

NEWSLINE

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FROM THE DIRECTOR'S OFFICE

Jeff Wadsworth

Groups focus on growing Lab's intellectual assets

Over the years, the Laboratory has actively sought ways to protect and invest in its intellectual capital. Recruiting and retaining the brightest minds in science and engineering are crucial to the Lab's continued success in remaining a premier institution to serve the nation's interests and needs.

To make the Laboratory an attractive environment for both current and future employees, we must continually seek input to assess key workplace issues and to identify suggestions for improvement. This was one of the goals of the series of three employee focus groups, held on March 22, following our Science Day celebration. We promised to report back to all employees the issues raised by these groups. In this column, I'd like to share with you the issues identified in the focus groups.

First, a few words on how the focus groups were formed. The groups were divided into three demographic areas: early career scientists and engineers and postdocs; mid-career scientists and engineers; and senior scientists and engineers. The groups represented diverse scientific fields, race, ethnicity, and gender. Focus group members were chosen based on recommendations from the programs and directorates while ensuring balance and broad coverage of the Laboratory's diverse groups and disciplines. Approximately 60 employees participated.

The concept of the Science Day celebration and the focus group sessions was suggested by Gen. John A. Gordon, administrator of the National Nuclear Security Administration (NNSA) and was successfully held at the three NNSA national laboratories — Livermore, Los Alamos, and Sandia.

The purpose of the focus groups discussions was to assess the health of science and technology and to provide helpful input to DOE and the laboratory. Vic Reis, the former assistant secretary for DOE Defense Programs, facilitated the three LLNL sessions, which were also attended by Dr. Maureen I. McCarthy, NNSA chief scientist, and several members from the Office of Science, in particular, James F. Decker, acting director, Office of Science and Toni Joseph, director, Laboratory Policy and Infrastructure Management.

Each focus group lasted approximately one to one-and-a-half hours. A report of these focus groups was submitted to Gen. Gordon. Similar reports were also issued from the focus groups held at Sandia and Los Alamos national laboratories. Some of the key issues that came out of the LLNL focus group dis-

See **DIRECTOR'S OFFICE**, page 8

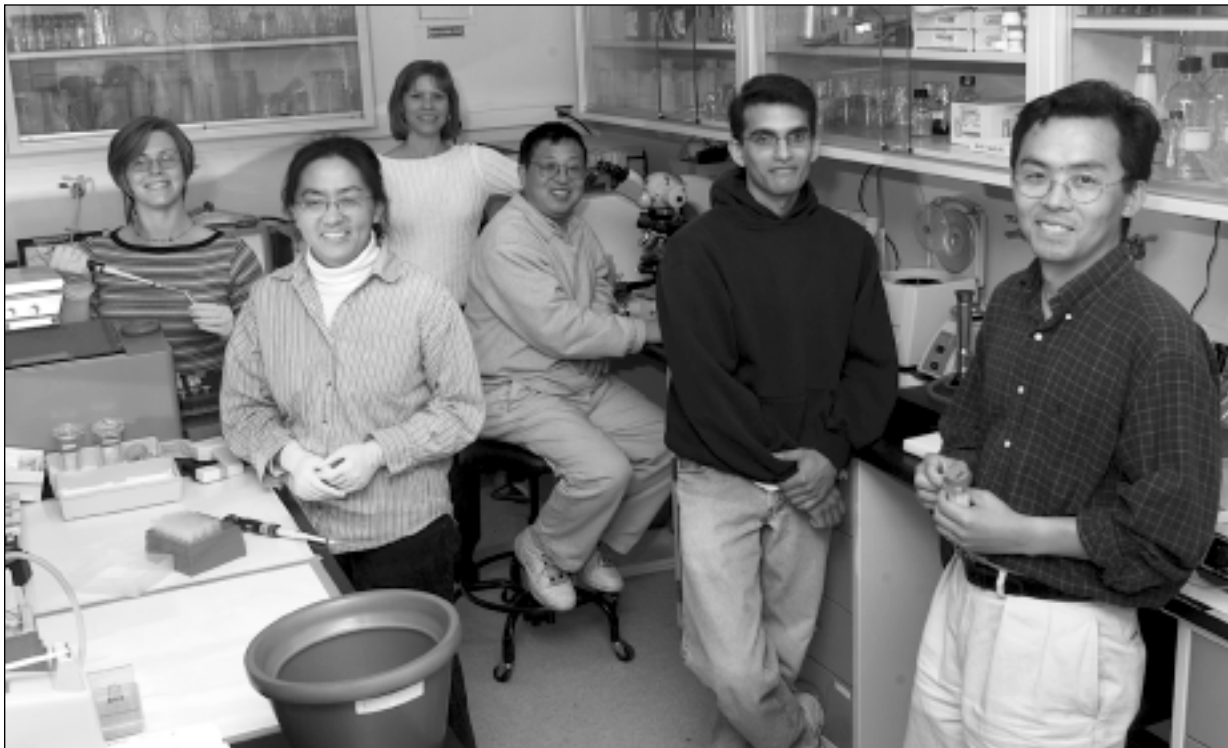


PHOTO COURTESY OF S&TR

Members of the mouse genomics group include (from left) Laura Chittendon, Xiaojia Ren, team leader Lisa Stubbs, Xiaochen Lu, Paramvir Dehal and Joomyeong Kim. The researchers, from the Joint Genome Institute, compared human chromosome 19 with similar sections of mouse DNA to confirm gene estimates.

DNA link between man and mouse

Earlier this year, researchers mapping the human genome estimated that human DNA contains about 30,000 genes.

Now, based on the first-ever look at comparable sections of human and mouse DNA, a team of Walnut Creek-based Joint Genome Institute (JGI) scientists has confirmed that estimate as roughly accurate.

The team, led by Lab biomedical scientist Lisa Stubbs, details its findings — based on comparing human chromosome 19 with similar sections of mouse DNA — in last Friday's edition of the journal *Science*.

In addition to Stubbs, the study's analysis was performed by Paramvir Dehal, a UC Davis

graduate student, Livermore computer scientist Art Kobayashi and a team of JGI computer scientists and biologists.

The sequencing of the mouse DNA, which was done between April and October of last year, was led by former Joint Genome Institute Director Elbert Branscomb, current JGI Director Trevor Hawkins and sequencing director Paul Predki.

"There had been speculation that aligning the human and mouse DNA sequence might reveal many more genes," Stubbs said. "However, if chromosome 19 is indicative of

See **DNA**, page 4

MMED a one-stop shop for materials that matter

By Sheri Byrd

NEWSLINE STAFF WRITER

How do those fast-growth KDP crystals become transformed into high precision flat optics for NIF? When the Medical Technology Program needs precision micro-machined tubing to build their breast cancer-detecting Smart Probes, who do they call? Who diamond-turns myriad optics, from a few millimeters to more than 1-meter in diameter, for



NASA, DoD and the Air Force's Space-Based Laser? When a

See **MMED**, page 7

Love labors to put end to current cancer treatments

By Elizabeth Campos Rajs

NEWSLINE STAFF WRITER

UCLA professor and noted breast cancer specialist Susan Love envisions a time in the not too distant future when breast cancer — and especially today's treatment of it — will be a thing of the past.

"I'm very, very excited. We're heading into a whole new era with breast cancer. I think we can eradicate this disease and I don't think it's a pipe

See **LOVE**, page 8



**New policy
on storage media**

— Page 3



**Upgrades for
Site 300**

— Page 5

LOVE

Continued from page 1

dream." she told a packed auditorium in Bldg. 123 Love, who is an adjunct professor of surgery at UCLA and medical director of the Susan Love M.D. Breast Cancer Foundation, spoke at the Lab Tuesday as part of the Director's Distinguished Lecture Series. Her talk was also the final installment in the Lab's monthlong Cancer Awareness Campaign.

Her presentation, "Wishful Thinking Is Not Enough," was engaging, informative and often humorous. She spoke off the cuff for more than an hour on a wide range of subjects, from describing new research on improving detection, treatment and recovery to hormone replacement therapy. She answered questions from the audience for nearly a half hour more in the auditorium and spent another 30 minutes signing books and answering still more questions. Scores of women in the auditorium not only had copies of her books for her to sign afterward, but also took copious notes during her talk.

Love, who was appointed by President Clinton to the National Cancer Advisory Board and is one of the founders and a director of the National Breast Cancer Coalition, calls today's treatment of cancer — surgery, chemotherapy and radiation — "slash, burn and poison."

"They are very crude. But it's all we have. If I had cancer today, I'd be first in line for those treatments," Love said. "We've been thinking of cancer cells as if they're foreign invaders and we have to blast them away. But these are our own cells gone crazy."

"Maybe they're not all irrevocably bad. Maybe we can rehabilitate them, give them food and sunshine and they will behave normally."

For too long, she said, cancer cells have been studied in isolation. By studying cancer cells and how they interact with healthy cells, researchers may be able to determine how to change their behaviors, she said.

Researchers are also looking into how to "put cancer cells to sleep" for 10 or 20 years, and believe one of the ways to do that is through hormones. There are new hormonal drugs that are now being studied, she said, noting that tamoxifen has been shown to prevent breast cancer from coming back when given for five years.

"We're moving into control instead of kill," Love noted. "Treatments are shifting from chemotherapy for



ALI CARRIGAN/NEWSLINE

Susan Love (right) spent time after her DDLs presentation answering questions signing autographs for employees and retirees, in this case, Marlys Hanson.

everyone to treatments for tumors sensitive to hormones. They are treatments targeted only to the cells that are abnormal."

New research is also starting to look at how to eliminate some of the side effects of the harsher treatments, such as chemotherapy. Love refers to this treatment as a "poison" that not only kills the cancerous cells, but destroys healthy tissue as well.

Too often, breast cancer survivors who complain after treatment about swollen arms and limited mobility, fuzzy thinking and other uncomfortable side effects are told, "you're lucky to be alive, dear," Love said.

"It's beyond 'you're lucky to be alive.' We're finally getting to the point that we realize we need to pay attention to the side effects of treatments."

One of the biggest side effects is premature menopause, which can lead to other health problems, Love said. "That's a whole other area we're just starting to figure out," Love said. "I've been asked why, as a surgeon, I'm looking into menopause. Well, my patients are asking me about it, and I'm 53 and flashing," she added, drawing a laugh from the crowd.

"After menopause, our ovaries don't shrivel up and fade away. When they are done with reproduction, they shift into a different function and still produce hormones into your 80s," Love said.

Contrary to popular belief, this declining hormone production can be enough for most women, she added.

She also discussed imaging methods, such as mammograms. By the time tumors are seen on mammo-

unclear boundaries. Laboratory employees take security and safety very seriously. This has, at times, led to an overly conservative approach to implementing guidance and directives, and may have resulted in more restrictive, self-inflicted requirements than were originally intended by the rules. Examples of this include treatment of foreign nationals, sensitive-country restrictions, sensitive but unclassified information, export control, and enforcing "one-size-fits-all" training requirements.

Participants expressed general consensus in favor of protecting the benefits and the culture that the University of California brings to the Laboratory. Members of the focus groups urged the Laboratory to make greater use of the University in recruitment and retention, improving morale, continuing to ensure the quality of Laboratory research through peer review, broadening collaborations, encouraging publications, promoting outside recognition of the outstanding science at the Laboratory, as well as protecting and enhancing science for the next generation of researchers at Livermore.

Recommendations generated from the three focus day groups at each of the three NNSA national laboratories have now been combined and analyzed. The analysis helped identify common issues and was used to identify and define action items for the laboratories and NNSA management.

The next steps

Director Bruce Tarter and I are committed to improving the work environment for science and technology, including empowerment of our scientific managers in a manner that can ensure a healthy, inspired, and dedicated workforce, and to attract new scientists and engineers to carry out the DOE and NNSA critical national security and science and technology missions.

Through the employee survey just completed, we hope to gather additional detailed information about how employees view the quality of work life issues at

grams, they have been there eight to 10 years, Love said. Mammograms are most effective for women over 50, she said, because younger women have denser breast tissue, making it difficult to spot tumors.

"When you go through menopause, you lose breast tissue. It turns to fat and cancer shows up great against fat. We need something that will show cancers in younger women," Love said.

She has spent much time studying ductal cancer, which is breast cancer that starts in the milk ducts

"I want to find those cells before they're criminals, when they are cells that are just thinking about going bad," Love said.

She has developed a method to insert a tiny catheter into a breast duct to extract cells. It's called ductal lavage and is now FDA-approved for high-risk women. It is being used at a number of clinics, including UC San Francisco.

Right now, it's good for providing additional information for women who are at a high risk for breast cancer, but Love hopes it will lead to figuring out how breast cancer starts and, ultimately, how to prevent it.

"A lot more research needs to be done," she noted.

During her talk, she also addressed hormone replacement therapy in menopausal women, although she objects to the name of the treatment.

"The way you position something really affects how you think about it. With hormone replacement, you're saying premenopausal women are normal and we have to get postmenopausal women back to normal. But menopausal women don't need that high level of hormones. We're now starting to figure out that much lower doses may be enough for older women who don't need as much," Love said. "If you don't have breast cancer, you can take hormones for two to five years for symptom relief and then taper off."

New studies are showing that long-term hormones do not necessarily reduce an older woman's risk of heart disease and osteoporosis, she said.

Lifestyle changes are the best defense, she noted. "Exercise helps prevent heart disease, osteoporosis and you feel morally superior doing it," she said, again drawing laughter from the crowd.

Other changes include following a low-fat diet and not smoking. "You should have lifestyle changes first and then add drugs if they are needed," she added.

Love's talk will be rebroadcast on Lab TV channel 2 on Thursday, July 19, at 10 a.m., noon, 2, 4 and 8 p.m. and Friday, July 20, at 4 a.m.

DIRECTOR'S OFFICE

Continued from page 1

cussions are detailed below.

The Lab environment

Despite myriad challenges we have recently faced, the Laboratory's scientists and engineers generally remain positive about the quality of life at the Laboratory and its world-class science and computer expertise, and are optimistic about their collective ability to improve the environment for science and technology in the future.

What the focus group members seek most is a return to the flexibility of a decade ago, when scientists felt they had more intellectual "elbow room" to work on new or emerging scientific ideas. Decreased funding — whether for programs, inviting scientific speakers to the Lab or attending scientific meetings — has created a feeling among scientists that opportunities for continued scientific growth are becoming limited.

Concomitant with decreased funding is an increased emphasis on oversight, safety and security regulations, excessive paperwork, and often over-zealous interpretations of regulations.

The focus group members recognize the competitive job market and high cost of living in the Bay Area have hindered the Lab's ability to recruit and retain employees. Compounding this problem (which has the potential of making the Lab a less-attractive employer), is increased management and oversight by DOE, Congress, and other outside forces.

The early career scientists felt their managers were so overburdened with administrative requirements that they were becoming full-time administrators with reduced opportunities to participate in research management.

Focus group participants reported that in areas where guidance is vague, Laboratory staff has become overly cautious in following regulations that have

LLNL. Once all of the data are tabulated, the Lab will identify priority issues and develop plans to address them. We will continue to work with NNSA, Los Alamos, and Sandia to find ways to improve the workplace environment across the complex.

Intellectual resources remain the greatest assets of the Laboratory — a cross-disciplinary team approach and innovative thinking are still very much a part of Lab culture. Through the suggestions of these focus groups and the employee survey, the Laboratory will work to address these issues and maintain the spirit of multidisciplinary research that has made the Lab what it is today — one of the premier research facilities in the world.

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