SSRL Scientists Gain Insight into Blocking Anthrax and Other Diseases

By Heather R. Woods

Scientists at SSRL have found an Achilles heel in the brutal diseases anthrax, bubonic plague, syphilis, diarrhea and Lyme disease. These single-celled disease organisms need a protein called thymidylate synthase complementing protein (TSCP) to replicate. TSCP is an enzyme, a type of protein that catalyzes chemical changes in the molecules that bind to it without changing itself. SSRL’s concentrated x-rays revealed the 3-D structure and function of this protein, which has enabled researchers to create a computer model of a molecule that could block it and thus the organisms could not attach, dTMP cannot be made and the cell cannot reproduce. TSCP converts a molecule called dUMP into dTMP, an essential part of DNA (dTMP provides the T in the 4-letter DNA alphabet). In order for a cell to divide into two, it makes a copy of its DNA—the cell’s unique structure of the TSCP enzyme and its discovery last year was a cooperative effort with the Joint Structural and Molecular Biology Group at SSRL. The protein x-ray crystallography data was published in the June issue of Structure.

The researchers worked with a TSCP enzyme from a bacterium that lives at high temperatures. Their next step was to learn how similar that enzyme is to TSCP enzymes in different organisms. Mathews and his colleagues used the unique x-ray pictures of TSCP to determine the key binding sites where small molecules attach to the TSCP enzyme to undergo chemical reactions. TSCP converts a molecule called dUMP into dTMP, an essential part of DNA (dTMP provides the T in the 4-letter DNA alphabet). In order for a cell to divide into two, it makes a copy of its DNA—the cell’s function of this protein, which

Congressional Aides Visit SLAC

Ed Puccerella, Budget Analyst for the House Budget Committee, and Dazid Pappone, Senior Analyst for Education and General Science with the Senate Budget Committee, toured SLAC at the end of August. Here they examine a crystal-mounting loop, after extracting it from a 96-port sample cassette, which is a key component in the automated protein crystallography beam line facilities at SSRL.

Integrated Management Expo and All Hands Briefing: Monday, September 22

By Doug Kreitz

Come explore the breadth of SLAC’s Safety and Security Integrated Management Program at this year’s Integrated Management Expo. We have combined the key elements of Integrated Safeguards and Security Management (ISSM) and the Integrated Safety Management System (ISMS) into a single program to help you better understand the systems that SLAC uses to support world-class research in a safe and secure environment. The upcoming Expo will couple the Annual Safety & Security Briefing with an interactive, “get to know your safety and security protection systems” exhibit area.

Annual Safety & Security Briefing

This week’s All Hands memo from Lab Director Jonathan Dorfan explained the need for everyone in the SLAC Community to attend the Annual Safety & Security Briefing. Three sessions (9:00 a.m., 10:45 a.m. and 1:00 p.m.) will be held in the Panosky Auditorium.

The Integrated Management Expo

More information about SLAC’s Safety and Security’s Integrated Management Systems will be presented at the Expo using a series of informational tables in the Auditorium Breakeway.

For more information about SLAC’s Safety and Security’s Integrated Management Systems, see: http://www-group.slac.stanford.edu/bsd/ISSM/

The fiscal year ends on September 30.

For important FY2003 year-end dates & deadlines, see Page 4

Free House Keys Made On-the-spot!

To remind you that safety and security play an important role both at work and at home, we have arranged for you to get a free house key made (cut on-the-spot). So be sure to bring a house key with you to take advantage of this free offer.

If you have questions about the Safety & Security Briefing or the Expo, contact Doug Kreitz at Ext. 4556; dougkreitz@slac.stanford.edu.

The fiscal year ends on September 30.

For important FY2003 year-end dates & deadlines, see Page 4

If you have questions about the Safety & Security Briefing or the Expo, contact Doug Kreitz at Ext. 4556; dougkreitz@slac.stanford.edu.

For more on Integrated Safeguards and Security Management (ISSM) at SLAC, see: http://www-group.slac.stanford.edu/bsd/ISSM/

For more on the Integrated Safeguards and Security Management (ISSM) see: http://www.slac.stanford.edu/esh/isms/

More information about SLAC’s Safety and Security’s Integrated Management Systems will be presented at the Expo using a series of informational tables in the Auditorium Breakeway.

Subject matter experts will be manning the tables to answer questions about safety, emergency preparedness, counter-intelligence, physical security at both work and home, and computer security. Use this opportunity to prepare yourself to battle computer worms, survive earthquakes and prevent future health problems.

In addition to providing you with helpful information about many topics, we will be handing out ‘Landscapes of America 2004’ wall calendars, 2004 Year-at-a-Glance Calendars and other items to promote Integrated Management awareness.
2003 Winter Closure
By Leti Lyon

Once again, the University is requiring schools, departments, and administrative units to close down all possible operations during the winter holiday period.

SLAC will be closed December 20 through January 2, with the exception of staff who are requested to work for a critical reason and those needed to ensure site safety and security. Employees not specifically requested to work are asked not to come to the site.

This year Christmas falls on a Thursday. The Laboratory, except for a few areas, will be closed from the end of the day Friday, December 19, 2003 at midnight (0:00) through the end of the day Friday, January 2, 2004 at midnight (0:00).

Thursday and Friday, December 25 and 26, and Thursday, January 1 are University holidays. December 22, 23, 29, 30 and 31 are non-paid days and 26, and Thursday, January 1 are University holidays. December 22, 23, 29, 30 and 31 are non-paid days when staff will have to use personal time or vacation time to receive full pay. There may be a few staff with unusual schedules for whom the exact dates will be somewhat different.

The University has declared December 24 and January 2 as paid days off. Staff who are required to work on those days will have the sixteen hours added to their vacation accrual.

SLR may have a slightly different schedule due to its operational requirements; SLR management will inform staff of their schedule.

We recognize this mandatory time off may cause some hardship since all staff have been asked to use their vacation accrued this year. We will allow staff to borrow their three Personal Time Off days, their Floating Holiday (formerly Birthday Holiday), and their January vacation accrual from calendar year 2004 to assist with a standard of maintenance during this shutdown.

For more information, see: http://www2.slac.stanford.edu/hr/Important/2003-09-11.html

Tournament
SLAC Hosts Youth Chess

By David Schultz

One hundred of the best young chess players at the Bay Area elementary schools, including those in the local Las Lomitas School District, competed in five games each in the day-long Sectional tournament.

The players in the day-long Sectional tournament were determined by divisions that were based on their age bracket and their USCF rating.

The competition was very intense, especially for the older players who have already found the venue very pleasant. Parents, competitors and organizers found the venue very pleasant.

For the results of the tournament, see: http://www.calchesssoftware.com/LasLomitasResults.html

Gemcars Debut in Lab Fleet

By Matt Howard

Have you seen the new electric cars buzzing around SLAC? If you have, chances are you are curious about them and probably want one to drive yourself. If you haven't seen them yet, keep your eyes peeled.

DOE has required that SLAC reduce the number of vehicles on site. The Lab is responding by replacing several vehicles with new electric vehicles—known as Gemcars—that are not considered 'vehicles' by DOE. The vehicles being replaced are both older DOE vehicles with high maintenance costs, and also some newer GSA vehicles, which are expensive to lease.

The Gemcars are cleaner and cheaper to operate—a big improvement from the fuel cars we currently use. They are known as 'zero emission' cars, meaning that they don't give off any harmful pollutants.

Our current fuel cars cost about $5,000 per year to maintain, while the base price of the Gemcars ranges from $5,000 to $7,500 (depending on the time purchase (accessories such as doors, boxes that go on top of bed and cages that go around the bed will increase this price) plus a maintenance cost of about $500 per year to keep them in shape.

The Gemcars are strictly for on-site use. Since there are no Gemcars available for general use, departments must buy a Gemcar outright if they wish to have one. To find out more about purchasing a Gemcar, contact Peter Budrunas (SEM). See daily selections at: http://www2.slac.stanford.edu/cafe/
Website Makeover: Improving ES&H Communications

By Anthony Jean-Baptiste

You may have noticed that the ES&H Web site has a new look. The makeover, completed in Q1 of 2003, is part of a larger effort to strengthen systems in the ES&H Division. You will continue to see changes over the coming months as we improve the Web site and other systems to better serve users throughout SLAC.

Follow the Crumbs

One goal of the Web site makeover was to make navigation easier. A left-side menu bar and consistent footer were added, in addition to navigational 'bread crumbs'. Bread crumbsing shows users where they are on the site, allowing easy movement between levels of content.

Other improvements included:
- Consolidating all ES&H-related forms and templates onto one page
- Dividing the ES&H Manual into individual chapters
- Simplifying the instructions for the Employee Training Assessment (ETA)
- Optimizing the Departments & Services Web page

What's Next?

The Web site increasingly will become the central way ES&H communicates as a Division with the entire SLAC community. As part of this strategy, a major redesign of the Web site is planned for the future. The improved design will reflect staff needs and will continuously be developed through feedback from several sources:
- Online surveys of users
- Site traffic analytics
- Best practices for usability and organization
- Your input and feedback

Beyond the redesign, ES&H will implement Web-based tools to track writing, Web, and training projects. These tools will help create a more stable and consistent process for communicating worker safety and environmental protection programs. The tools will be accessible to anyone involved in creating and reviewing these programs.

We welcome your comments and suggestions about changes to the Web site and other ES&H tools. Please send email to: esh-web@slac.stanford.edu

For more information on ES&H web-related projects, see: https://www-inteusal.slac.stanford.edu/esh/webinfo

Lessons Learned: Windows RPC Security Patching and Infection

By Andrea Clian

Many of you may have read in the news about thousands of computers on the Internet that were infected by worms taking advantage of a vulnerability found in Microsoft's Windows networking (the remote procedure call, or RPC, vulnerability).

This included 5,000 computers on the Stanford campus, all of which had to have Windows re-formatted and reinstalled. At SLAC, many users with unpatched off-site computers had their remote access disabled, but we had few SLAC-managed Windows computers infected. What lessons can we learn from this?

How SLAC Responded

On July 16, 2003 Microsoft announced the release of a patch for the RPC vulnerability. SCS sent a notice to the user community that all Windows machines needed to be patched by July 25. For SLAC-managed Windows XP machines in Active Directory, the security patch was automatically applied. For SLAC-managed Windows NT 4 and Windows 2000 machines, the local desktop administrators applied the patches.

By July 31, there was news from Stanford University campus that an infected laptop or laptops brought from the outside and then connected to the Stanford network had infected hundreds of machines.

The computer worms responsible for the infection compromised Windows machines, then took a combination of the following actions:
- Installed code allowing hackers to control the machine remotely
- Applied the RPC patch after infecting the machine (making it more difficult to distinguish a patched machine from a compromised machine)
- Scanned the network and self-replicated to infect more vulnerable computers
- Coded the attackers to add a Microsoft web site at a predetermined time

To date, fewer than 10 SLAC machines have been infected, and most of these were laptops infected on other networks. Among user-maintained machines (e.g., home machines, personal laptops), more than a dozen infected machines were detected when they connected to the SLAC network. Many more personal computers may have been compromised, but we did not detect, since these connect to other Internet Service Providers. Thus, SLAC remote access (VPN and dial-in) was disabled for users whose machines were infected or remained unpatched.

Lessons Learned

Home computers have become good targets for the recent infection, since many have high-speed connections and yet are not keeping up with security updates.

Why did these user-maintained machines remain unpatched and vulnerable to infection? Sometimes users did not install the patches correctly. Other users have a philosophy of 'if it ain't broke, don't fix it', and generally did not apply security updates. But the result of such inaction may be many hours of reformatting and reinstalling, after an infection.

If you do your own maintenance on a personal or home machine, keep these tips in mind:
- Apply all security patches, rebooting when instructed (common errors are stopping, after the first reboot, and rebinding when instructed)
- Configure Windows to install updates automatically so that new patches will be automatically applied
- Configure your virus protection software for automatic updates

We have been fortunate that SLAC machines suffered few casualties. But the infection of most Windows RPC infection. SCS and the local desktop administrators worked hard to prepare a managed infrastructure where security patches were quickly rolled out to client computers, and computers were scanned for vulnerabilities and then fixed. Thanks also go to the user community for joining in on this network of managed computers.

Lessons for machines on the SLAC Network:
- If you have not done so already, ask your local desktop administrator to migrate your machine to Windows XP in Active Directory (security updates are automatically done for these managed computers)
- SLAC-managed Windows XP laptops normally get their security updates when they connect back onto the SLAC network. Laptop users should plan for the extra time this will take when they connect after a long absence.

We continue to see new security vulnerabilities and exploits on the most popular operating systems. The continued combination of actions from both SCS and local administrators plus from the user community will be required.

It's not too early to get involved!

Volunteers needed for the 2003 Holiday Party

Preparations are underway now, and we need your help to make this a great event. Volunteer by calling Barry Webb, Ext. 2355

Software Drill (DO) and Burton Richter

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POLICIES AND PROCEDURES UPDATE

FY2003 Year-End Dates

SLAC fiscal year 2003 ends on September 30. The following are some important year-end dates to note.

RECEIVERS: Items on the shipping and receiving dock at 4:00 p.m. September 30 will be included in this year’s costs.

ACCURALS: Personal services, subcontractors, Labs and Universities, and blanket purchase orders require sufficient documentation to authorize payment. That is, if someone is doing some work, there must be an approved PO in the system, and then the person who directly supervises the work certifies that some percent of work is completed at some value of the total. The request should be processed to Division Planner for accrual. Get these items to your division financial planner by 5:00 p.m. on Friday, September 19. Planners are to get these to Skip Ethier by end of day the following Monday.

REQ COMMITMENTS: Requisitions are counted as commitments as soon as the Operator approves them. Req commitments are internal commitments only. They are not reported to the DOE in our month end financial statements (MARS). Req commitments will be counted in SED & ARF up to the end of the day on September 30.

Once a PO number has been dispatched, the Req commitment has gone away and requisitions can no longer be put in the pending category.

PO COMMITMENTS: Whatever purchasing dispatches by the end of the day on September 30 will count as PO commitments for year-end (pencurances).

PURCHASE CARDS: There will be no special general accrual of purchase card transactions for September 30. Anything on your August 20 statement will be costed in FY2003. Items on your September 20 statement will be costed in 2004.

ACCOUNTS PAYABLE: Invoices for goods and services received in FY2003 should be costed in FY2003. You’ll need to get them to the accounts payable office by 5:00 p.m. Monday, September 29. These invoices you have in your possession and you must sign; see Receivers for items received at shipping and receiving.

CORPORATE EXPRESS: Office supply catalog items received by September 12 will be included in year 2003 costs. Furniture is done on a purchase order.

TRAVEL: Division Financial Planners will take travel approved for domestic, international, visitor and relocation travel and get them to the Travel Reimbursement Office on Friday, September 26. This is for travel ending no later than September 30. Travel statements in October will be costed in October, except for prepaid tickets.

PREPAID AIR TICKETS: Expense reports received by September 30 for departures through October 31 will be costed in 2003. Departures November 1 and later will be costed in 2004.

COSTS AVAILABLE: Payroll and Labor will run on October 2. First costs will be available on the Web on October 3 at 9 a.m.

Contact: Marty Sorensen, Ext. 4240, msorens@slac.stanford.edu

DOE Investigation of Temperform USA – Metal and Fabrication Treatment

Outside vendors often perform fabrication and metal treatments for SLAC projects and experiments. The quality of the work performed by the vendor is instrumental to the success of the experiment.

Here is an example of how that product quality can sometimes be questioned.

Scope of the Investigation

DOE recently notified SLAC that Temperform USA, doing business at 14500 Loma Rica, California, is under investigation by the Office of the Inspector General for the Department of Defense. The investigation concerns Temperform USA aluminum heat treating processes and quality inspection from December 1998 to March 2000 on numerous DOE programs. Processes allegedly improperly performed included: heat treatment and aging times and temperatures, use of test coupons, quenching, hardness and electrical conductivity testing. It is also alleged that Temperform USA certified parts failed to meet specifications for hardness and conductivity.

Figures of Merit

Purchasing Department's Findings

SLAC was asked to verify if any of its vendors had used Temperform USA in their purchase orders with SLAC. As a result of its investigation, Purchasing identified ten vendors who had used Temperform USA, as a subcontractor. However, none of these vendors used Temperform USA, during the time frame being investigated. These ten vendors have been directed to inform SLAC in advance of any purchase order placement if they want to use Temperform USA as a subcontractor to heat treat aluminum parts.

What you need to know

If while working with a vendor you realize that the vendor is planning to use Temperform USA as a subcontractor, please make sure that the SLAC Purchasing Department is notified.

Contact:

Bob Fedano, Purchasing Officer, Ext. 2425, rocker@slac.stanford.edu

Mike Grisom, ESH Assistant to the Director, Ext. 2346, mrgisom@slac.stanford.edu

Women's Interchange at SLAC presents:

Take A Mini-Vacation Through Your Imagination: Reducing Stress Through Guided Imagery

Mary Horngren, OHT, MH
Certified Medical Hypnotherapist
Tuesday, Sept. 23
12:00 noon
Panofsky Auditorium

Everyone is welcome—bring your lunch & bring a friend!

Upcoming Events

Mon, Sept. 22, 8:00 a.m. - 2:30 p.m.
SLAC Panofsky Auditorium
SLAC SPECIAL SEMINAR
Doug Knott, SLAC
Integrated Management Expo

Tues, Sept. 23, Noon
SLAC Panofsky Auditorium
SLAC WIS SEMINAR
Mary Horngren
Take a Mini-Vacation Through Your Imagination: Reducing Stress Through Guided Imagery

Wed, Sept. 24, 8:00 a.m. - 3:00 p.m.
SLAC Panofsky Auditorium
SLAC-STANFORD BLOOD DRIVE
Linda Ahlf, SLAC
Call 243-4 for appointment
Drop-ins Welcome!
http://www-group.slac.stanford.edu/ber/Blooddrive.html

Wed, Oct. 1, 4:15 p.m.
SLAC, Orange Room
(1st Receptions 4:30)
SLAC ASTROPHYSICS SEMINAR
Doron Chelouche, Tel-Aviv U
"Quasar Winds and Ghosts"

Mon, Oct. 6, 4:15 p.m.
SLAC Panofsky Auditorium
(Budget Meetings - 4:30)
SLAC DEPARTMENTAL COLLOQUIUM
Chris Quigg, FNAL
Envisioning Particles and Interactions Oct 8-10
SLAC, Panofsky Auditorium
SLAC SSRL MEETING
Ben Bestock/Em McPhillips,
Dartmouth Collge/SSRL,
Annual Users Meeting
http://www-ssrl.slac.stanford.edu/ conferences/SSRL30

Please send additions to:
seminars@slac.stanford.edu
For complete event listings, see:
http://www.slac.stanford.edu/grp/ TIP/seminar.html

MILESTONES

Service Awards
5 Years
Graham, Jimmie, KLY, 9/16
Harms, Michael, ESD, 9/16
Lilly, Deborah, ESD, 9/16
Gatbyright, Teddy R., A50, 9/16
Lee, Quang, OFH, 9/28

15 Years
Labeys, Theresa, ESD, 9/30
Leonard, Wesley, ESRD, 9/26

35 Years
Imelli, Cynthia, ACC, 9/16
To submit a Milestone, see:

See Awards and Honors at:
http://www.slac.stanford.edu/slacaward/

The Interaction Point

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