Robert Grubbs, an organic chemist whose work has led to a wide variety of applications in medicine, technology, and industry, was awarded the 2005 Nobel Prize in Chemistry. The announcement was made this morning by the Royal Swedish Academy of Sciences in Stockholm.

Grubbs and his other two co-recipients were cited specifically for "the development of the metathesis method in organic synthesis." Metathesis is an organic reaction in which chemicals selectively strip out certain atoms in a compound and replace them with atoms from a previously part of another compound. The result is a custom-built molecule that has specific properties that can lead to better drugs, the treatment of cancer, or better electrical conducting properties for specialized plastics, for example.

In particular, Grubbs has worked on olefin metathesis. Prior to Grubbs's work, metathesis was poorly understood and of limited value to scientists. Grubbs developed powerful new catalysts for metathesis that enabled custom synthesis of valuable molecules. This allows scientists to build new polymers with novel properties.

According to the Nobel citation, metathesis has already led to industrial and pharmaceutical methods that are more efficient and less wasteful, simpler, and more environmentally friendly. "This represents a great step forward for 'green science,'" reducing potentially hazardous waste through smarter production," the Royal Swedish Academy explained.

"Metathesis is an example of how important basic science has been applied for the benefit of man, society, and the environment," the citation continued.

Grubbs is currently spending a month at the University of Canterbury in Christchurch, New Zealand, as an Evike Fellow. In an e-mail message, he singled out his students and collaborators and said that he was especially pleased that the Nobel committee had chosen just to recognize the research that had taken place at Caltech.

"I am excited for all the outstanding students and postdoctoral fellows who have contributed to this work over the years," Grubbs wrote.

Grubbs added that he has been swamped with calls since the announcement was made earlier today, and that his son—a physician—has been swamped with calls as well.

"Sometimes when I'm most restless and I'm available in person, I'll be happy to sit down and discuss the work this award represents," he wrote.

Grubbs's award was an especially welcome going-away present for Caltech president David Baltimore, who was recently informed of his pending retirement. Baltimore, himself a Nobel laureate, said he was pleased that the Nobel committee had recognized a Caltech researcher whose work had so directly an impact on biomedicine.

"Bob's work shows that basic chemical research can have important to pharmaceuticals and industry, and it also shows that the sometimes highly esoteric work young people do in lab is a huge contribution to society," said Baltimore. "I congratulate Bob on joining Caltech's growing list of Nobel laureates, and I envy his young students for the elation they're feeling today.

Grubbs is a native of Kentucky who earned his bachelor’s and master’s degrees at the University of Florida. After completing his doctorate in chemistry at Columbia University, he spent a year at Stanford University as a postdoctoral fellow, and then joined the Michigan State University faculty in 1969. He came to Caltech in 1978 with a joint appointment in chemistry and has been the Victor and Elizabeth Wang Professor of Chemistry since 1996.

Grubbs has been a member of the National Academy of Sciences since 1989, and was the 2000 recipient of the Benjamin Franklin Medal. Today’s award brings to 32 the total number of prizes won by Caltech faculty and alumni through the years (Linus Pauling won awards in both chemistry and peace).

Staying the Course: Caltech Keeps on Truckin'
TECHERS CELEBRATE NATIONAL COMING OUT WEEK

We are here! We are your fellow students, faculty, colleagues, alumni, and friends. We are OUT and PROUD! We are just a few of the lesbian, gay, bisexual, and transgender individuals who are an important part of the diverse Caltech community.

Mark Barton
Yacar Ben Assa
Rich Chin
Rich Chomko
Leo d’Esphaux
Rochelle Diamond
Arthur Fitzmaurice
Elizabeth Fong
Bill Glaccum
Kate Hutton
Sid Jaggi
Mike Kocurek
Nir Krakauer
Aron Meltzer
Jim O’Donnell
Gregory Ogin
Craig Peterson
Ray Prado
Zachary Ramadan
Jess Reynolds
Maria Riolo
Kerry Sieh
Julius Su
Daniel Taylor
Vera te Velde
Amy Trangsrud
Diane Trout
Ted Wyder
Ellen Yu
Pillow Talk

By LEE H. COLEMAN

If there's a common bond that all Techers share, it's probably insomnia. Before your sleep gets too far out of sync this term, here are some tips for better sleep, courtesy of the Counseling Center:

- Your mom was right — you really do need between 7 1/2 and 8 hours of sleep each night. Less sleep than that can diminish your concentration and focus, which can ultimately impair your work. Instead of thinking about sleep as time better spent catching up on your work, come to think of sleep as an investment in yourself that will help you do the best work you can.

- Theoretically, it's good to try to go to bed at around the same time each night, but we all know that's just not possible most of the time. What's much more practical is to try to get up at around the same time each morning. (Yes, even on weekends...) Getting your body used to a routine can help you sleep more consistently and more restfully.

- Try not to nap during the day. If you must, try to do it in the early afternoon, and don't nap for more than 45 minutes. Napping for longer than that can interfere with falling asleep later that night.

- Don't read, study, or watch TV in bed. By using your bed only for sleeping, you condition yourself to associate your bed with a restful state instead of being mentally alert.

- Try not to eat anything a few hours before bed, and try to avoid caffeine or alcohol a few hours before bed.

- Finally, even though it seems intuitive to tire yourself out by exercising before bed, this can actually interfere with falling asleep quickly. If you do exercise, schedule it for at least 4-5 hours before getting in bed.

Lee H. Coleman is a clinical psychologist at the Counseling Center, located in the Health Center on Arden Road. If you are having trouble sleeping or want to talk with a counselor about any other concerns, call 395-8331 to set up an appointment. You can also call Jane Curtis, the health educator, at 395-2961.

COMMENTS

Popping Off to the British Museum

By MAYRA SEIKH

Of course there are portraits of the British Monarchs from the Tudors onwards, but there are also portraits of famous scientists like Darwin and Faraday. Less historical are the displays of 20th century actresses and a display of contemporary self-portraits made by British child, teens, and adults.

While on the topic of more contemporary art, the buildings in which the artwork is displayed are an art form themselves. The British Museum has much of the Greco-Roman sculpture in gallery areas that look Greco-Roman; they have Ionic Columns and high vaulted ceilings with patterned or wood molding. Many of the ceilings are skylights to allow natural light into the museum. The friezes are displayed by actually being embedded into the walls. Many of the rooms in the Gallery are painted by theme and have molding appropriate to the pieces on display. Some of the Sections, like the Parthenon Galleries have videos about how the pieces displayed actually fit into their original environment. Not to mention the guided tours in various languages.

For those of you who do not think architecture is a form of modern art, there is the Tate Modern. I have yet to visit so I will refrain from praising/deprecating what I do not know. For those of you that are bored, why are you still reading? And for those who are actually interested in museums, don't forget that they are close to you too. Maybe not so easy to get to, but a trip to the Getty, LACMA, MOCA, Museum of Tolerance, etc. isn't that difficult. I know that when I return, I will definitely try them out. For the time being, I should socialize with the Brits.

Cheers, Mayra

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Men’s Soccer shows improvement against Pomona-Pitzer; Oxy

The Caltech Men’s Soccer team took another step forward this past week with two well-contested matches where the team showed tremendous improvement on offense and displayed the talents of Junior Goalkeeper Jeff Shaw.

First against Occidental, the team scored its third conference goal of the season, courtesy of Senior Forward Andrey Evtimov with an assist to Junior Forward Stuart Ward. Shaw had nine saves in the 4-1 loss.

Later in the week against Pomona-Pitzer, the team fought to a 0-0 tie at halftime, thrilling the home crowd with spectacular saves and thrilling forays into Pomona territory, many of them led by Stuart Ward. A goal by Pomona just three minutes into the second-half gave Pomona the lead, and they were able to add a second goal with less than two minutes left, despite 14 saves by Shaw.

In five starts, Shaw’s accumulated 41 saves for an 8.2 saves per match average. It was the closest margin of victory Pomona-Pitzer has had over Caltech since a 2-0 Pomona win in 2002.

The team plays its next match this Saturday at the University of La Verne. The next home match comes Saturday, October 22nd as the team hosts arch-rival Whittier College in what’s sure to be a highly competitive game. That match begins at 11:00 AM.

Women’s Volleyball wins first game of the season vs. La Sierra

The Caltech Women’s Volleyball team won its first game of the season in Game 2 of their best-of-five match with La Sierra University on Tuesday night. Caltech eventually lost the match, 3-1 (26-27, 25-30, 30-24, 30-19) but they were competitive throughout, hitting a season-best .195.

Junior Rebecca Streit led the team with 17 kills and three service aces. Her .389 hitting percentage was best on the team, and her 14 digs trailed only her sister, Elisabeth.

Senior Middleblocker Colleen Moody had season-highs in kills (13), blocks (five) and points (18).

Junior Elisabeth Streit was right behind her sister with 12 kills and a team-leading 16 digs.

Sophomore Setter Sarah Siddham had a season-high 41 assists.

For the season, Rebecca Streit remains just ahead of her sister in kills and service aces, while Elisabeth holds the edge in digs.

The team plays its next match Friday night at Occidental. Their next home match is Friday, October 28th, also against Occidental. Both matches begin at 7:30 PM.

Cross-Country gears up for La Mirada

Caltech Cross Country will resume its schedule this weekend at the SCIAC La Mirada Multi-Duals. Despite numerous injuries, the team has persevered this season, with Seniors Gustavo Olm and Ekuu Anane-Fenin both showing tremendous leadership qualities.

It will be the final meet of the season before the SCIAC Championships at the end of the month. The meet begins at 4:00 PM Saturday at La Mirada Park.
Little Better

Photo by Karen Wang

Photo by Lisa Tran

Photo by Sandra Marbet

Photo by Karen Wang

Photo by Lisa Tran
Itt 4 tiotJ 4 1 Exu

Do you really need that much food?

You have no concept of student poverty!

I will bet my honor that I can stick to a budget!

The next day: bitter failure.

What am I going to eat today?

*Clink*

C-STORE

closed!

I WILL have dinner!

(food)

Quickly, he loses resolve.

Food poisoning shall not stop me on my quest!

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Zhiyun Guan

SALE!!!!

DVDs Games Music Manga

By ADAM CRAIG

We Like Coquettish Kali-Tech Bread Life

By ADAM CRAIG
Jim Heath wants to catch cancer earlier and provide more effective monitoring of patients’ responses to therapies. The National Cancer Institute likes his plan and just awarded him $18 million over five years to get started. Heath, the Elizabeth Gilloon Professor and professor of chemistry at the California Institute of Technology, will direct the Nanosystems Biology Cancer Center at Caltech (NSBCC). This center will focus on the development and validation of tools for early detection and stratification of cancer through rapid and quantitative measurement of panels of serum and tissue-based biomarkers.

The new center establishes a collaborative team comprising investigators from Caltech, the Institute for Systems Biology (ISB) in Seattle, and UCLA’s Institute for Molecular Medicine and Jonsson Comprehensive Cancer Center. Former Caltech professor and ISB founder Lee Hood is a co-director of the NSBCC, and Michael Phelps, Norton Simon Professor and chair of the UCLA molecular & medical pharmacology department, is also a co-director.

The grant is part of an overall effort by the National Cancer Institute (NCI), which is part of the National Institutes of Health, to establish seven Centers of Cancer Nanotechnology Excellence (CCNEs). The centers were announced today by the NCI as a major component of its $144.3 million, five-year initiative to apply nanotechnology in cancer research. First-year awards totaling $26.3 million will help establish the centers.

The focus of the Caltech center will be to develop and validate tools for the early detection and stratification of cancer through rapid and quantitative measurements of panels of serum and tissue-based biomarkers, and to also use those tools to evaluate the efficacy of various cancer therapies. In addition to general oncology applications, this CCNE will focus on prostate and ovarian cancer, glioblastoma, and melanoma. During the course of the projects that this CCNE will conduct, investigators will develop: Nanotechnology and microfluidics-based chips for profiling various cancers through serum analysis. The goal is to use a fingerprint of blood in a diagnostic window into health and disease by detecting a panel of serum-based proteins that reflect the onset, progression, and therapeutic responses of cancer.

This woman is looking into a microscope, probably at science.

Caltech Receives $18 Million Over 5 Years to Start Nanosystems Biology Cancer Center

By JILL PERRY

Prepared using “click” chemistry approaches, will be developed. It high-throughput nanofabrication methods for constructing the low-cost, diagnostic, chip-based devices.

“The clinical treatment of cancer will undergo profound change over the next 10 to 15 years,” said Heath, “This change will be catalyzed by a systems biology approach toward understanding the disease, and by microfluidics and nanotechnologies that can translate that approach into clinically useful tools. These advances will allow for an early and informative diagnosis of cancer through in vitro diagnostics and in vivo molecular imaging of patients. These new technologies will guide drug discovery and treatment selection on an individualized basis, providing the right drug for the right patient. The goal of the NSBCC is to serve as the agent of that change by developing the core technologies for achieving this vision, and by catalyzing the commercialization of those technologies. The combination of nanotechnologies from Caltech, proteomics, genomics, and computational biology from the Institute for Systems Biology, and the molecular imaging, cancer biology and clinical cancer programs from UCLA Jonsson Comprehensive Cancer Center provide the cross-disciplinary basic and clinical science expertise committed to realizing this vision.”

“We believe that nanotechnology will have a transformative effect on cancer diagnosis and treatment. In fact, its impact is already visible in the research being conducted through many of the centers we are announcing today,” said Andrew von Eschenbach, M.D., director of the National Cancer Institute. “Through the applications of nanotechnology, we will increase the rate of progress towards eliminating the suffering and death due to cancer.”

Nanotechnology, the development and engineering of devices so small that they are measured on a molecular scale, has demonstrated promising results in cancer research and treatment. NCI launched the plan to create the NCI Alliance for Nanotechnology in Cancer in September 2004, as a comprehensive, integrated initiative to develop and translate cancer-related nanotechnology research into clinical practice.

NCI’s Alliance for Nanotechnology in Cancer encompasses four major program components, including the CCNEs. CCNEs are multi-institutional hubs, which will focus on integrating nanotechnology into basic and applied cancer research and providing new solutions for the diagnosis and treatment of cancer.

Each of the CCNE awardees is associated with one or more NCI-designated cancer centers, affiliated with schools of engineering and physical sciences, and partnered with not-for-profit organizations and/or private sector firms, with the specific intent of advancing the technologies being developed.

Similar centers will be established by University of North Carolina, UC San Diego, Emory-Georgia Tech, MIT-Harvard, Northwestern University, and Washington University in St. Louis, Mo.

What was your favorite piece of swag from this year’s career faire? Send in your photos. Write to us and we can boil them down to cold, anonymous statistics and print them as tidy bar graphs and pie charts. If you send in a particularly moving description of your best-loved freebee, we will publish it and pay you $10.

On an unrelated note, I have decided that our newspaper is lacking an element vital to any information publication, statistics. Send in statistics on anything. If we like your statistics, we will print it in the issue that comes out the Monday after we get it. The most interesting statistic, as chosen by a method that mainly reflects the editorial staff’s short attention span and easily amused mentality, will receive some sort of prize, probably whatever we have laying around the office.

Send all entries, questions, anecdotes, etc. to tech@tech.caltech.edu

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