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NEWS AND NOTES 2000, VOL.11, NO.4

The Rockefeller University

OCTOBER 20, 2000 VOLUME 11, NUMBER 4

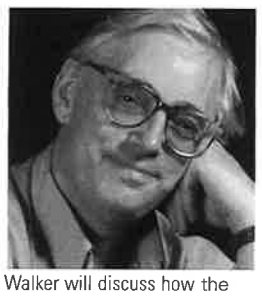
CELEBRATING 100 YEARS · 1901-2001 · THE ROCKEFELLER UNIVERSITY · PRO BONO HUMANI GENERIS

news & notes

THE NEWSLETTER OF THE ROCKEFELLER UNIVERSITY

FRIDAY LECTURE

Nobel laureate John Walker to present Weisbach Centennial Lecture today



Walker will discuss how the structure of enzymes determines the way they work.

John Walker, director of the Medical Research Council's Dunn Human Nutrition Unit at Cambridge University, will present the Jerry A. Weisbach Centennial lecture today (Oct. 20). Walker's work focuses on the physical structure of enzymes and how that structure determines the way enzymes work. In particular, Walker is interested in the enzymes that control energy metabolism. He shared the 1997 Nobel Prize in Chemistry with Paul Boyer for their elucidation of the enzymatic mechanism underlying the synthesis of adenosine triphosphate (ATP).

His early research in the mid-1970s analyzed the sequences of the proteins from the bacteriophage G4 and from mitochondria. This led to the discovery of triple overlapping genes in G4 (with D. Shaw and B.G. Barrell) and to the discovery that subunits I and II of cytochrome c oxidase were encoded in the DNA in mitochondria. He also helped to uncover the modified genetic code in mitochondria.

During the work on mitochondria, he developed an interest in the enzyme complexes in the inner membrane of the organelle that carry out oxidative phosphorylation, and in 1978 he began a structural study of the ATP synthase from bovine heart mitochondria. This work eventually resulted in a complete sequence analysis of the complex and in an atomic resolution structure of the F1 catalytic domain of the enzyme.

Walker received a bachelor's degree in chemistry in 1964. Then he began research on peptide antibiotics with E.P. Abraham in the Sir William Dunn School of Pathology, Oxford, and was awarded the D.Phil. degree in 1969. This was followed by a period of five years working abroad: from 1969 to 1971 at the School of Pharmacy at the University of Wisconsin, and from 1971 to 1974 in Paris. In 1974, he moved to the Protein and Nucleic Acid Chemistry Division of the Laboratory of Molecular Biology in Cambridge,

continued on page 2

Developmental neuroscientist is a new head of lab

Bingwei Lu, a developmental neuroscientist, will join Rockefeller as an assistant professor and head of lab. His research will focus on cell division of neural stem cells.

Lu is currently a postdoctoral fellow in Yuh-Nung Jan's laboratory at the University of California at San Francisco. He received his undergraduate and master's degrees from Fudan University in Shanghai, China, and earned his Ph.D. in genetics and development at Cornell University.

He has received several awards for his studies, including a National Research Service Award from the National Institutes of Health, and held a Howard Hughes Medical Institute postdoctoral fellowship at UCSF.

Lu says that while his laboratory will conduct basic research, he hopes his work can be used to help cure human diseases. He was interested in coming to Rockefeller, he says, because of the "first class scientists" and because of the unique structure of the university, which gives researchers independence to pursue their research.

Bingwei Lu, a developmental neuroscientist, will join Rockefeller as an assistant professor and head of lab.

Cohen to discuss "reverse genomics" next week

Geneticist Stanley N. Cohen, of Stanford University, will discuss "Manipulative Reporter Genes" at the Joshua Lederberg Distinguished Lecture on Fri., Oct. 27.

Scientists can identify genes that carry out specific tasks in bacteria by mutating genes randomly in cell populations, selecting for individuals whose biological properties are altered by the mutation, and then identifying genes that are mutated in those individuals. However, similar procedures aimed at discovering genes having specific functions have not been practical in mammalian cells, which contain two separate copies of each gene. Inactivation of one copy ordinarily will not produce detectable biological effects because the other copy will continue to function.

Cohen will discuss "reverse genomics," a genetic approach that has proved useful in discovering and characterizing mammalian genes that regulate cell proliferation and suppress tumorigenesis. In reverse genomics, scientists use "reporter genes," whose expression is controlled by DNA sequences linked to them, to investigate genetic regulatory mechanisms in both simple and higher organisms. Researchers can now directly isolate genes that specify functions of particular interest using reporter-gene-containing cassettes that can manipulate, as well as monitor, the expression of genes in mammalian chromosomes.

In November 1973, a paper published in the *Proceedings of the National Academy of Sciences* by Cohen and Herbert W. Boyer of the University of California revolutionized the disciplines of biology, chemistry and biotechnology. The paper described a methodology for propagating DNA, the hereditary material of all living cells, in foreign hosts. The invention of recombinant DNA methodology or "genetic engineering" by Cohen and Boyer created what has been called "the new genetics." With this invention, Cohen and Boyer showed how any DNA could be inserted into, and reproduced by, the genetic machinery of bacterial cells.

In subsequent experiments, Cohen showed that animal cell genes introduced into bacteria could function biologically in their new environment; thus, bacteria carrying human genetic information could now be engineered to churn out large quantities of human chemicals. For the first time, diseases could be treated with drugs nature expressly intended for the purpose.

The author of more than 270 scientific publications, Cohen has received numerous awards, including the National Medal of Science, the National Medal of Technology and the Albert Lasker Award for Basic Medical Research. He is a member of the U.S. National Academy of Sciences and a past chairman of its Genetics Section.

Cohen will discuss a genetic approach useful in discovering and characterizing mammalian genes.

The lecture is named in honor of Rockefeller President Emeritus Joshua Lederberg, a Nobel laureate in medicine.

An alumnus is new V.P. of facilities, research support

William Beers, the university's new vice president for facilities and research support, says people keep asking if he is able to find his way around campus yet. He actually knows the campus very well. Beers received his Ph.D. from Rockefeller in 1971 and was an assistant and associate professor of cell biology here in the 1970s. "It feels very comfortable being back," he says. "Rockefeller is such an interesting place that it really becomes part of you."

Beers's new role at the university is multifaceted. He will be overseeing new construction and remodeling projects, taking care of space needs and overseeing core facilities and the physical operation of the university. "It will keep me busy," he laughs.

Beers comes to Rockefeller from The Scripps Research Institute, where he was the senior vice president and chief operating officer. He was responsible for day-to-day operations of the institute and for overseeing scientific departments and services, including the enhancement or establishment of core facilities. He also developed a strategic plan for the institute, which involved such issues as research direction, finances, personnel, public relations, resource management and future expansion.

At Scripps, Beers made the decision to concentrate full-time on administrative work. He had previously combined it with research while serving as chairman and director of undergraduate studies at New York University's Department of Biology. "The administrative work had great appeal for me, and I felt that being a research scientist was a full-time job," he says, so he chose to give up having a laboratory. His research background, however, is valuable in his administrative role because it helps scientists feel comfortable working with him. "When researchers tell me they have a need, I can evaluate it from their perspective. I'm not just looking at the bottom line."

Indeed, Beers considers science the "bottom line" for evaluating administration. "In my view, if you're supporting research, you're doing your job," he says. "Because of Rockefeller University's clear mission–great biomedical research–this has historically been one of the best places in the world to do science. My goal is to ensure that Rockefeller scientists are limited only by what they are able to imagine, never by a lack of services or facilities. I want the scientists here to be able to work as efficiently and productively as their intellect will allow."

William H. Beers '71 returns to Rockefeller to oversee facilities and research support.

AROUND CAMPUS

CENTENNIAL SYMPOSIUM

Chemists in Their Element at The Rockefeller University

FRIDAY, OCTOBER 20

9:30 A.M. COFFEE

10:00 AM. OPENING REMARKS, CASPARY AUDITORIUM

PRESIDENT ARNOLD LEVINE AND DARYLE H. BUSCH, President of the American Chemical Society

10:10 AM. CONGRATULATORY REMARKS
David N. Rahni, Chair, New York Section, American Chemical Society

10:15 AM. BRUCE MERRIFIELD
Protein Chemistry at The Rockefeller University

10:35 AM. DAVID MAUZERALL
Physical Chemistry at The Rockefeller University

10:55 AM. THOMAS SAKMAR
Nucleic Acid Chemistry at The Rockefeller University

11:15 AM. GÜNTER BLOBEL
Interfaces between Chemistry and Biology at The Rockefeller University

12:00-12:30 PM. DEDICATION OF THE ROCKEFELLER UNIVERSITY AS A NATIONAL HISTORIC CHEMICAL LANDMARK, FLEXNER HALL STEPS
Sponsored by the American Chemical Society

12:30 P.M. - 3 P.M.
An exhibit of Lyman Craig's countercurrent distribution apparatus, the only effective procedure for the purification of complex mixtures before the development of modern-day chromatographic techniques, will be on display in room 616 of Flexner Hall. Two films about Lyman Craig will also be available for viewing.

3:45 TO 5:00 P.M.
JERRY A. WEISBACH CENTENNIAL LECTURE, CASPARY AUDITORIUM

JOHN WALKER
University of Cambridge
The Rotary Mechanism of ATP Synthase
Sponsored by the Pels Family Center for Biochemistry and Structural Biology

Because of this event, the Abby Aldrich Rockefeller Dining Room will be closed on Fri., Oct. 20.

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Ideas and submissions can be sent interoffice (Box 68), by electronic mail (newsno) or by fax (212.327.7876).

Centennial corner

Chemists in their Element

Today (Oct. 20), the American Chemical Society dedicates the campus as a National Historic Chemical Landmark. During the first 100 years at Rockefeller, five Nobel laureates in chemistry did their Prize-winning work on campus. A public lecture about the university's achievements in protein and nucleic acid chemistry will be held here in the morning, all part of an effort to make the public more aware of the contributions of the university to the field of chemistry. For a schedule of today's events, please see the sidebar at left.

All that Jazz

To contribute to the Centennial celebration, the university has asked each performer from the 2000-2001 Peggy Rockefeller concert series to select one or more works composed in New York City during the last 100 years. These works bring to life the musical achievements that were taking place in this great city at the same time as the scientific advances pioneered here at Rockefeller.

On Tues., Oct. 24, jazz returns to the Peggy Rockefeller Concerts when the Cyrus Chesnut Trio, featuring jazz pianist Cyrus Chestnut, performs in Caspary Auditorium. A review in the *L.A. Weekly* remarked that "Nut has a way at the keyboard that wraps you up and brings you in, like being caught in some big, affectionate hug."

Cyrus Chestnut was born in Baltimore in 1963 and started playing piano at Calvary Star Baptist Church at the age of 4 and the organ at the age of 7. Chestnut received further musical training from the Peabody Conservatory in Baltimore and the Berklee School of Music in Boston.

He began his musical career in 1988 playing for the legendary vocalist Jon Hendricks and went on to perform with many celebrated artists, including trumpeters Wynton Marsalis and Terence Blanchard, drummer Carl Allen and saxophonist Donald Harrison. In 1991, he began two years as the pianist in Betty Carter's trio. In 1994, Chestnut launched his career as a leader with the release of his debut album.

In addition to his recording success, Cyrus Chestnut has toured extensively throughout the United States and internationally as pianist for the Lincoln Center Jazz Orchestra with Wynton Marsalis; with vocalists Betty Carter and Jon Hendricks; and as leader of his own trio.

Chestnut will be the first to admit he doesn't think in terms of future direction. It's his growth that dictates what he'll be doing next. "I play what I live, and what I learn," he declares. "Therefore, just as I can't say what kinds of experiences I'm going to have, I can't foretell the directions in which my music will go. There's one thing I am sure of, however. When I make my next record, I hope to be facing the same challenge I am now. How to make my next performance different from the last is the one thing I always want to be thinking about."

The Cyrus Chestnut Trio, featuring jazz pianist Cyrus Chestnut (above), will perform at the next Peggy Rockefeller Concert on Tues., Oct. 24.

Friday continued

where he became a member of the scientific staff. He became senior scientist in 1982, received a special appointment (professorial grade) in 1987 and was named director of the Medical Research Council's Dunn Human Nutrition Unit in 1998. He was elected a fellow of the Royal Society in 1995. He was awarded the Johnson Foundation Prize by the University of Pennsylvania in 1994 and the CIBA Medal and Prize of the Biochemistry Society in 1996. In 1997, he was elected a Fellow of Sydney Sussex College, Cambridge, and became an Honorary Fellow of St. Catherine's College, Oxford. He received a Knighthood in 1999 and was named an honorary member of the British Physical Society in 2000.

The lecture is named in honor of Jerry A. Weisbach, an expert in pharmaceutical research and scientific and intellectual property. From 1979 to 1987, he was president of the Parke Davis Research Division of the Warner Lambert Company in Ann Arbor, Michigan, where he was responsible for all pharmaceutical research and development efforts of the corporation. All three of the internally developed drugs responsible for Warner Lambert's current financial success, Lipitor, Neurontin and Accupril, were discovered under his direction.

After retiring as a corporate vice president from Warner Lambert in 1987, Weisbach served as Deroy Visiting Professor in the Honors Program at the University of Michigan before beginning a new career in 1988 at The Rockefeller University as director of technology transfer. In addition, he established multiple relationships in the fields of chemistry, biotechnology and medicine as a company director, advisory board member and consultant.

When his formal staff position at Rockefeller ended in 1994, he maintained a consulting relationship with the university and served as an adjunct professor. He also maintains numerous affiliations with companies in many commercial areas.

The 2000 lecture is the second in the Jerry A. Weisbach Lecture Series sponsored by the Pels Family Center for Biochemistry and Structural Biology. The first speaker was Wayne Hendrickson of the Howard Hughes Medical Institute at Columbia University.

Benefit news from Human Resources

Benefits Fair

Human resources will host the benefits fair on Wed., Nov. 1, from 11 a.m. to 2:30 p.m. in the Weiss lobby. This is the perfect time to find out what your health insurance plan has to offer. At the same time, find out what the other plans can do for you. Come and meet the representatives from 21st Century Health & Benefits, Inc., Oxford Health Plans and Aetna U.S. Healthcare. TIAA-CREF will also be available to discuss retirement annuities and long-term care insurance.

Open Enrollment

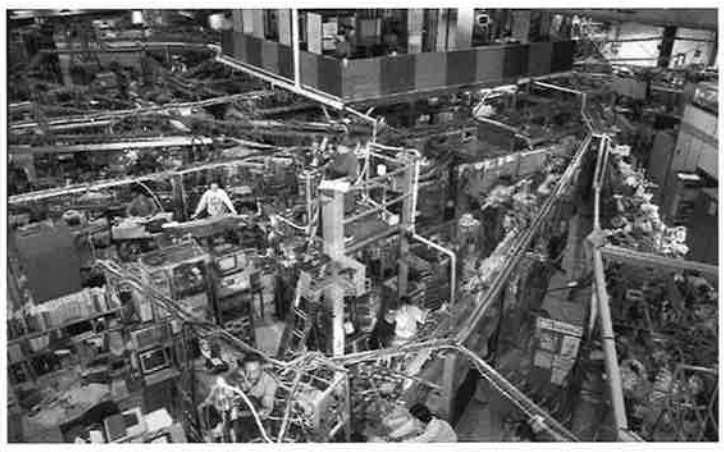
It's that time again. Open enrollment will be from Wed., Nov. 1, to Thurs., Nov. 30. You may join or make changes to your health insurance, as well as to your Voluntary Accidental Death or Dismemberment Insurance. This is the only time to sign up for the 2001 Flexible Spending Accounts (FSA) and the 2001 Transportation Reimbursement Incentive Program (TRIP). Previous elections will not rollover into 2001. You must re-enroll every year. All enrollments and changes will be effective Jan. 1, 2001.

If you have questions about the benefits fair or open enrollment, please call Human Resources, x8300.

For Seth Darst's lab, function follows form

By Michele D. Blum

"If you have a machine and you know what it looks like" says Jack Fishman Professor Seth Darst, "you can start to make assumptions about how it works." Darst and his colleagues use a technique called X-ray crystallography to determine the key structural features of the bacterial RNA polymerase.



Protein crystallographers at Rockefeller University have joined forces with researchers at other institutions to develop a shared beam line at the National Synchrotron Light Source at Brookhaven National Laboratory (above). Image courtesy of Brookhaven National Laboratory.

Jack Fishman Professor Seth Darst use a technique called X-ray crystallography to determine the key structural features of the bacterial RNA polymerase.

RNA polymerase is the central enzyme of transcription, a fundamental process all cells use to decode the genetic information found in the DNA of their chromosomes so that their cellular machinery can use the information to create proteins. At specific locations, the enzyme RNA polymerase binds with the DNA double helix, unwinds it and "reads" the genetic code, gliding along one of the DNA strands. As it glides, the RNA polymerase synthesizes a new strand of nucleotides that are coded in the DNA strands. This newly synthesized strand is known as the RNA transcript.

"The RNA polymerase from bacteria is very similar to the RNA polymerase of all other organisms," Darst says, "but simpler, so it's easier to study. What we find out from studying it will apply to the more complicated systems."

In 1999, Darst and his colleagues in the Laboratory of Molecular Biophysics made a huge breakthrough in their efforts to understand the mechanism and regulation of transcription. They identified the molecular structure of the key transcription enzyme, RNA polymerase, from the thermophilic (heat-loving) bacterium *Thermus aquaticus*. This enzyme is the orchestrator of transcription, responsible for "reading" the genetic code found in the DNA double helix of chromosomes and then synthesizing new RNA transcripts based on this genetic information. (The cellular machinery then uses the instructions in the transcripts to synthesize new proteins.)

X-ray crystallography

X-ray crystallography, in which X-rays are blasted at a crystal (a lattice array) of the protein of interest, and then the pattern of the scattered or diffracted X-rays as they bounce off the protein crystals is analyzed. This analysis produces a computer model of the protein's three-dimensional structure. The intensity level of the X-rays is significant in the quality of the data produced.

This initial study provided hints about how the trio of RNA polymerase core, DNA double helix and newly synthesized RNA transcript might be interacting. In further research, Darst collaborated with Nataliya Korzheva, Arkady Mustaev, Alex Goldfarb and their colleagues at the Public Health Research Institute, employing a different analytical technique known as cross-link mapping.

Cross-link mapping

Cross-link mapping provides a way to locate specific interactions or chemical bonds that form between DNA or RNA strands and individual sites within the RNA polymerase subunits. The DNA or RNA contains a chemical tag that when zapped with UV radiation creates a chemical bond with protein building blocks nearby. Thus the DNA or RNA become cross-linked to the protein subunits of RNA polymerase at specific locations that can then be determined, or "mapped."

By superimposing these cross-link mapping data over the known X-ray crystal structure of the RNA polymerase core from the previous study, Darst and his colleagues have tracked the path of the DNA and RNA through the RNA polymerase structure as it is engaged in transcription.

An intriguing outcome of the study is that the large RNA polymerase channel is completely occupied with DNA and RNA. The active site of the RNA polymerase enzyme at the back of the channel, where the nucleotides come in one at a time as they are added to the growing end of the RNA chain, appears to be blocked. The new nucleotides have no way of getting into the active site except for a tunnel that branches off from the main channel just at the active site. Darst and his colleagues proposed that the main purpose of this tunnel was to feed nucleotides to the active site during transcription.

> "The RNA polymerase from bacteria is very similar to the RNA polymerase of all other organisms but simpler, so it's easier to study. What we find out from studying it will apply to the more complicated systems."

Darst, Goldfarb, and Rockefeller University Assistant Professor Tom Muir have begun additional studies to confirm this hypothesis. Darst's group and their collaborators have also begun additional studies investigating the interactions between bacterial RNA polymerase and different antibiotics known to inhibit its ability to make transcripts.

Of particular interest are its interactions with the drug rifampicin, one of two extremely powerful antibiotics used in the treatment of tuberculosis. By investigating how the polymerase is specifically inhibited by the drug, Darst and his colleagues hope to discover clues that could be used in the development of future antibiotics targeting RNA polymerase.

While the elucidation of the structure of the RNA polymerase has been extremely important, its real value lies most in its potential for providing a better understanding of the functions of this enzyme. The combination of cross-linking data and X-ray crystal structure analysis has clearly yielded tremendous insights not only into the structure of RNA polymerase but also into the mechanisms it employs in the synthesis of RNA transcripts.

Darst's long term goals for his laboratory are to understand the function and regulation of the RNA polymerase in each stage of transcription. In order to do this, it will be necessary "to have structures of all the complexes in which RNA polymerase is involved at different stages of transcription." Future studies on polymerase-antibiotic interactions may even lead to significant therapeutic gains in the war against multi-drug resistant pathogens.

Support for this research comes from the National Institutes of Health and the March of Dimes.

Beam lines and MAD science

The newest and most powerful method of X-ray crystallography takes advantage of a high-energy particle accelerator known as a synchrotron, which is a giant circular pipe hundreds of yards in diameter that stores orbiting electrons. As the electron beam is steered by each one of the 30 bending magnets that keep the electrons going in a circle, high-energy light radiation is emitted tangentially. The X-ray photons can be focused through evacuated tubes called beam lines that allow X-ray crystallographers to analyze the structures of large protein complexes such as RNA polymerase.

This method can take approximately six hours to one day for a given measurement, whereas older methods might take a week or more to complete the same analysis.

Rockefeller University protein crystallographers (Darst and Professors and HHMI Investigators Stephen K. Burley, Roderick MacKinnon and John Kuriyan) have joined forces with their counterparts at the Albert Einstein College of Medicine and the Sloan-Kettering Institute to develop a shared X-ray beam line at the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory to conduct these experiments.

The new beam line, called X9A, was developed jointly by the three institutions with matching funds from the National Science Foundation. It is equipped with a state-of-the-art double-crystal, sagital-focusing monochromator, a vertical focusing mirror and a CCD (charge coupled device)-based area detector that allows very fast and efficient X-ray diffraction data collection. Crystallographers from the three institutions will use the so-called MAD (multiple wavelength anomalous dispersion) method to determine the three-dimensional structures of proteins, nucleic acids and macromolecular complexes.

After experimenters complete the current commissioning phase, 25 percent of the X-ray beam time will be made available to the general user community on a peer-reviewed basis as required by the NSLS. Operations at X9A are being overseen by Rockefeller University Research Associate K.R. Rajashankar, who is a Burroughs Wellcome Fund Interfaces Grant Synchrotron Fellow in the Pels Family Center for Biochemistry and Structural Biology at Rockefeller.

News&Notes
will not be published
next Fri., Oct. 27.
The Calendar of Events
will be published
as usual.

calendar

OCTOBER 20 THROUGH NOVEMBER 5

EVENTS

Friday Lectures and Thesis Presentations

These events are held in Caspary Auditorium at 3:45 p.m. and preceded by tea at 3:15 p.m. in Abby Aldrich Rockefeller Lounge. All are welcome.

FRIDAY, OCTOBER 20

Jerry A. Weisbach Centennial Lecture: The Rotary Mechanisms of ATP Synthase. Sir John Walker, F.R.S., Director, Dunn Human Nutrition Unit, Medical Research Council, Cambridge U. Sponsored by the Pels Family Center for Biochemistry and Structural Biology.

FRIDAY, OCTOBER 27

Joshua Lederberg Distinguished Lecture: Manipulative Reporter Genes and "Reverse Genomics." Stanley Cohen, Professor, Stanford U. Dept. of Genetics.

TUESDAY, OCTOBER 31

Thesis Presentation: Information Encoding by Individual Neurons and Groups of Neurons in the Primary Visual Cortex. Daniel Reich, Biomedical Fellow, RU.

FRIDAY, NOVEMBER 3

Experimental and Computational Approaches Toward Understanding the *Drosophila* Genome. Gerald Rubin, Professor of Genetics and Development, UC Berkeley, and Vice President for Biomedical Research, HHMI.

FRIDAY, OCTOBER 20

9:00 A.M. **Clinical Scholar's Grand Rounds.** Ephraim Sehayek, RU. 110B Nurses Residence. Open to RU/WMCCU/NYPH/MSKCC community and guests.

10:00 A.M. **Chemists in Their Element at The Rockefeller University.** Centennial Symposium and Dedication of The Rockefeller University as a National Historic Chemical Landmark. Centennial Symposium. Caspary Auditorium. Coffee at 9:30 A.M.

10:00 A.M.–2:00 P.M. **Crystallographic Programming.** Dusan Turk, Dept. of Biochemistry and Molecular Biology, Josef Stefan Institute. Demonstration of software for crystallographic programming. 302 Weiss. Contact John Kuriyan, 327-8342. Open to RU/WMCCU/NYPH/MSKCC community and guests.

12:00 P.M. **Regulation of Mitotic Exit in Yeast.** Angelika Amon, Assistant Professor, Center for Cancer Research, MIT. Molecular Biology Seminar. 116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St. Refreshments at 11:45 A.M. Open to RU/WMCCU/NYPH/MSKCC community and guests.

MONDAY, OCTOBER 23

10:00 A.M. **New Approaches in Molecular Diagnostics of Infectious Diseases.** Edgar Setzke, Qiagen Inc. Vendor Demonstration. 110B Nurses Residence. Refreshments will be served. Contact Gregory Khitrov, 327-7064.

11:00 A.M. **Response of Strict Anaerobic Bacteria to Transient Exposure to Oxygen: What Can We Learn from *Desulfovibrio spp?*** Antonio Xavier, Professor of Structural Biology, Universidade Nova de Lisboa, Portugal. Seminar. 301 Weiss. Contact Alexander Tomasz, 327-8277.

12:00 P.M. **Therapeutic Approaches to Interrupting HAART for Chronic HIV Infection.** Mark Dybul, LIR, National Institute for Allergy and Infectious Diseases, NIH. CFAR Seminar. Sixth Floor Conference Room, ADARC, 455 First Ave. Contact Gary Gailor, 448-5163.

4:00 P.M. **Computational Gene Finding in the Human Genome.** Christopher Burge, Dept. of Biology, MIT. Center for Studies in Physics and Biology Seminar. B Level Conference Room, Smith Hall Annex. Tea at 3:30 P.M. Contact Martin Zapotocky, 327-8835

4:30 P.M. **The Paradox of Dopaminergic Modulation in the Striatum: New Insights from Voltage-Clamp and scRT-PCR Studies.** D. James Surmeier, Professor of Physiology, Institute for Neuroscience, Northwestern University. PBMM Research Seminar. Weill Auditorium, WMCCU, 1300 York Ave. Coffee at 4:15 P.M.

5:30 P.M. **The Wonders of Skin: Keeping Up!** American Skin Association. Weiss 17th Floor. The American Skin Association invites you to attend its second public forum. Admission is free. RSVP to the American Skin Association at 753-8260. Wine and cheese reception to follow discussion. Open to RU/WMCCU/NYPH/MSKCC community and guests.

TUESDAY, OCTOBER 24

11:00 A.M. **DNA Replication by the T4 Replisome.** Stephen Benkovic, Evan Pugh Professor and Eberly Chair in Chemistry, Penn. State U. Pels Family Center for Biochemistry and Structural Biology Seminar. 301 Weiss. Contact Bobbie Larraga, 327-7240. Open to RU/WMCCU/NYPH/MSKCC community and guests.

4:00 P.M. **Bisimidazoacridones: Diversity of Biological Activity but Similarity at the Molecular Level.** Christopher J. Michejda, Chief, Molecular Aspects of Drug Design, National Cancer Institute. Bio-Organic Chemistry Seminar. 116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St. Tea at 3:45 P.M.

WEDNESDAY, OCTOBER 25

10:00 A.M. **Role of Experiential Factors in Regulating Neuronal Birth and Survival in Mammals.** Fred Gage, Salk Institute. **The Outlook for Neurogenesis in Adult Primate Brain.** Pasko Rakic, Yale U. Neural Plasticity and Learning Seminar. 305 Weiss. Contact Constance Scharff, 327-8381. Open to RU/WMCCU/NYPH/MSKCC community and guests.

10:30 A.M. **Biostatistics Course.** Knut Wittkowski, Biometrician and Senior Research Associate, RU Hospital. 128 Hospital. Contact Knut Wittkowski, 327-7175. Open to RU/WMCCU/NYPH/MSKCC community and guests.

4:30 P.M. **Biomedical Imaging Using Optical Coherence Tomography.** James Fujimoto, Professor of Electrical Engineering and Computer Science, MIT. MSKCC President's Research Seminar. Auditorium, Rockefeller Research Laboratories, MSKCC, 430 East 67th St. Tea at 4:00 P.M.

7:30 P.M. **Psoriasis Support Group.** Meeting. 110B Nurses Residence. Contact Patricia Gileaudeau, 327-8333.

THURSDAY, OCTOBER 26

12:00 P.M. **The Early Kinetics of Protein Folding and Protein Dynamics.** Robert Callender, Professor, Dept. of Biochemistry, Albert Einstein College of Medicine. Biochemistry Lecture. E-115 WMCCU, 1300 York Ave. Coffee at 11:45 A.M.

3:00 P.M. **Neuroimaging of Cognitive Function.** Leslie Ungerleider, Chief, Laboratory of Brain and Cognition, National Institute of Mental Health, NIH. Systems Neuroscience Seminar. 305 Weiss. Open to RU/WMCCU/NYPH/MSKCC community and guests.

4:00 P.M. **Cell Surface Molecular Assembly and Traffic in Initiation of the Thrombogenic Cascade.** Thomas S. Edgington, Professor, Depts. of Immunology and Vascular Biology, The Scripps Research Institute, La Jolla, Calif. LFKRI Research Seminar. Lower Level Conference Room, New York Blood Center, 310 East 67th St. Tea at 3:45 P.M. Contact Rosanna Martinez, 570-3357.

FRIDAY, OCTOBER 27

12:00 P.M. **Mechanisms in Vesicle Budding: The Clathrin-dependent Reformation of a Synaptic Vesicle after Exocytosis.** Pietro De Camilli, Professor of Cell BIology, Yale U. School of Medicine, and Investigator, HHMI. Cellular Biochemistry and Biophysics Seminar. 116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.

MONDAY, OCTOBER 30

12:00 P.M. **Analysis of Viral Specific T Cells in Human and Rhesus Macaque.** Louis Picker, Oregon Health Sciences U. CFAR Seminar. Sixth Floor Conference Room, ADARC, 455 First Ave. Contact Gary Gailor, 448-5163.

1:30 P.M. **How Lymphocytes Make Decisions.** Steven L. Reiner, Associate Professor of Medicine, U. of Penna. Immunology Seminar. 116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.

4:30 P.M. **Electrostatics and the Geometry of the Voltage Sensor in Shaker Potassium Channels.** Fredrick J. Sigworth, Professor of Cellular and Molecular Physiology, Yale U. School of Medicine. PBMM Research Seminar. Weill Auditorium, WMCCU, 1300 York Ave. Coffee at 4:15 P.M.

TUESDAY, OCTOBER 31

3:00 P.M. **Linkage Disequilibrium Analysis of Quantitative Traits in Pedigree Data.** Goncalo Abecasis, Oxford U. Starr Center for Human Genetics Seminar. 305 Weiss. Contact Emily Huffman, 327-7387.

4:00 P.M. **Biological Ion Channels—A Critical Review of Models and Some Applications.** Serdar Kuyucak, Australian National U., Canberra. B Level Conference Room, Smith Hall Annex. Tea at 3:30 P.M. Contact Martin Zapotocky, 327-8835.

4:00 P.M. **A Role for Oncogene Activation in the Induction of Genetic Instability in Human Cancer Progression.** Geoffrey M. Wahl, Professor, Gene Expression Laboratory, The Salk Institute, La Jolla, Calif. Molecular Pharmacology and Therapeutics Seminar. 116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St. Tea at 3:45 P.M.

5:30 P.M. **Getting to Grips with Amyloid Using Affinity Mass Spectrometry.** Rong Wang, Assistant Professor, RU. **The Structure of the IgE C (ε) 2 Domain and Its Role in Stabilizing the Complex with Its High-affinity Receptor Fc (ε) RI.** David Cowburn, Associate Professor, RU. Pels Family Center for Biochemistry and Structural Biology Seminar. 110B Nurses Residence. Open to RU/WMCCU/NYPH/MSKCC community and guests.

WEDNESDAY, NOVEMBER 1

10:00 A.M. **Destruction and Replacement of Cochlear Hair Cells as a Strategy for Reversible Deafening: Effects on Song.** Sarah Woolley, U. of Wash. **Selective Replacement of Song System Neurons: Effects on Song.** Constance Scharff, RU. Neural Plasticity and Learning Seminar. 305 Weiss. Contact Constance Scharff, 327-8381. Open to RU/WMCCU/NYPH/MSKCC community and guests.

12:00 P.M. **Drug Delivery and Tissue Engineering.** Robert Langer, Germeshausen Professor of Chemical and Biomedical Engineering, MIT. Student-sponsored Seminar. 301 Weiss. Pizza Luncheon at 1:00 P.M. in the Weiss 17th Floor. Open to RU/WMCCU/NYPH/MSKCC community and guests.

12:00 P.M. **HIV Entry as a Target for Antiviral Therapy.** John Moore, Professor of Microbiology and Immunology, WMCCU. Seminars in Clinical Research. 110B Nurses Residence. Contact Dale Miller, 327-8411.

4:30 P.M. **Modeling Cancer in the Mouse.** Tyler Jacks, Professor of Biology, MIT Center for Cancer Research, and Associate Investigator, HHMI. MSKCC President's Research Seminar Series. Auditorium, Rockefeller Research Laboratories, MSKCC, 430 East 67th St. Tea at 4:00 P.M.

THURSDAY, NOVEMBER 2

4:00 P.M. **Membrane-anchored Metalloproteinases as Tissue Invasins.** Stephen J. Weiss, Upjohn Professor of Medicine, Dept. of Internal Medicine, Division of Hematology and Oncology, U. of Mich. Medical Center. LFKRI Research Seminar. Lower Level Conference Room, New York Blood Center, 310 East 67th St. Tea at 3:45 P.M. Contact Rosanna Martinez, 570-3357.

The Arts and Other Events

THURSDAY, OCTOBER 20

8:00 A.M. **African Violet Sale.** Weiss Cafe Lobby.

TUESDAY, OCTOBER 24

8:00 P.M. **Peggy Rockefeller Concerts.** Cyrus Chestnut Trio. Caspary Auditorium. Contact Jennifer Goldschlag, 327-8437.

THURSDAY, OCTOBER 26

8:00 P.M. **Rockefeller University Film Series.** Underground (1995). Directed by Emir Kusturica. Caspary Auditorium. Open to RU/WMCCU/NYPH/MSKCC community and guests.

THURSDAY, NOVEMBER 2

8:00 P.M. **Rockefeller University Film Series.** *Touch of Evil* (1958). Directed by Orson Welles. Caspary Auditorium. Open to RU/WMCCU/NYPH/MSKCC community and guests.

news&notes
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