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news & notes

September 22, 1995 Volume 6, Number 2

The Rockefeller University

Leif Carlsson



Signing an agreement to jointly acquire electronic databases are, from left to right, Patricia E. Mackey, librarian at Rockefeller, Robert Braude, of Cornell University Medical Center, Jeanne Becker, of Memorial Sloan-Kettering Cancer Center, and Stephen N. Taylor, of the Hospital for Special Surgery.

Neighbors share databases

Rockefeller's library now provides greater and faster access to six biomedical databases thanks to a new computer collaboration with neighboring institutions.

The venture brings thousands of medical journals to more than 9,000 researchers and health care professionals at RU, Cornell University Medical College, Hospital for Special Surgery, and Memorial Sloan-Kettering Cancer Center. The effort, formalized by the institutions' librarians in a signing ceremony Mon., Aug. 28, is the first electronic data project of the four organizations.

"The collaboration allows for shared access of equipment, software, and databases that greatly enhance the research capabilities of faculty members and clinicians as they pursue and exchange information," said Francis C. Lees, chief information officer and director of Rockefeller's Information and Computing Services, which oversees the daily operations of the collaboration.

Lees began the project last year,

negotiating with the other institutions, organizations, and vendors for the libraries to get licenses jointly.

"Our libraries have shared collections, but not everyone had access to databases, which are expensive," explained Patricia E. Mackey, Rockefeller librarian. "Frank helped us acquire powerful databases at a reduced rate, yielding a gold mine of scientific information at a great

See *Joint*, page 4

Cohn forum speaker to discuss evolution of health care

George Poste, president of research and development at SmithKline Beecham Pharmaceuticals, will speak on "Economics, Informatics, Genetics, Ethics: The New Forces Shaping the Evolution of Health-care" at the first Zanvil A. Cohn Forum on Health Affairs of the academic year Tues., Sept. 26 at 5:30 P.M. in the Abby Aldrich Rockefeller dining room.

"I've known George for many years and found him to be a most thoughtful scientist and a penetrating analyst of issues and trends in health care," said Alexander Bearn, chair of the forum's program committee. "I'm very pleased that he agreed to inaugurate the 1995-96 season of the Cohn forum."

President of research and development at SmithKline Beecham Pharmaceuticals since 1992, Poste serves on the board of directors of SmithKline Beecham Corporation. He has published more than 290 scientific papers and co-edited 15 books, primarily in the fields of cancer research and drug delivery.

RU scientist opens Friday lecture series with talk on versatile proteins

Associate Professor Alan Aderem launches this year's Friday lecture series today (Sept. 22) with a talk entitled "The MARCKS Family of Protein Kinase C Substrates: Versatile Regulators of Cytoskeleton-Membrane Interactions."

Aderem's work focuses on the response of macrophages, the immune system's sentinels, to the attack of foreign invaders. From these studies, he and his colleagues found that a family of enzymes called protein kinase C plays a role in the signal-communication events in macrophages. The MARCKS substrates, found in virtually every cell, integrate messages transmitted by two common cellular signaling pathways and use them to regulate the cell's internal skeleton. The MARCKS proteins also help regulate such diverse processes as embryological development, cell division and movement, and cellular secretion.

"Alan has pioneered the study of the MARCKS family of proteins, a pathway of intracellular communication from the cell surface to the

actin cytoskeleton," said Professor James E. Darnell, Jr., who introduces Aderem today. "The knockout of this protein has produced an anencephalic mouse, which is the latest in a long series of important findings."

Aderem, a native of South Africa, received a Ph.D. from the University of Cape Town in 1979.

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Alan Aderem, associate professor, studies MARCKS substrates.

Courtesy of George Poste



George Poste is an honorary fellow of the Royal College of Physicians, London.

the Pharmaceutical Manufacturers Association.

Poste attended school in England, earning doctorates in veterinary medicine in 1966 and virology in 1969, both from the University of Bristol. In 1987, his alma mater awarded him an honorary degree. The Royal College of Veterinary Surgeons, London, elected him fellow in 1987, an honor he also received from the Royal College of Pathologists, London, in 1989. He was named honorary fellow of the Royal College of Physicians, London, in 1993.

The late Professor Zanvil A. Cohn established the forum in 1992 as a venue for informal discussion of important issues in health research and policy. Among the upcoming speakers this year are: Samuel Silverstein, professor at Columbia University, Oct. 24; Ellen Futter, president of the American Museum of Natural History, Nov. 28; John Adamson,

See *Poste*, page 2

2 An enriching woman

3 Surviving the stationary phase

4 A tale of tot stories

Entering graduate fellows learn about Rockefeller

Rockefeller's 12 new graduate fellows are off to a busy September, meeting faculty and other students, learning about academic procedures, and discovering the campus and the city.

"We are very impressed with each one of these students and pleased that they have decided to pursue graduate study at Rockefeller," said Marguerite Mangin, assistant dean.

Dean of Graduate Studies Norton Zinder added, "The new students come to the campus with exceptional research training that will aid them in taking advantage of our programs. Four have chosen laboratories already."

This week, the entering class attended initial meetings of the First Year Journal Club and First Year Student Orientation Luncheons. New tri-institutional M.D.-Ph.D. students are also invited to participate in these two traditional series.

The students' names, educational backgrounds, and research interests are:

- Ona Bloom, A.B., Barnard College, immunology, cell biology, and cytokines;
- Grégoire Bonnet, M.S., Ecole Normale Supérieure, University Paris VI, and University Lyon I

(France), experimental condensed matter physics;

- László Csanády, M.D., Semmelweis University of Medical Sciences (Hungary), neurosciences;
- Joseph Marcotrigiano, B.A., Rutgers College, cell and developmental biology, gene therapy, structural biology;
- Sebastian Martinek, Diplom, University of Göttingen (Germany), developmental biology;
- Jason Montez, B.S., California State University, Hayward, molecular oncology;
- Radha Rangarajan, B.S., Stanford University, M.S., University of Michigan, developmental biology;
- Roberto Sanchez, Licenciado, Universidad de Concepcion (Chile), protein modeling, protein folding;
- Dennis Sawchuk, B.Sc., University of Western Ontario (Canada), virology;
- G.V. Shivashankar, B.Sc., Bangalore University (India), M.S., Rutgers University, molecular biophysics, experimental physics (joined the Libchaber lab in January 1995);
- Kambiz Shekdar, B.A., Rutgers University, developmental biology;
- Hynek Wichterle, M.S., Charles University (Czech Republic), cell and developmental biology, biomedical sciences.



On a mild September evening on the patio next to the Faculty and Students Club, entering students, faculty, and members of the administration enjoyed a picnic for first year students and senior tutors, hosted annually by the Dean's Office.

Aderem

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Active in the antiapartheid struggle, he was put under house arrest for five years by the South African government. After completing a postdoctoral fellowship at Cape Town's MRC Biomembrane Research Unit, Aderem came to Rockefeller in 1982 as a research associate in the Cohn-Hirsch laboratory. He was promoted to assistant professor in 1985, associate professor in 1990, and was named head of the Laboratory of Signal Transduction in 1991.

Aderem was a Pew scholar in the biomedical sciences (1986-1990), an established inves-

tigator of the American Heart Association (1991-1995), and a Paul Ehrlich scholar (1992). He received a MERIT Award from the National Institute of Allergy and Infectious Diseases this year.

The lecture takes place at 3:45 P.M. in Caspary Auditorium and is preceded by tea at 3:15 P.M. in Abby Aldrich Rockefeller Lounge. All are welcome.

Poste

(continued from page 1)

president of the New York Blood Center, Jan. 31; and Peter Goldmark, Jr., president of The Rockefeller Foundation, Feb. 27.

Sherry at 5:00 P.M. in the Abby Aldrich Rockefeller Lounge precedes the forum. All are welcome.

Profile

Veronica Ifill

Born: Aruba, Netherland Antilles

Full-time: Supervisor, Laboratory Animal Research Center. Eleven years at Rockefeller.

Part-time: Pursuing a B.A. in biology at Hunter College, using the RU tuition benefit.

Spare time: Crocheting a lace doily for her living room table and knitting a blanket for her neighbor.

Household in Baychester: Husband, Steadroy, an auto mechanic; two daughters, Monica, 12, and Siobhan, 8; and an Oscar fish, also 8.

Job innovations: Developing with

co-workers a monkey enrichment program. Invented a Tang popsicle, every morning mixing up the vitamin-rich juice drink with raisins, peanuts, and marshmallow.

"It keeps the monkeys busy and happy a good long while. I love animals. We all do here, which is why we are always making improvements in their care, like playing a rain forest tape for the monkeys. The university is committed to maintaining high standards of care for lab animals."

Charity: Has donated money to assist veterans and the blind. Posted notices on campus this week to publicize a hurricane relief effort for the island of Barbuda, West Indies, organized through the Ebenezer Pilgrim Holiness Church.

"Barbuda is a tiny island, sister island to Antigua, where I grew up. Its beaches have pink sand, really pink. Hurricane Luis hit it the hardest. It's been hard getting relief down there because of the inclement weather we keep having. The ports have all been damaged."



Veronica Ifill, supervisor in the Laboratory Animal Research Center, checks the crickets, who are climbing over cut up egg cartons and enjoying a breakfast of oranges.

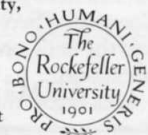
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Eminent biochemist discusses science, scientists, and surviving a stringent stationary phase

Nobel laureate Arthur Kornberg gave the keynote lecture for "Stereospecificity and Molecular Recognition," a four-day conference that ended "The Year of Louis Pasteur International Symposium." The meeting, which began Tues., Sept. 12, was the last of six, held worldwide, honoring the 100th anniversary of Louis Pasteur's death. About 400 people gathered in Caspari Auditorium to hear Kornberg, professor emeritus at the Stanford University School of Medicine, speak on "Coalescence of the Biological Sciences." Below are excerpts from his talk, prepared by News&Notes.

Trained and distinguished as a chemist, Pasteur turned completely to fundamental biologic questions. A century later, we are poised to complete the cycle by reducing discoveries in biology back to their chemical roots. The numerous basic medical sciences are coalescing into a single, unified discipline that is providing us with a more fundamental understanding of nature, one that will inevitably lead to remarkable and unanticipated practical applications. This unified discipline of biologic science has emerged because it is expressed in the language of chemistry.

Transcending the rift between chemists and biologists

Much of life can be understood though chemistry. Yet a century-old rift separates the cultures of chemistry and biology. It might have been expected that this rift would be bridged by genetic chemistry. Paradoxically, they seem to be growing farther apart even as they discover this common ground.

Having thought about this two-culture problem for years, I have come to wonder whether the divisions between chemists and biologists might be driven by differences in their emotional and cultural patterns. Almost all the chemists and biologists I have asked agree that they do belong to separate cultures.

Chemists seem more conservative and analytical. They focus on molecules: an exotic alkaloid, antibiotic, or arcane pigment. They seek the challenge of a molecule with many chiral centers at the limit of synthetic difficulty and vie to obtain it in the fewest steps with the best yield. They obtain precise data with relatively few, elegant techniques. To them, the chemical monotony of proteins and nucleic acids overrides their biological importance.

Biologists on the other hand seem more artistic, eclectic, and right-brain dominated. They focus on complex phenomena in cells and

organisms, using a wider range of techniques with less precision. They welcome mysteries and complexities, and some are disappointed when the veil over a phenomenon lifts to expose molecular details.

In essence, for the chemist, the chemistry of biologic systems is either too mundane or too complex. For the biologist, the intricacies of organic synthesis and the mathematical rigor of physical chemistry are beyond reach and irrelevant.

Of course there have been illustrious exceptions, scientists who bridged both cultures. Pasteur was one, and Linus Pauling, another. Here, at Rockefeller, Oswald Avery, obsessed with the pathogenesis of lobar pneumonia, pursued a phenomenon of pneumococcal strain transformation to the point of discovering that DNA is the molecule of heredity. And at this very symposium we have a remarkable blending of the two cultures, a collection of major chemical advances driven by basic biological questions.

Rejecting science

Of greater concern than this cultural rift is the rising tide of public fear, distrust, and rejection of science, both chemical and biological. Chemistry has had a poor image for some time. "Better things for better living... through chemistry" had been the DuPont slogan for many years, but the words "through chemistry" were dropped when the public became aware that chemicals, as is true of all things, natural or man-made, can be toxic too.

The image of biologists has not been doing well either. Recent Hollywood hits have demonized doctors and scientists—"Lorenzo's Oil," "The Fugitive," and "Jurassic Park." Never mind that well-controlled studies now show Lorenzo's oil is of dubious value, that criminal activity by a major drug company as in "The Fugitive" is exceedingly uncommon, and that we all know the cloning of dinosaurs in "Jurassic Park" to be utter fantasy.

Learning from a neglected polymer

After 40 years working on DNA replication, I recently switched my affections to another polymer. First recognized 50 years ago, inorganic polyphosphate, poly-P, is found in volcanic condensates and deep oceanic stream vents and was surely present on earth in primitive prebiotic times—long before the RNA, DNA, or protein worlds. It also seems likely that poly-P was the energy source for making the diester bonds of nucleic acids and peptide

bonds of proteins in prebiotic evolution.

In 1955, my late wife Sylvy and I found in extracts of *E. coli* an enzyme that makes poly-P reversibly from the terminal phosphate of ATP. When we returned a few years ago to the *E. coli* enzyme that makes poly-P from ATP, the horse and buggy days of enzyme purification had ended. With new techniques, poly-P has been found in every living thing—in all bacteria, fungi, plants, and animals. We find these polymers—up to 1000 residues long—in the nuclei, mitochondria, and storage compartments of brain, liver, heart, and kidney.

What is poly-P doing? Poly-P is proving to be a "molecule for many reasons." Some possible functions: to serve as a source of instant energy and substitute for ATP, to be a reservoir of phosphate, to chelate metals and dispose of destructive oxygen radicals, to control the flow of calcium in cells, to encapsulate the *Neisseriae* germs that cause gonorrhea and meningitis, to be a means for DNA to enter bacterial cells enabling us to make them the factories of genetic engineering, and to provide a microbial means for disposal of phosphate pollutants that choke gulfs and bays worldwide.

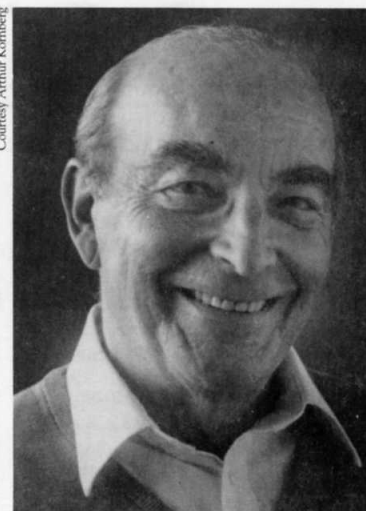
Coping in the stationary phase

Perhaps the most intriguing poly-P functions are revealed by mutants of *E. coli*, in which we knocked out the gene for the enzyme that makes poly-P. The mutants grow normally, but fail to survive the stationary phase, a vital phase of biological existence. For many years, biologists have dwelt on the rapid growth phase, but have neglected the adult stationary phase, which, for microorganisms, is essential for the survival of the species.

The stationary phase of life is truly a complex and dynamic phase. Major adjustments in the physiology and morphology of cells, including newly discovered mechanisms for adaptive mutations, enable it to endure. What we learn from organisms in the stationary phase will, it seems to me, have profound significance for how we as humans cope with mutagenesis, carcinogenesis, aging—and the diminished support of science. In the last decade, with drastic reduction in support for research, we have entered a stationary phase. For the survival of science, so crucial to civilization, we must now adapt to stringencies.

We must not let anyone be deluded into thinking that the severe cuts in federal support now proposed in Washington will be

Courtesy Arthur Kornberg



Arthur Kornberg

replaced by scrounging among private and industrial sources. Over 90 percent of the support for the revolutionary advances in biomedical sciences in the post-WWII period came from the NIH. No industrial organization would have invested, or ever will invest, many millions of dollars annually, for decades, in projects that have no direct relevance to marketable products or devices.

We must make it clear to citizens and legislators that virtually all medical advances in the past century started from curiosity about questions in physics, chemistry, and biology utterly unrelated to uses that ensued. X-rays were discovered by a physicist observing discharges in vacuum tubes, penicillin came from enzyme studies of bacterial lysis, the polio vaccine from learning how to grow cells in culture, genetic engineering and recombinant DNA from reagents developed in exploring DNA biochemistry.

Explaining an oxymoron

But we are urged to do: Strategic basic research! Targeted basic research! How can we make clear the oxymoronic nature of these terms? Making this understood is the major problem.

As scientists, we lack the skills to make our case effectively. What we must do—and I have urged this for many years—is to employ professional media people to effectively convey the important message that basic research is the lifeline of medicine. University presidents and trustees, research foundations, disease organizations, professional societies, and pharmaceutical companies should stop competing with each other and together contribute resources for vigorous lobbying by people skilled in media communications—such as science journalists—whom we as scientists would inform eagerly. If the National Rifle Association can be so effective with its message, why can't we do at least as well with a far better one?

Potpourri

Tri-Institutional Noon Recital
Pianist Nicholas Angelich performs works by Schubert and Rachmaninoff today (Sept. 22) in the opening concert of the Tri-Institutional Noon Recitals' 10th anniversary season at noon in Caspary Auditorium.

Angelich received a gold medal at the 1994 Gina Bachauer International Piano Competition. Admission is free and all are welcome.

Clinical Research Seminar

Assistant Professor James G. Krueger will discuss "Keratinocyte and T-Lymphocyte Contributions to the Pathogenesis of Psoriasis" Wed., Sept. 27 at noon in Nurses Residence 110B.

Architecture lecture

Rem Koolhaas, an internationally known Dutch architect and author of *Delirious New York* (reissued in 1994), will discuss the world of architect Wallace Harrison in "A Celebration of Wallace Harrison" Wed., Sept. 27 at 6:00 P.M. in

Caspary Auditorium. Harrison designed many buildings on campus, including Abby Aldrich Rockefeller Hall, Caspary Auditorium, and President's House. Reservations are required. Call the Office of Public Affairs, x8967.

RU Concert

The Shanghai Quartet performs at the Rockefeller University Concert Thurs., Sept. 28 at 8:00 P.M. in Caspary Auditorium. For ticket availability and information, contact Cathy Rogers, x8437.

Weekly Research Seminars

Dates are still available to invite speakers for the Weekly Research Seminar, which meets Wednesdays at 11:00 A.M. Submit your proposals as soon as possible to Claude Desplan, x7965, fax x8370, box 151, or e-mail desplan.

Recreation Therapy

Anne Marie O'Brien is the new therapist in the Hospital's Recrea-



The Personnel Office invites the campus community to wish Candice Scheiner (right) bon voyage at her retirement party Thurs., Sept. 28 at 3:00 P.M. in the Faculty and Students Club. Replacing her as supervisor of the Employee Health Office is Mary Brust, previously a research nurse in the Laboratory for Investigative Dermatology. Scheiner plans to move to Florida via a restored 1965 Hatteras powerboat, the *Hermes II*. The trip should take three to four weeks.

tion Therapy unit, replacing Eva Sievert.

RU ranking

A report released by the National Research Council ranked RU's doctoral program in cell and developmental biology second and the neurosciences program thirteenth in a study of 3,364 academic programs at 274 institutions. More than 8,000 faculty members participated, rating programs on "the scholarly quality of program faculty" and "effectiveness of program in educating research scholars/scientists."

Alumni honor

Caleb E. Finch, '69, received the Sandoz Premier Award of the International Association of Gerontology. Finch, professor of gerontology and biological science at the University of Southern California (USC), is chairman of USC's Department of the Neurobiology of Aging and directs the Gerontology Division of the USC's Ethel Andrus Gerontology Center.

Retirement annuities

A change in the university's Non-

contributory Retirement Plan allows employees who leave to cash out a maximum of 50 percent of their retirement accumulation. The Personnel Office recommends that employees consult a legal or tax adviser when they consider the cash-out option. For further information on this provision or other aspects of the retirement plan, contact Ginny Hansen, Kristin Gross, or Virginia Huffman, x8300.

Computing workshops

Computing Services workshops resume Tues., Oct. 3. To register, call x7768.

Introduction to the Macintosh: Tues., Oct. 3, 10:00 A.M. to noon;
Introduction to Windows: Thurs., Oct. 5, 10:00 A.M. to noon;
Word for the Macintosh, Part I: Tues., Oct. 10, 10:00 A.M. to noon;
Word for Windows, Part I: Thurs., Oct. 12, 10:00 A.M. to noon;
Word for the Macintosh, Part II: Tues., Oct. 17, 10:00 A.M. to noon;
Word for Windows, Part II: Thurs., Oct. 19, 10:00 A.M. to noon.



For children in their first month at the Children's School, story time is more than tales and fables. "They are learning to sit in a big group, take turns, respond to direct questions on a specific subject, and build on each other's ideas," said Marjorie Goldsmith, educational director. "We build on their ability to pay attention for extended periods." Children in the Green Room, where the average age is three, listen as Fiona Crossan, assistant teacher, dramatizes *The Wizard, the Fairy, and the Magic Chicken*.

Joint resources increase speed and scope of RU's access to information

(continued from page 1)
economy of scale."

Under the agreement, all four libraries will get MEDLINE and five of the seven editions of *Current Contents*. MEDLINE, which first arrived at RU in 1994, is the National Library of Medicine's database of references and abstracts from 4,000 medical, dental, and nursing journals. The *Current Contents* editions, produced by the Institute for Scientific Information, contain 5,500 biomedical and scientific research publications. Ovid Technologies, Inc., supplies the

databases and customized search software.

The collaboration also allows quick Internet connections. Users can send and receive information at 10 megabits/second (Mbps). (A megabit is 1.05 million bits, about 75 pages of typewritten text.) This speed is nearly 4,400 times faster than the common 2,400 bps modem. The Rockefeller server, shared with the other four institutions, attaches at 45 Mbps to the oldest and largest regional data communications network in the United States, the New York State

Education and Research Network, which RU helped to create.

"With our old speed, a user could feel a delay during heavy use," Lees said. "Our new speed—a sevenfold increase—allows faster access to more information at no additional cost to the RU users."

Lees is excited about the new capabilities. Beginning in 1993, he oversaw the building of Ethernet connections to the campus backbone—and from there to the Internet—from half of the 60 "hard-wired" connections in early 1993 to about 80 percent of the

more than 1,000 connections completed as of July.

When MEDLINE access first arrived, 100 RU scientists opened accounts and logins totaled about 400 times a week. In less than two years the tally has doubled to 200 accounts with more than 700 weekly logins. With each account representing as many as five to ten people, "RU's usage is gigantic," Lees reported, "and the access is unlimited. Now we can look forward to a similar explosion of use with *Current Contents* and soon the *Oxford English Dictionary*."