines, will be showing a 20-minute videotape called "Children of War." in N517 on Feb 14 at 5:30 p.m. Co-sponsored by HEMP and the Landberg Center.

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New Elective will seek to promote cultural awareness

By Elizabeth Herskovits

Imagine for a moment that you are a general practitioner with an office in San Francisco. A 56-year-old woman originally from Hong Kong visits your office with the complaint that she is urinating frequently. You initially take a brief history, test her fasting blood sugar and then diagnose Type II diabetes mellitus. You explain to her that before you prescribe medication, she should try to control the blood sugar by changing her diet, and you make a series of specific recommendations. Your patient nods and says, "Yes, thank you doctor" when you ask if she understands. You also refer her to a clinic for an ophthalmic exam to establish if there are any signs of diabetic eye disease.

Your patient leaves your office but does not follow most of your dietary suggestions nor does she visit the ophthalmologist. You have no inkling of the fact that she believes particular foods will help her while others will harm her, and that some of the foods you told her to avoid are just the foods she believes are important to eat. Also, she sees no reason to visit an eye doctor. She has no problems with her vision and no eye pain. Your patient has left your office wondering if you really know what is wrong with her. If you were more culturally aware, could you have served her better?

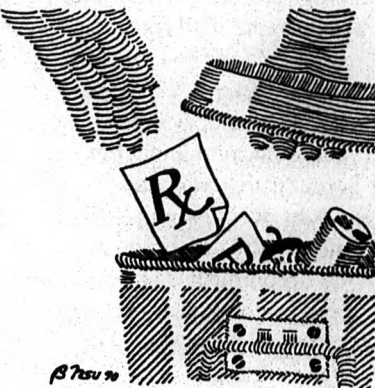
A 38-year-old man from Taiwan comes to your office with his parents. His skin has turned a deep yellow color over the past month. He also senses an abdominal fullness and some pain. You ask many questions about his past history, his parents' history, and the character of his pain, as well as of the color and odor of the stool. During an abdominal exam, you discover a large mass and take blood samples. You suspect a cancer and hospitalize the man for abdominal computerized tomography (CT), with the expectation that you will have to follow this with a biopsy and possible surgery. You discuss the plan and make arrangements with your patient, informing his family of the need for hospitalization and tests. After an initial CT and a non-confirmatory biopsy, the patient's family wishes to remove him from the hospital against your will.

What went wrong? The patient and his parents expected to hear a diagnosis and treatment plan on his first visit; one month later you still had not determined exactly what the problem was. Furthermore, daily hospital blood samples and your desire to repeat the biopsy procedure were in conflict with your patient's belief about the need to maintain his body's integrity in order to maintain its vitality. Finally, the family was uncomfortable with you as you did not communicate regularly with the patient's father, the head of the household, who would take responsibility for persuading the patient to accept treatment. Could you have served this patient better if you were more culturally aware?

Will you be able to grapple with the issues that come up when a young Chinese boy of 12 is the

mediator for his Cantonese-speaking grandmother with bilateral breast cancer? How will you determine what traditional medicines your Chinese patient from Singapore is taking, and whether they interact with the medications you have prescribed?

In San Francisco—as in much of the United States—health-care workers serve diverse patient populations. In ministering to the sick, they strive to cure disease and correct physical pathology where they find it. But arguably, the most



humane physicians struggle to address the problem from the patients' point of view about what is most troubling, as well as from their modern western medical model point of view. Anyone who has had the misfortune knows that the experience of "being sick" is not so simple as "having a disease." It is a complicated experience shaped by each person's beliefs of what causes sickness and health, how healing should be carried out, and how other people should relate to someone who is sick. If health-care workers wish to provide good care, they need to heal this personal "illness" experience, as well as attending to whatever disease process they discern. And, of course, in order to heal, they must first understand the patient's health-related beliefs and behaviors.

As the importance of understanding the various cultural perspectives on illness and medicine has become more apparent and accepted, many UCSF students have attended and enjoyed courses that explored cross-cultural issues in medicine, such as the ever-popular elective offered by Dr. Evelyn Lee. Yet many students have felt their interest piqued but unsatisfied by survey courses which cover a lot of territory.

Several of these students have organized a class which is designed to delve more deeply into the beliefs and behaviors of one cultural community in particular—Cantonese Chinese. The Asian Health Caucus, along with the Department of Family and Community Medicine and the ASUC, is sponsoring an elective course this spring entitled "The Chinese Community: Perspectives of Illness and Medicine". The course will address topics such as traditional Chinese medicines and diet, medical therapeutic modalities, culturally acceptable language and style for probing for signs and symptoms, and perceptions of the appropriate roles for family members and health professionals in helping to care for a sick person. The course will focus on practical and concrete information such as identifying the 10 medicines most com-

monly found in Chinese households, their actions and their interactions with western medicines, examining a typical Chinese diet and its attendant risks and benefits, studying how some foods are used as therapies and discussing how a hospital stay can successfully address the needs of the Chinese family to participate in patient care.

Perhaps the most fascinating element of the course will be case presentations by traditional healers. Western physicians may be aware that their Chinese patients visit traditional healers, such as herbalists or practitioners of acupuncture, but often don't understand what occurs in that exchange, or how it satisfies the needs of the patient. These caretakers share an important cultural currency with the patients; they "speak the same language" regarding what causes sickness. One objective of the course is to provide western trained caretakers with a greater understanding of the perspective and "medical model" of Chinese trained caretakers, in order to provide greater understanding of the common-sense beliefs of those Chinese patients who choose to visit them.

The goal of "The Chinese Community: Perspectives of Illness and Medicine" is not merely to teach about the Cantonese community. Many of the topics to be discussed will involve issues and perspectives that are likely to vary from culture to culture; this process can suggest good questions to ask any patient, from any culture, in order to learn of his beliefs about illness and medicine. Straightforward questions about health beliefs can strengthen the doctor-patient alliance and alert doctors and other western-trained caretakers to conflicts which could arise.

Furthermore, the course will play an important role by challenging students with these same questions: *What do you feel about the ideal role of the family? What foods do you believe are helpful or harmful, and why? What do you believe is gained or lost in the experience of being sick?*

It is important for health-care workers to ask these questions of themselves, because it is inescapable that culturally based beliefs shape the physician's approach to caring for the sick as much as it shapes the patient's experience of being sick. Studies have already illustrated that oncologists make clinical decisions about therapy that are in part based on their personal beliefs about illness; physicians from different nations have been shown to choose widely divergent therapies for the same diagnostic picture. Even at an early stage of training, future caretakers are reminded frequently that "the art of medicine is long"—that clinical judgment is a personal matter. If health professionals recognize their own cultural biases, perhaps they will be more open to exploring and accepting their patients' cultural biases.

Elizabeth Herskovits is a second-year medical student and vice president of the Asian Health Caucus.

Westchester (residency interview)

At the train station in Rye a cabbie picks up a man in a suit, then another fare, me, with my heavy garment bag. It is dark, almost midnight. The businessman has a Japanese accent. For thirteen dollars the cabbie will take me to the hospital in White Plains. He will drop me off first, he jokes. The businessman is worried: "Please, to take me home first, much closer." Two miles away he shoves a wad of bills at the cabbie, then steps out toward a large stone house. "A lotta Orientals in this neighborhood," says the cabbie. "There's him and another looks just like him. I can't tell 'em apart." "He tips well," I say. "They gotta lotta money," he says. It is dark, almost midnight, and I don't know if he can see my face.

The first night in her new country, my mother was the intern on call. A few years later I arrived in Westchester Fuzzy-haired and bawling, a week before Christmas I imagine her on a snow-covered day, a child on each knee, each child armed with a crayon. Her microscope sits in between Years later, a daughter finds old stacks of *New England Journals* and pathology books covered with childish scrawls.

The trees are fragrant. Exactly 26 years from my first arrival, the cabbie says they need doctors here, pumps my hand warmly, calls me "Lady Doc..." Somewhere nearby, a baby girl howled while her mother tried to study, gurgled and spoke her first words in Chinese. Now she tips the cabbie, sniffs the cold night air, walks into the hospital and sleeps in the on-call room.

Rona Hu

Taiwan tableau

by Joel Chiu

A strange mix between the East and West: patients and physicians communicate in Taiwanese dialects while medical records are recorded in English.

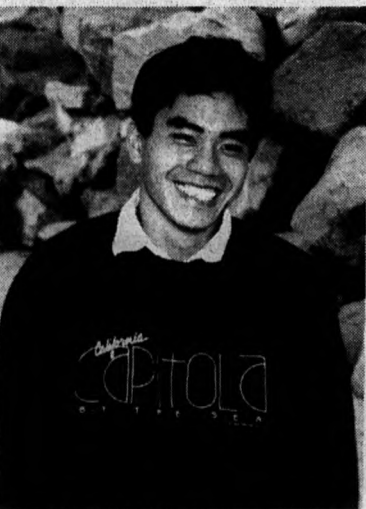
The county hospital of Kaohsiung is housed in a modern 10-story building complete with a computer system, MRI and CAT scan. Yet the patient load is so great that some physicians are expected to see up to 50 patients in three hours. Three patients could be examined in the doctor's office simultaneously. Doctors rush between the patients trying to save time and to preserve what little privacy the patients have.

Taiwan, a newly developed country, is still experiencing the phenomenal economic growth that began shortly after World War II. Along with the economic boom, it has seen a rise in diseases typical of the West, such as coronary heart disease, stroke and colon cancer. The medical cost is eating up larger portions of the GNP. The medical system is feeling more government intervention. Indeed Taiwan is becoming more westernized.

Yet the county hospital still must treat patients within their traditional beliefs and customary practices, as well as use the latest available technology. Below are accounts of three typical patients whom a doctor saw simultaneously due to the high patient load.

An elderly man came in complaining of weight loss despite a good appetite, and a general feeling of tiredness. Upon further questioning, he recalled eating some raw freshwater fish at a wedding feast some months before. Immediately, blood and stool samples were sent to the lab to rule out infestation by the

Second-year medical student Joel Chiu spent six weeks last summer at a county hospital in Kaohsiun, Taiwan, doing a preceptorship.



parasite, *Clonorchis sinensis* (Oriental liver fluke), that commonly reside in freshwater fish.

A middle age woman presented similar symptoms. One look at her past medical record revealed that she is a chronic carrier of Hepatitis B. Hepatitis B infection is endemic in Taiwan. One estimate shows that more than 20 percent of the population have been exposed to the virus by the time they reach adulthood. Now with the availability of Hepatitis B vaccine, a national vaccination program is being planned.

An elderly woman complained of recent bouts of diarrhea. After some persistent questioning, she admitted that the diarrhea had started after she took some herbal medicine given to her by a traditional medicine man to treat her arthritis. The medical doctor advised her not to take any more herbal medicine since it is "unscientific." The patient replied: "But the herb seemed to help me feel better." Again, the East and West had come face to face.

to be extremely expensive for the families since all funding came from the families themselves. Heddy Chiang, mother of Amanda, estimates that the drives cost their family nearly \$200,000, of which three-fourths went to the blood testing process which cost \$75 per person. Normally, this tissue-typing process costs about \$250, but the Chiangs were given a discounted rate.

This "family-funded" donor drive is one of the only ways of recruiting donors for the purposes of bone marrow donations. Although many blood banks tissue-type for platelet donors, none can afford to type for bone marrow donors. For this reason, people who are interested in donating must find an existing family drive, agree to also donate blood platelets, or finance their own blood tests. As a result, even willing donors are often not available for the registry.

Other reasons for the shortage of bone marrow donors, particularly in the Asian community, deal with fears, stigmas, and superstitions.

"In Chinese culture, people are hesitant about giving blood, let alone bone marrow," says Heddy Chiang. "They are not only superstitious about giving up a part of their bodies, but also very fearful about the risks."

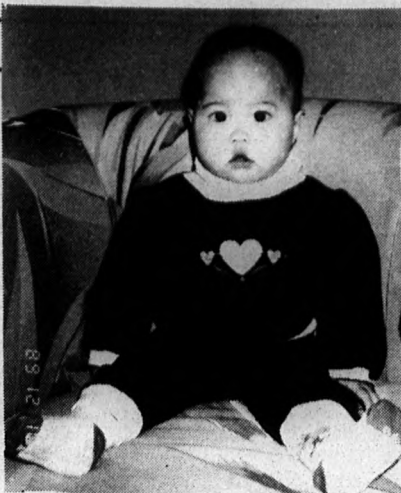
These feelings are seen primarily in the older generations of Asians who immigrated to the U.S. Dr. Herbert A. Perkins, Director of Irwin Memorial Blood Bank in San Francisco, explains that "it is hard for immigrants to trust a strange situation such as donating blood." Hing Owyang, a dentist (and UCSF alumnus) who helped coordinate the Jang-Berkholtz drive, noted that the majority of the donors were in the 18-30 year age range. Owyang feels that a prevailing attitude in the older Asian population is one of

reservation and "not wanting to get involved." In fact, Mrs. Chiang says that some of the younger donors only offered their blood for testing under the agreement that they would not be photographed or videotaped, fearing that their parents or grandparents would disapprove.

To overcome these feelings, the drives have set out to educate the public. Recently, a San Francisco group, led by Kingman Kan, president of the board of trustees for the Northern California Chapter of the Leukemia Society of America, formed an organization, the Asian Bone Marrow Organization, aimed at increasing the awareness and involvement of Asians in the national bone marrow registry. Organizations such as the Judy Davis Foundation in Oakland and the Lifesavers Program in Southern California are also being formed to increase the public awareness in the Black and Hispanic communities.

Pam Weinberg, director of community development for the National Marrow Donor Program (NMDP), says that her organization has put an emphasis on minority donor recruitment this year. Also, the minority pool is expected to increase as international cooperation develops. Currently, the registries in England, France, and Canada can be accessed through the NMDP. Japan, among other countries, will soon be involved in the international effort. China, Taiwan, and the Philippines may also be included in the near future.

The average cost of a search is \$8,000, which does not include the marrow procurement and transportation cost of approximately \$19,000. A preliminary search will begin after a patient is accepted into the transplant program. The NMDP processes the search and notifies UCSF of



Amanda Chiang before her bone marrow transplantation at UCSF

potential donors within 48-72 hours. After a complete typing (HLA A, B, DR) of a potential donor has been obtained, subsequent Mixed Lymphocyte Culture tests are performed. The average length of time to complete a formal search is three months. According to Linda Abramovitz, the nurse who coordinates UCSF's Unrelated Donor Program, "this waiting period is a delicate balance between time and treatment options."

UCSF's role

The first bone marrow transplant at UCSF was performed in 1982. As of July 1989, over 100 transplants for a variety of diseases have been performed. UCSF is the only medical center in the Bay Area that performs all three types of bone marrow transplants, matched, partially matched, and autologous. A matched or histocompatible transplant is when the donor and recipient are genetically similar. A partial or haplocompatible match occurs when there is some genetic similarity between the donor and the recipient and in which the donor marrow is specially processed to reduce severe reactions. This process involves the use of soybean agglutinin (SBA) to remove the T-lymphocytes responsible for graft versus host disease (GVHD) while simultaneously preserving the stem cells which produce red and white blood cells and platelets. An autologous transplant, used for

treating certain types of cancer, in which the patient donates his or her own marrow during the early stages of the disease or during remission and then receives it back following intensive chemotherapy and radiation treatment.

UCSF has recently expanded the alternative donor pool to include unrelated HLA matched donors. The first unrelated bone marrow transplant (BMT) was performed in 1979. The 1987 establishment of a formal registry, the NMDP, has resulted in over 200 transplants. The NMDP has formal contracts with 58 donor centers and 27 transplant centers in this country. As one of these transplant centers, the Pediatric BMT Program at UCSF has direct access to run searches through the NMDP computerized donor bank.

These searches must find a match for an estimated 16,000 leukemia and other immunodeficiency disorder patients annually. This task, while overwhelming and impossible at the present, may someday be accomplished if current progress is continued. However, the ultimate limiting factor is the shortage of donors.

If you are interested in being a potential bone marrow donor or in contributing funds, please contact one of the following organizations for information. However, be sure to be informed and to think over your decision thoroughly. But remember, "Marrow may come from your hip, but the real marrow comes from your heart."

Irwin Memorial Blood Bank
Rosie Lamoreaux,
Bone Marrow Supervisor
270 Masonic Avenue
San Francisco, CA 94188-0318
(415) 567-6400 Ext. 414

Leukemia Society of America
55 Hawthorne
San Francisco, CA
(415) 543-9821

About transplants —

from page 1

greatest when these proteins are the same in both donor and recipient. One set (haplotype) of HLA antigens are inherited from each parent; thus, there is a 25 percent chance that a sibling will be HLA-identical (matched) to the transplant patient. A parent is always haplocompatible, or partially matched with their child recipient.

The ideal donor for a transplant is an identical twin because the donor marrow will be accepted by the recipient as "self" rather than "foreign." Because most patients do not have an identical twin, the most common donor is a sibling who is HLA-matched. When an HLA-matched sibling is not available, a partially matched donor (sibling or parent) may be used, but the risk of severe complications is great. In addition to finding matches within one's own family, the probability of finding an HLA-match also greatly increases within one's own ethnic group. There are over 100 known antigen types known, some of which are unique to people of Chinese or Japanese descent.

The transplant begins when marrow is aspirated from the donor in the operating room. While the donor is under general or spinal anesthesia, marrow is taken from the pelvic bone with a special needle and syringe. Multiple aspirations are taken to avoid dilution of the marrow with blood. The donor usually feels some pain and stiffness at the aspiration site for a few days, but there is no permanent injury. Marrow cells are produced quickly in a healthy person, and the amount removed will be replaced in two-three weeks.

Eric M. Yabu and Karen L. Yee are first-year dental students.

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Intramural showdown

Run-DDS vs. Masticators

On the afternoon of Wednesday, Jan. 31, six hoopsters showed up at the MU gym. A full-court pick-up game was in progress but they didn't want to play, they said, they wanted to wait until the court was free and then they intended to "practice." Practice for what? Practice for an intramural game the next night. It was obvious from their serious, disciplined attitude that this was not just an ordinary game coming up.

"We're Run-DDS," explained Tim Lee, "We're all first year dental students. Tomorrow

jumper after long jumper...

But come Thursday evening, the game itself was another matter. With Alfonso Delgado, Aria Davodi and Ben Butler leading the way before 40 emotionally involved fans, the fast-breaking Masticators jumped to a 9-4 lead and never looked back. Run-DDS seemed tense, missing shots they had consistently drilled in practice and never setting up to run the plays they had rehearsed. When they finally decided to go with an all-out press, the score was 41-29 and only 2:41 remained on the clock.

But suddenly the momentum shifted. Sobrepena hit a 3 and so did Tim Verceles. With 57 seconds left it was down to 43-39. Then Davodi calmly swished a 15-footer from the right side and the game was out of reach.

Sobrepena and Delgado had come close to squaring off in the heat of the heat, and Alan Tower had to call them for double foul. But by the final whistle they were hugging like Magic and Isaiah.



Run DDS huddle: Tim Lee, Eric Yabu, Victor Sobrepena, Tim Verceles

row night we're playing The Masticators—they're all second-years. They're the ones who take it seriously. This game is the biggest event of the year for them. In fact, it's the whole reason they came to UCSF. It's their whole life!"

Suave Victor Sobrepena added, "But we're not going to beat them too bad, because they give us a lot of helpful tips in lab." It seemed as if his confidence was well placed, as he and his teammates hit long



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Feb. 16 6:30 and 8:45 p.m.

The Fabulous Baker Boys

Feb. 22 5:45 and 8 p.m.
Feb. 23 6:30 and 8:45 p.m.

Just About All Jazz presents:

Horace Tapscott Trio
Fri. Feb. 9, Laurel Heights Auditorium
at 8 p.m.. Cost: \$10/9/8/7/5/3.

Outdoors Unlimited

Sign-ups continue for:

President's Day Weekend X-C Ski Cabin trip in Yosemite on Feb. 17-19. Pre-trip: Tues., Feb. 13 at 7 p.m.. Cost: \$65/85 (includes lodging).

Snow Camping Clinic. Classroom dates: Feb. 15 and 20, 7-10 p.m.. Weekend dates: Feb. 24-25. Cost: \$15/25 (includes tents).

MPS Recreation

Midpoint exercise classes begin Feb. 10. Sign-ups at MU Fitness Desk.

Massage workshop by Coral Cadmen on Feb. 10, 10 a.m.-5 p.m. at the M.U. Conference Center.

EMPACT!

Discount tickets are available to students! Tickets for Winter include: movie tickets to UA, AMC, and Pacific Theaters, and discount ski lift tickets to Squaw, Northstar and Alpine. Special Events for Winter include: Dine with your Valentine, Paul Taylor Dance Company, Sleeping Beauty ballet and more! Tickets can be purchased at Millberry Unions's Central Desk. Ticket hours are: Mon.-Fri. 9 a.m.-5:30 p.m. For more information call EMPACT! @476-6932.

SPECIAL EVENTS

Rae's Dine with your Valentine Extravaganza, Sat., Feb. 17, 6 p.m., California Culinary Academy, \$35 per person.

Valentine's Day sale and deliveries, Feb. 13 and 14, 11 a.m.-1 p.m., Medical Science Lobby. For a delivery order form, call EMPACT! at 476-6932.

Paul Taylor Dance Company, Sat., Feb. 17 at 8 p.m., War Memorial Opera House. Cost: \$23.

Check-up

UCSF scientists say life's origin is chemical

New calculations by scientists at UCSF indicate that the chances of a functional protein or enzyme forming at random in the Earth's primeval soup—and thus the odds of life arising through natural chemical processes—are larger than once thought.

Previous estimates of the odds that the building blocks of proteins came together at random in the primordial oceans to form functional proteins were so low as to be essentially zero, casting doubt on the theory that proteins and thus life itself arose by normal chemical processes during the early history of the Earth. Creationists have leaned heavily on this as an argument against the random chemical origin of life and against evolution.

But those were the odds of obtaining a specific protein with a specific sequence of amino acid which comprise proteins, says UCSF biophysicist Ken Dill, professor of pharmaceutical chemistry.

"Nature doesn't care as much about the sequence itself as the three dimensional structure of a protein—the way it folds up," Dill says. "Structure is more important in determining what the protein does than the specific sequence. As long as something arises that even crudely works, then evolution could take over and refine it."

Dill and postdoctoral researcher Kit Fun Lau, now at Biosym Corp. in San Diego, calculated the probability of obtaining a specific structure rather than a specific sequence of amino acids. The odds turned out to be far higher than expected—high enough to make it likely that functional proteins came about through the random stringing together of simple amino acids.

The results of the study were published in the January issue of the Proceedings of the National Academic of Sciences.

Few patients can participate in decision to end life support

Advances in life-sustaining medical technology are increasingly leading to situations in which doctors and families must make decisions to withhold or withdraw life support from critically ill or severely injured patients—in many cases with the patients unable to participate in the decision. According to the results of a year-long survey conducted by researchers at UCSF and San Francisco General Hospital, advance directives concerning what type of care the patient wanted were usually not available.

The study found that although life-sustaining care is withheld or withdrawn relatively infrequently from patients in the intensive care unit, such decisions precipitate about half of all deaths in the intensive care units of the hospitals studied. In most of these cases the patients are incompetent, but physicians and families usually agree to limit care.

"No one has previously studied the decision to withhold or withdraw life support," says Dr. John M. Luce, associate professor of medicine and anesthesia and main author of the study, published in the Feb. 1 issue of the New England Journal of Medicine.

Luce and his colleagues surveyed 1,719 patients, their families and their medical care providers in the medical-surgical intensive care units at Moffit-Long Hospital and San Francisco General. Of the 115 patients who died because life support, such as mechanical ventilation, was withdrawn or withheld, only five made the decision to limit care themselves. Three of these had severe lung disease, while two had AIDS with respiratory failure.

The remaining 110 patients were comatose or too ill to participate in these decisions. Of these patients, 102 had family members who participated with medical staff in the decision. In every case where there was a disagreement about continuing life support, life support was continued.

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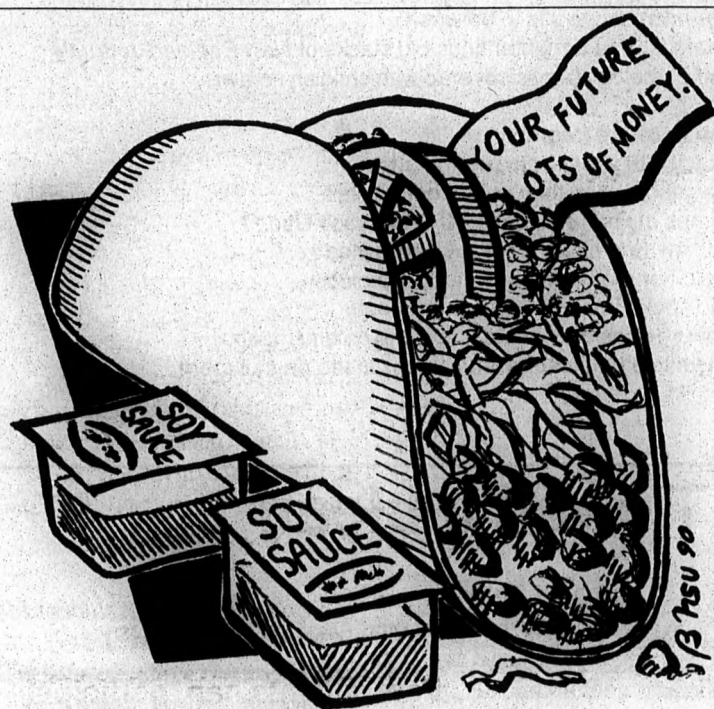
Editors' Note

Living in a place as culturally diverse as San Francisco, California, we feel it is important to discuss and showcase, from time to time, the elements of our home that help make it what it is. This week's special issue focuses on the Asian community — its people, its problems, and even its poetry.

In the decade that just passed, we saw the Asian-American community grow, in both numbers and influence, like no other group has in the history of our country. While this growth is a tribute to our nation and the opportunities it affords us, it did not come without problems. Our society found some of the same feelings of fear and resentment towards this "Asian invasion" that plagued our country back in the 60s. Now, as we open a new decade as well as a new Chinese year (Year of the Horse), we must try to smooth out these difficulties that are invariably associated with societal change through mutual understanding and open-mindedness.

This issue will expose you to the *brighter, darker, lighter and heavier* sides of the Asian community with the literature, concerns, cartoons and fine cuisines that it has to offer. We hope to arouse your interest enough to make you want to join an organization, donate bone marrow, see an Asian art exhibit, or at least eat dim sum at a place called *Fook*.

Benson Wong Eric M. Yabu
Karen L. Yee Susan S. Lo (co-editors)



Fact: U.S. taco fast-food franchise will set up a few blocks from Tiananmen Square.

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The Black Engineering and Science Students Association (BESSA) is hosting its 16th Annual Job Fair at the Oakland Hyatt Convention Center on Saturday, Feb. 10th, 1990, from 9-12pm and 1-4pm. Employers will be seeking applicants both in technical and non-technical fields. Please bring resumes and dress appropriately. For more info call (415) 642-1326.

HEALTH SCIENCES SPECIAL SERVICES PROGRAM TUTORIAL PROGRAM

The Health Sciences Special Services Program will be offering tutorial services for the socio-economically disadvantaged and underrepresented students at UCSF. If you need help with any subjects throughout the school year, tutors are available at the HSSSP Office. Contact Carol Stadum at 476-7373, 145 Irving Street, 2nd floor.

Asian campus organizations

Asian Health Caucus

A coalition of medical, dental and pharmacy students dedicated to serving the Asian community in the Bay area and to educating the UCSF campus and community about Asian issues and affairs.

Upcoming events: Asian Pacific Cultural Celebration —May 25.

Community health fairs; a series of health fairs conducted throughout the San Francisco area to promote better health and medical awareness in the community sponsored by the Northeast Medical Services —late February and May.

Contacts: Michael Yeh, 661-3845; William Wong, 564-5435.

Asian/Pacific American Systemwide Alliance

Promotes the general welfare of Asian/Pacific American faculty, staff and students at UCSF. The Alliance runs workshops to promote and enhance the educational and professional opportunities of Asians, to develop activities to facilitate and strengthen the internal communication network among Asians at the university, and to share strategies and develop networks for effectively dealing with the important issues facing the Asian community.

Upcoming event: Asian/Pacific Cultural Week —Third week of May.

Contact: Gail Mametsuka, 476-2675.

Chinese Health Professional Student Association

A nonpolitical association to promote cooperation and unity among the Chinese students at UCSF so as to encourage participation and involvement in the development of leadership and communication skills. The organization promotes education about the Chinese community and understanding of other communities as well.

Upcoming events:

Grab a Plate Lunch (fundraiser) —Feb. 15, 11 a.m.-1:30 p.m.

Understanding the Chinese Community (lecture series) —Feb. 22, evening.

Contact: Tony Lowe, 986-2163; Gloria Ng, 664-2932.

Health Education and Mobilization for Pilipinos (HEMP)

HEMP promotes Pilipino culture and public awareness through friendship and activities and to serve the Pilipino and non-Pilipino communities in the Bay Area.

Upcoming events: Joint health fair with Asian Health Caucus —March.

High school health professional recruitment —second week of May.

Pilipino Cultural Day —Last week of May.

Contact: Michael Arrellano, 665-1470; Tim Verceles, 221-5772.

Korean American Health Professional Student Association

Provides support and opportunities for social contact among Korean Americans, and encourages ethnic awareness on campus. Serves the Korean community in the San Francisco area.

Upcoming event:

Joint health fair with Asian Health Caucus —Feb. 25.

Contact: Susan Jung, 731-1778.

United Filipino Employees Association at UCSF

Represents UCSF employees to encourage more active participation for avenues of improvement where they are lacking, to foster brotherhood and solidarity, to promote closer fellowship among fellow Filipinos, and to work together in finding solutions to the problems in the Filipino community and community as a whole.

Upcoming events:

UFFA 1990-1992 Elected Officers Induction —Feb. 16.

Contact: Elma Belenson, 476-1227 or 476-1228; Edna Calastro, 476-4235.

Vietnamese Student Association at UCSF

Provides support to Vietnamese students at UCSF and seeks to promote understanding between Vietnamese and non-Vietnamese students.

Upcoming events:

New Year's Celebrations —annually every January.

Community Service Projects —upcoming quarters.

Contact: Vu Nguyen, 661-3769.

Physics of Racism

Blind trajectory

Rage, hatred, suspicion directed at
Chinamen gooks and Chinks
China Marys, China Johns
All prostitutes, all laundrymen
Can't stop — button pushed
Violence uprising, emotions ascend

Stop

For a split second
Climax attained, v=0
China is ally
Chinamen OK

Gravity pulls

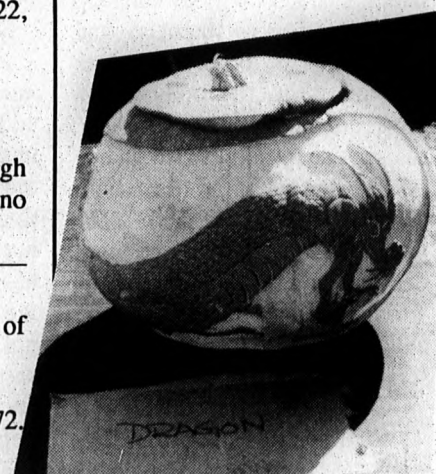
Optimism declines
Paranoia washes down
China turns communist
Chinamen spies

Collision course

Impact of earth
Kinetic energy replaced
Hidden potential waiting stimulus
Model Minorities

Energy never dissipates

Only takes on different forms
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Target all races
Just apply the force of prejudice
—Susan Lo



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"In a sense, the reason was mainly human vanity"—some scientists couldn't believe that lowly yeast could operate in a way similar to humans. "We felt that if we demonstrated that the steroid receptor was operative in yeast, then that would open the door to doing a lot of really detailed genetic experiments needed to understand the mechanism. Early on, in '87, we were able to demonstrate that, in fact, the receptor works in yeast.... That was a major contribution that I made."

Follow-up experiments have confirmed that many details of the process are essentially the same in yeast and in humans. Mark and Yamamoto co-authored an article in Science in 1988—an exciting moment in the life of a graduate student. Now more than one-third of the work in Yamamoto's lab uses the yeast system, a trend reflected in many other labs working on this set of problems.

In retrospect, Mark says, "I think the biggest contribution of this finding was a broad one—encouraging people to rethink their biases." In a sense, this is the essence of science; a valuable lesson to learn early.

The science of everyday life

Such lessons don't come easily in the culture of modern biological research. Mark logs 60-70 hours per week, typical among his peers. This doesn't leave much time for hobbies, but he manages to squeeze in a work-out a few times a week. "The demonic aspect of that is I'm not quite sure why I do it," he acknowledges. "In a sense, it's to increase my output in the lab, because it's certainly a good stress reliever. If you can be loose in the lab, that's the way to be." But he clearly loves his work. "I wouldn't trade it for anything," he says.

Mark describes Yamamoto's lab as "fairly representative of any high-powered molecular biology lab—hard driving, hard work-

ing, at times a stressful place to be. You feel that there's always more that you can do, and when you leave the lab, you take it home with you, you think about it if you wake up in the middle of the night, you think about it in the morning. At this point in my life," he continued, "I really don't see any other way to do science than to be completely compulsive about it. It's just too competitive and too difficult to be any other way about it."

Yamamoto's lab, although friendly and collaborative, is not immune from the friction of internal competition, Mark says. "We're trying to understand a small number of questions. Not everyone is going to be able to contribute equally to that understanding. You feel a sense of urgency. If someone in the lab makes a breakthrough, I think that causes tension at times." There are only so many breakthroughs to be made, and they are the stuff of which publications—and careers—are formed.

Graduate students are encouraged to move on to a new university for post-doctoral training, to broaden their perspectives. In May, Mark will complete his PhD and take a coveted post-doctoral post at Stanford. "Stanford and UCSF are only 30 miles apart," Mark says, "but their biochemistry departments are so different that they might as well be on different planets." Yamamoto says this is a good move, that Mark's clearly on his way to a promising career.

Last month, the New York Times ran an article by Gina Kolata about the lifestyles of leading scientists. To reach the top, one has to be a member of "the circuit"—an informal, yet clearly identifiable network of academics who travel from meeting to meeting, gaining wide attention and setting the agenda for research in their fields.

Members of this elite group—which includes Yamamoto and others at UCSF—share the latest findings and ideas long be-

fore they hit the academic journals, giving circuit scientists a leg up on the competition for discoveries, honors and grants, according to the Kolata article. From the circuit comes the vast majority of the most influential studies. Some researchers feel that it's difficult to compete without being a member of this club.

The personal cost of membership can be high, however. Many top professors travel almost constantly to maintain professional obligations, attend meetings, consult and give speeches. Frenetic 80 to 100-hour work weeks are typical, straining family ties. It's a large reason why relatively few women have reached the top echelons of scientific research, and why many of the most successful men are single.

Mark is certainly going into the scientific life with his eyes open, yet maintains his idealism. "I plan at some point to have a family," he says. "It's not impossible. If you look at our department here, in fact, you find that maybe half the professors have

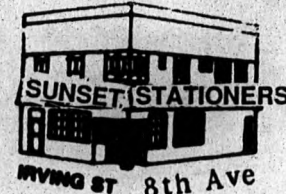
families. It's certainly an added complexity and a juggling act to deal with, but I feel pretty strongly about having a gratifying personal life."

Right now, Mark lives with his girlfriend, Renée, a commodities trader whom he met when they were both undergrads at Berkeley. To unwind, they venture out from their Ashbury Heights apartment regularly to sample the gastronomic delights of Café Sport in North Beach, or go to one of their favorite spots, Mescolanza, a Northern Italian restaurant in the Richmond.

Renée is a big part of his life, particularly because with the exception of his sister—an Air Force computer programmer temporarily stationed in Fairfield—his family still lives in New York. Renée helps him keep his bearings, Mark adds. "It gives us two circles of friends...I couldn't have a relationship with a woman who was also a scientist—you get, I think, over-focused."

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