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News and Notes 2000

The Rockefeller University News and Notes

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4-14-2000

## **NEWS AND NOTES 2000, VOL.10, NO.23**

The Rockefeller University

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## RU alumna to join faculty

President Arnold J. Levine has announced the appointment of Leslie Vosshall, a 1993 Rockefeller University graduate, as an assistant professor and head of laboratory.

"Leslie brings additional strength to our sensory neuroscience program, complementing Jim Hudspeth's work on hearing, Torsten Weisel's and Charles Gilbert's studies of vision and Peter Mombaerts' research on olfaction," says Levine.

Vosshall, a former student of Professor Michael Young, studies the olfactory system in the fruit fly *Drosophila melanogaster*. As a postdoctoral fellow in Richard Axel's laboratory at Columbia University, Vosshall and Axel published an article in the journal *Cell* last year that identified 12 proteins that are candidate olfactory

receptors. (See story, page 3.)

Vosshall received her A.B. in biochemistry from Columbia College, where she was a John Jay Scholar. While working with Young on her doctoral thesis at Rockefeller, she showed that the rhythmic localization of the clock protein Period (PER) in the nucleus is essential for normal circadian rhythm behavior in the fruit fly. She was able to show that PER contains multiple nuclear localization signals, and that the daily rhythmic movement of PER from the cytoplasm to the nucleus is crucial for the function of the clock. She also demonstrated that a second clock gene, called *timeless*, is an essential partner in the daily movements of the PER protein.

see **Vosshall**, page 2



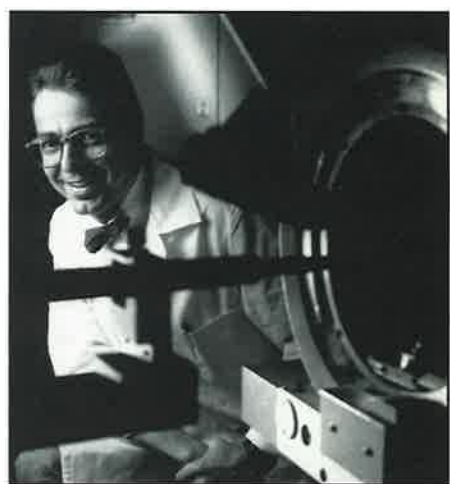
Leslie Vosshall, a 1993 Rockefeller graduate, will join the faculty this fall. Photo by Joseph Bonner.

## Friday lecture: Stephen Burley to inaugurate Furlaud lecture

At the Friday lecture today (April 14), Professor Stephen K. Burley, head of a Laboratory of Molecular Biophysics and an investigator at the Howard Hughes Medical Institute, will present the first Richard M. Furlaud Lecture. Burley, who is the university's Richard M. and Isabel P. Furlaud Professor, will discuss "Structural Biology of Eukaryotic Gene Expression." The lecture series was established by Bristol-Myers Squibb Company in honor of Furlaud, former chairman and CEO of Squibb Corporation and chairman emeritus of The Rockefeller University Board of Trustees.

Burley and his colleagues use X-ray crystallography and other biophysical methods to decipher the three-dimensional structures of biologically important molecules. A major goal of his research is to elucidate the atomic architecture of the cell's genetic machinery—in particular, the many protein components that interact with one another and with DNA to switch genes on and off. He also focuses on protein-nucleic acid assemblies involved in the process of translation.

The structures he has solved, in collaboration with laboratories at Rockefeller and elsewhere, include the TATA box-binding protein, the central protein involved in controlling eukaryotic transcription; Max and upstream stimulatory factor, key transcription factors involved in cancer; hepatocyte nuclear factor-3, which also influences transcription; and the human poly (A) binding protein, a protein-nucleic acid complex that plays a critical role in the initiation of translation. This information is critical to understand-



Professor and Deputy for Academic Affairs Stephen Burley will present today's Friday lecture (April 14). Photo by Robert Reichert. *in his file*

## Computational biologists refine *Drosophila* genome

By Jim Stallard

When Rockefeller Professor Emeritus Norton Zinder brought back a CD-ROM from the *Drosophila* meeting in Pittsburgh recently, Rockefeller researchers couldn't wait to get their hands—and software—on the information it contained.

The full DNA sequence of the fruit fly, decoded and placed on a CD by the Celera Corporation, was finally available for analysis by the powerful and innovative computer programs designed by Rockefeller scientists to extract meaning from the raw data. From there, the researchers can make comparisons between the fly's DNA and the genetic instructions of other organisms, including humans.

On Fri., March 24, Zinder handed off the disc to Terry Gaasterland, assistant professor and head of the Laboratory of Computational Genomics. Gaasterland loaded the data onto the high-powered computer in her laboratory and began re-annotating the fly genome with the software package she developed known as MAGPIE.



Associate Professor Andrej Šali (left) and Assistant Professor Terry Gaasterland are collaborating to refine the *Drosophila* genome. Photos by Robert Reichert.

Gaasterland's painstaking work over the last five years developing biogenomic computer tools such as MAGPIE has led up to moments like this, when large amounts of genomic data can be processed into useful information in a very short time. While decoding the *Drosophila* genome took years, producing a useful re-annotation will take only a few weeks.

"I geared everybody up, and we had our plan in place with everything ready to go," Gaasterland says. "We're using fully automated methods that have been tried-and-true and growing since 1995. This is

a one-month culmination of five years' worth of work."

Gaasterland's lab configured MAGPIE to carry out gene-identification strategies not executed by researchers at the Celera-sponsored "annotation jamboree"—essentially, to look for genes that scientists may have missed due to self-imposed restrictions on what qualifies as a gene. The technique used by Gaasterland, called "overpredicting," produces a higher number of potential genes. Gaasterland found about 23,000 potential genes compared with the 13,601 genes annotated on the CD. Only a fraction of the potential genes, however, will turn out to be authentic.

To determine which genes are real, Gaasterland's lab is getting help from Andrej Šali, associate professor and head of a Laboratory of Molecular Biophysics. Šali's lab uses software programs called Psi-Blast and ModPipe that compare known protein structures with protein sequences predicted from the sequences of candidate genes.

Šali's lab will see which of these extra 10,000 or so genes might code for a protein that has a structure resembling a known protein structure. If the sequence match is close between the putative fly protein and a structurally defined protein, the software will align the sequence of the fly protein with the sequence of the known protein structure and then build and assess a three-dimensional model for the fly sequence using comparative protein structure modeling. This will help Gaasterland establish whether a sequence is actually a gene. If it codes for something that looks even remotely like a protein that already exists, chances are it's a gene.

All told, this collaborative method of re-annotating the *Drosophila* genome will probably result in a gene total that is at least 5 percent higher than the current total of 13,601. "It's a more elaborate annotation of the genome," Šali says. In the end, all these results will be put into a database called ModBase, which will be linked to MAGPIE so that each protein model will be linked to a gene. Other scientists will then have access to this linked database for their own genomic research.

## Science leaders gather to celebrate institute jubilee



RU President Arnold Levine was one of the scientific world leaders present at the jubilee celebration of the Weizmann Institute of Science in Israel last fall. Pictured from left to right are: Maxime Schwartz, director-general of the Institut Pasteur, Paris; David Baltimore, president of the California Institute of Technology; Luciano Maiani, director-general, CERN; Phillip A. Griffiths, director of the Institute for Advanced Study, Princeton; Haim Harari, president of the Weizmann Institute; Maxine F. Singer, president of the Carnegie Institution of Washington, D.C.; Levine; Hans L.R. Wigzell, president of the Karolinska Institute, Stockholm; and Hubert Markl, president of the Max Plank Society, Munich. Photo courtesy of the Weizmann Institute. *dis. 101*

see **Friday lecture**, page 2

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3	Fruit of the fly
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## RU Council Meeting: Looking Back to 1970, Looking Ahead to 2030



On Wed., April 12, The Rockefeller University Council held its Spring Breakfast Meeting, which focused on "Science and Medicine 30/30: Looking Back to 1970, Looking Ahead to 2030." Council Chairman Richard M. Furlaud (far left), joins the program's participants (from left to right): Professors Jan L. Breslow and James Hudspeth, Assistant Professor Theresa Gaasterland and President Arnold J. Levine. Photo by Paul Schneck.

### Friday lecture, from page 1

ing how these molecules function in health and disease and to devising new therapeutic interventions.

Burley earned a bachelor of science degree in physics from the University of Western Ontario, a doctorate in molecular biophysics from the University of Oxford and a medical degree from Harvard Medical School. After a residency in internal medicine at Brigham and Women's Hospital and postdoctoral work in chemistry at

Harvard, he arrived at Rockefeller in 1990 as an assistant professor. Today, Burley is director of the Pels Family Center for Biochemistry and Structural Biology. Since 1999, he has also served as the university's Deputy for Academic Affairs. A former Rhodes Scholar, Burley is a fellow of the Royal Society of Canada and of the New York Academy of Sciences.

The lecture will take place today at 3:45 p.m. in Caspary Auditorium and is preceded by a tea in at 3:15 p.m. in Abby Aldrich Lounge. All are welcome.

## Potpourri

### 1999 FSA deadline

Saturday, April 15, 2000, is the 1999 Flexible Spending Account (FSA) reimbursement request deadline for dependent care and health care expenses. Please submit all 1999 FSA-eligible expenses to 21st Century for reimbursement by this date. Any unclaimed balance after this date will be forfeited. FSA Reimbursement claim forms are located in Human Resources. If you have questions, call x8300.

### Fellowship applications deadline

Applications for several internal Rockefeller University postdoctoral fellowships, to be awarded in the upcoming year, are due in the Development Office no later than Fri., April 21. These fellowships include: the Charles H. Revson and Norman and Rosita Winston Foundation Fellowships, the C. H. Li Memorial Scholar Fund and the King of Thailand Biomedical Fellowship. Contact Kate Rodd, x7430, for further information.

### Substance abuse lecture series

The New York Academy of Medicine (NYAM) will present a two-day lecture series entitled "The Neurobiology of Substance Abuse" on Tues., May 2, and Wed., May 3 at NYAM, 1216 Fifth Ave., at 103rd St. Leading scientists and clinicians will discuss recent advances in the understanding of the neurobiology of substance abuse at the molecular and cellular levels as well as new strategies for the prevention and treatment of substance abuse. One of the featured lecturers is RU Professor Mary Jean Kreek, who will take part in a session about the epidemiology and neurobiology of addiction

treatment. The cost for the series is \$75 (\$65 for NYAM fellows; \$40 for students, residents and postdoctoral fellows). For more information call 822-7204, or visit the Web site at <http://www.nyam.org/meded/regform.html>.

### Run or walk to help fight cancer

This year's Revlon Run/Walk for Women is Sat., May 6. Funds raised by this annual event aid research of cancers affecting women. To join RU's Run/Walk team, call Jennifer Goldschlag, x8073.

### Library news

The library is pleased to announce that through Wed., May 31, both the Oxford English Dictionary and American National Biography are available online to the RU community. To use these reference materials log on to the appropriate Web site: at <http://dictionary.oed.com> (dictionary) or <http://www.anb.org> (biography). Comments regarding either service may be e-mailed to Patricia E. Mackey, university librarian, at [mackey](mailto:mackey), or to Beverly Gordon, reference librarian, at [gordonb](mailto:gordonb).

Other library enhancements include the Ovid interface, which now features Ovid Online, providing more current data than previous releases. Both the Web Gateway and Telnat platforms will continue to be available. The Web Gateway release also has new features such as multifile and deduping searches. To connect to the Ovid database go to <http://lib2.rockefeller.edu>.

## Human Resources to host Take Your Child to Work Day

Human Resources will host the annual Take Your Child to Work Day on Thurs., April 27, from 9 a.m. to 3 p.m. The day will feature a full school day of interactive science-related activities.

If you wish to register your child, please contact Mary O'Donnell, x8300, or e-mail her at [odonnem](mailto:odonnem). Also, Human Resources is looking for parents to volunteer their time during the day to help with activities. If you are able to donate any of your time, please mention it when you register your child.

Children must be between the ages of 7 and 14 and be accompanied by an adult in order to attend. Registration is limited, so please sign up early. The deadline for sign up is Mon., April 17.

## Take Your Child To Work Day

### The following activities have been scheduled:

**9 a.m.: Welcome (17th floor Weiss)**  
Kara Marshak and Mary O'Donnell from Human Resources will welcome parents and children. They will discuss the day's activities and hand out disposable cameras for each child to capture his or her experiences during the day. Breakfast will be provided.

Karen Zaremba, recreational coordinator at the RU Hospital, will lead children in cutting and pasting to create a giant-sized collage.

**10 a.m. to 11:45 a.m.: Laboratories Laboratory of Genetics (684 Rockefeller Research Building)**  
What are genes and how do we know

they exist? In the Laboratory of Genetics, fruit flies are used to demonstrate how genes control everything from eye color to the time we wake up in the morning. **Laboratory of Animal Behavior (134 Smith Hall)**  
Learn about the behavior and biology of songbirds. Studying songbirds teaches us about the ways animals—and humans—communicate.

**12 Noon: Lunch (17th Floor Weiss)**  
Parents join their children for lunch, which will be provided, and catch up on the day.

**1 p.m.: Liberty Science Center hosts Science Circus (17th Floor Weiss)**  
This supercharged interactive show covers the states of matter, energy, air pressure, flight, static electricity and magnetism.

**2 p.m.: Planting and Video (17th Floor Weiss)**  
Horticulturist Lulu Leibel hosts "Plants and How they Grow." This presentation will include an opportunity for children to plant their own bulbs and decorate plant holders. Children will view a segment from the PBS television series *3-2-1 Contact* about nature's food chain.

**3 p.m.: Take Your Child To Work Day ends (17th Floor Weiss)**  
Snacks and juices will be provided as children and parents gather up their belongings.

This program coincides with the school day and is consistent with the policy regarding minors in the workplace. It is expected that parents will arrange for their children to return home immediately following the program. Parents are asked to coordinate their work schedules accordingly.

### Vosshall, from page 1

Vosshall received her Ph.D. from Rockefeller in 1993 and joined Axel's lab the same year. Her lab at Rockefeller will use *Drosophila* as a model organism to ask questions about sensory perception, including how a large number of different odors is perceived by the brain and how this leads to long-term olfactory memories. She joins Assistant Professor Peter Mombaerts, another former Axel lab member, who studies olfaction in the mouse.

"The olfactory receptors of the fly were difficult to find—others had been trying to locate them for the last 15 or so years, but Leslie succeeded by a mix of genomics

and developmental biology," says Young. "Because the fly is so tractable genetically, Leslie's work can address a number of important questions about how the olfactory system develops, how certain cells 'decide' to respond to a given odorant and how some odors elicit programmed behaviors."

Vosshall's appointment represents another step in the university's Academic Plan, which calls for the appointment of five to eight senior professors and 10 to 15 assistant professors. Since the plan's approval by the board of trustees at its June 1999 meeting, virologist Charles Rice and immunologist Alexander Tarakhovskiy have accepted faculty appointments.

## Save the Date: Mon., April 17, 2000

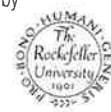
Centennial Lectures on Science and Society,  
sponsored by  
The Zanvil A. Cohn Forum on Health Affairs

Horace Freeland  
Judson will present:

## "Talking about the Genome Project"

At 5:30 p.m. in Caspary Auditorium.  
Reception at 5 p.m. in Abby Aldrich Lounge.  
All are welcome. Admission is free.

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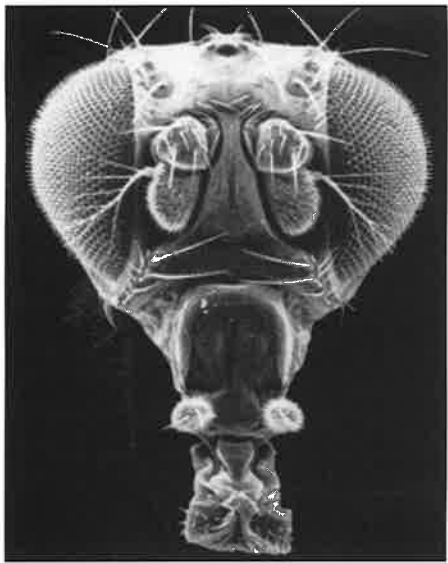


# RU fly researchers abuzz as genome is completed

by Joseph Bonner

Rockefeller researchers who study the fruit fly, *Drosophila melanogaster*, are among scientists worldwide whose work will benefit from the completion of the *Drosophila* genome, announced last February by Celera Corporation and the Berkeley *Drosophila* Genome Project. But not only will the completed sequence enhance the work of scientists like Professor Michael Young, who studies circadian rhythms, or Associate Professor Ulrike Gaul, who focuses on development of the fly's visual system, the information encoded in the approximately 13,000 genes stored on CD-ROM promises to provide insight into the molecular processes that govern life in organisms ranging from rodents to humans.

According to Young, who heads the Laboratory of Genetics, the complete sequence enables him and his colleagues to perform experiments in ways that were not possible just a few months ago (Celera started its massive *Drosophila* sequencing project last summer). In studying the mechanisms behind the biological clock that regulates the fly's behavioral rhythms, Young induces genetic changes in the animal by feeding it chemicals that cause point mutations—disruptions in a single nucleotide of the DNA sequence—and uses a technique called recombination and deficiency mapping to narrow its location to a small area of a chromosome. But pinpointing the location of a gene whose presence is only signaled by a point mutation can be very difficult and often requires cloning large amounts of DNA.



Scanning electron micrograph of the head of an adult fruit fly.

"One of the things that may be less appreciated about having a complete genome sequence is that all these old genetic markers can be put on these new physical maps, which can be followed along at the level of a continuous sequence of DNA," says Young. "So for any given region you have a set of genetic markers that can be used to locate any new gene, even if it is represented by only a subtle mutation like a point mutation."

Using conventional techniques such as recombination mapping, Young says, scientists can learn very precisely where on the DNA sequence map a point mutation may be located.

"This is the kind of a map that gets richer and richer with time," he says, "because every time someone locates a new mutation they can map it to a physical point on the DNA, which then, in turn, adds it as a marker for the recombination map. With a complete DNA sequence, we are no longer out on an



Ulrike Gaul, associate professor, and Mike Young, professor, expect the completed *Drosophila* genome sequence to greatly enhance their research. Photo by Linne Ha.

island with every one of these experiments, not really knowing how far it is to the closest previously mapped, previously characterized gene."

With the *Drosophila* genome completed, Gaul says the time to identify a specific gene knocked out in a particular mutation decreases "just by the sheer fact that we have very efficient ways of mapping mutations on the chromosomes.

"We can pinpoint a particular interval that contains these mutations. Now, with the genome project completed, we can see all the transcripts that are lying in this region, and it helps us tremendously in selecting appropriate candidates of genes that could be disrupted. We also have a quick way of designing additional experiments to identify the proper candidate."

Leslie Vossahl, a former graduate fellow in the Young lab, attended the "annotation jamboree" that Celera held in November 1999 to pinpoint the genes and begin to figure out what they do. Vossahl, who currently works in Richard Axel's lab at Columbia University and will join The Rockefeller University next fall as an assistant professor and head of laboratory, studies the olfactory system in *Drosophila*. Last year she and Axel published a paper in *Cell* describing 12 candidate olfactory receptors in the fly. Her mission at the jamboree was to find out exactly how many there are.

"We were surprised to find only about 60 olfactory receptors in the fruit fly," Vossahl says. In comparison, the mouse and the roundworm, which has also been sequenced, both have about 1,000 olfactory receptors.

Another boon to researchers is the opportunity to look at the whole set of genes to see how genes function in concert with others. "If we want to do an experiment in which we compare gene activity at two different times of day, where we used to monitor them one at a time, we can now evaluate the activity of every gene in the animal simultaneously. Every response, or non-response, can be linked to a gene of known structure and position in the chromosome," Young says.

According to Young, forward genetics, the classical genetics that *Drosophila* is famous for, now becomes a genetics that promises a physical location and a physical association of a gene in the much nearer term. In forward genetics, scientists are often interested in phenotypes, observable physical manifestations or behaviors associated with a gene. To determine the biological mechanisms of a phenotype, scientists induce mutations, look for changes in the phenotype, then work back from the genetics to the

molecular biology. This contrasts with reverse genetics, an approach popular in mammals, in which an implicated nucleic acid sequence or a gene is identified in molecular terms that may have a certain function, and a mutation is induced, in the form of an altered or missing gene, to

*"With a complete DNA sequence, we are no longer out on an island with every one of these experiments, not really knowing how far it is to the closest previously mapped, previously characterized gene."*

analyze the function.

The completed *Drosophila* genome may allow fruit fly researchers to use reverse genetics as well, says Gaul, head of the Laboratory of Developmental Neurogenetics. "There's a question of how many gene families there are of a particular kind. This is very important when you want to do reverse genetics."

At a recent meeting of *Drosophila* researchers, Kent Golic of the University of Utah in Salt Lake City announced a new method for producing gene knock-outs in the fruit fly, which will allow scientists to do reverse genetics in *Drosophila*.

"This is a major technological contribution," says Gaul. "There was always the advantage in mice that you could do targeted gene replacement. Now we can do that in flies, too. In conjunction with the

*Drosophila* Genome Project, we will be able to knock genes out very quickly."

For example, Gaul says, when there are multiple genetic players that perform the same function in *Drosophila*, scientists will be able to easily knock out these genes at the same time, and then look at the phenotype when all the members of a particular family have been removed. With the completion of the genome project, "the fruit fly now has all the technology that you could wish for a model organism to have," she says.

Genetic studies over the years have revealed that certain genes are shared by organisms as diverse as yeast and humans. Now, the *Drosophila* Genome Project shows how close the fruit fly is to humans, which makes the fruit fly a valuable tool for the study of human disease.

"Another thing that became very clear in this analysis that was very striking and was actually surprising to some extent was the degree of similarity between *Drosophila* and higher vertebrates," says Gaul. "As [Berkeley *Drosophila* Genome Project leader] Gerry Rubin said, flies are just little people with wings."

With the completion of the *Drosophila* Genome Project, researchers are beginning to use the fruit fly to study human disease genes and learn more about the pathways in which they function and about the cell biological basis of the defect. At the fly meeting, for example, Gaul recalls some interesting presentations on Huntington's disease and notes that fly researchers have looked at 289 human disease genes and found 185 with clear autologues in *Drosophila*. "The use of the fruit fly as a model for studying the onset of these diseases is becoming more and more prevalent," she says. "It's amazing how many of these disease genes have counterparts in the fly, which makes it a very interesting model for people who are interested in medical applications."

—Additional reporting by Jim Stallard

## RU researchers join tuberculosis task force

The Sequella Global Tuberculosis Foundation has selected John McKinney, RU assistant professor and head of laboratory, and Gilla Kaplan, RU associate professor in the Steinman lab, to participate in the Core Scientist Program. The program is part of Sequella's Tuberculosis Vaccine Collaborative (TBVC) program, an international effort designed to coordinate and facilitate the development of a tuberculosis vaccine. Thirteen scientists from a variety of scientific, engineering and public health disciplines have been chosen to be part of the Core Scientists Program. This group will help guide the Foundation as it supports new and innovative tuberculosis vaccine development.

Kaplan will study the results of a TBVC-sponsored vaccine trial in South Africa to identify tuberculosis immune markers. She will also evaluate new

tuberculosis vaccine candidates on a rabbit model of tuberculosis infection.

McKinney will focus his research on the interaction of the bacterium with the host immune system in order to identify specific processes that could serve as markers for vaccine efficacy.

Once thought to be under control and nearly eradicated in industrialized countries, tuberculosis continues to be a threat in all countries because of increasing drug resistance. The vaccines currently used to prevent this disease have limited effectiveness.

The Sequella Global Tuberculosis Foundation, founded in 1997, is a non-profit organization that provides resources, facilities and expertise to help tuberculosis researchers move their bench research to clinics and the outside world. It is funded by a number of corporate and philanthropic sources including a grant from the Bill and Melinda Gates Foundation.

14 APRIL 30  
APRIL

# calendar of events

<http://www.rockefeller.edu/rucal>

THE ROCKEFELLER UNIVERSITY—Please post

## FRIDAY, APRIL 14

7:30 a.m. **BMP Signaling Pathways in Cartilage and Bone Formation.** Karen Lyons, Assistant Professor, Dept. of Orthopedic Surgery, Dept. of Biological Chemistry, UCLA School of Medicine. HSS Distinguished Lecture. **Second Floor Conference Room, HSS, 535 East 70th St.**

12:00 p.m. **Odor Encoding with Dynamic Neural Assemblies.** Gilles Laurent, Associate Professor, Biology, Computation and Neural Systems, Division of Biology, Caltech. Cellular Biochemistry and Biophysics Program Winter/Spring Research Seminar. **116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.** Open to RU/WMCCU/NYPH/MSKCC community and guests.

12:00 p.m. **Pre-BCR Signaling Creates Distinctive Fetal and Adult Immunoglobulin VH Repertoires.** Richard R. Hardy, Senior Member, Institute for Cancer Research, Fox Chase Cancer Center. Immunology Seminar. **117 Whitney, WMCCU, 1300 York Ave.** Contact Michele Lavarde, 746-6452.

7:00 p.m. **Psoriasis Support Group.** Patricia Gilleaudeau, Research Nurse, RU. Psoriasis Support Group Meeting. **110B Nurses Residence.** Contact Patricia Gilleaudeau, 327-8333.

## MONDAY, APRIL 17

4:30 p.m. **Structural Dynamics of the Acetylcholine Receptor Channel.** Arthur Karlin, Professor of Physiology and Cell Biology, Higgins Professor of Biochemistry and Molecular Biology, Director, Center for Molecular Recognition, Columbia U. PBMM Research Seminar. **Weill Auditorium, WMCCU, 1300 York Ave.** Coffee at 4:15 p.m.

5:30 p.m. **Talking about the Genome Project.** Horace Freeland Judson, Director, Center for History of Recent Science, Research Professor of History, George Washington U. Zanvil A. Cohn Forum on Health Affairs Centennial Lecture. **Caspary Auditorium.** Reception at 5:00 p.m. in the Abby Lounge.

## TUESDAY, APRIL 18

4:00 p.m. **Formation of Synaptic Vesicles in Vivo and in Vitro.** Regis Kelly, Professor and Chair, Biochemistry and Biophysics, UC San Francisco. Progress in Neuroscience Seminar. **Weill Auditorium, WMCCU, 1300 York Ave.** Tea at 3:45 p.m.

7:00 p.m. **The Empowered Cell.** Günter Blobel, Professor, RU; Investigator, HHMI. Revolutionizing Medicine in the 21st Century: Impact of Genetics and Molecular Biology Lecture. **Main Auditorium, American Museum of Natural History, Central Park West at 79th St.** Admission is \$50 for series (\$45 Museum members, students, senior citizens); \$12 for single lecture (\$10 Museum members, students, senior citizens.) To register, call 439-4300 or fax reservation requests to 769-5272. Tickets also can be reserved at [tickets@amnh.org](mailto:tickets@amnh.org). Reserved tickets can be paid for at the door on the night of the lecture.

## WEDNESDAY, APRIL 19

11:00 a.m. **The Mechanochemistry of ATP Synthase, the World's Smallest Rotary Motor.** George Oster, Professor, UC Berkeley. Center for Studies in Physics and Biology Seminar. **B Level Conference Room, Smith Hall Annex.** Contact Martin Zapotocky, 327-8835.

12:00 p.m. **Phagocyte Peroxidases: Molecular Machines for Oxidative Damage in Atherosclerosis and Cancer.** Jay Heinecke, Washington U. Seminars in Clinical Research. **110B Nurses Residence.**

1:00 p.m. **Vocal Motor Control in the Songbird: A Look at Neural Dynamics Underlying Sequence Generation.** Michale Fee, Principal Investigator, Biological Computation Research Department, Bell Laboratories, Lucent Technologies. Lecture. **301 Weiss.** Contact Fernando Nottebohm, 914-677-3059. Open to RU community and guests.

1:10 p.m. **Cocaine Modulation of Neurotransmitters.** Jesus Angulo, Hunter College; Tony Shippenberg, NIDA, NIH; Ellen Unterwald, Temple U. Biological Correlates of Cocaine Abuse Program. **Hunter College, Room 611HW, West Building.** Reception at 12:45 p.m.

3:45 p.m. **FGF Signalling Pathways in Early Mouse Cell Lineages.** Janet Rossant, Joint Head, Program in Development and Fetal Health; Samuel Lunenfeld Research Institute, Mount Sinai Hospital, U; of Toronto. Seminar. **Auditorium, Rockefeller Research Laboratories, MSKCC, 430 East 67th St.** Tea at 3:15 p.m.

4:00 p.m. **A New Method to Derive Low Lying Quantum Wave Functions.** T.D. Lee, Professor, Columbia U. High Energy Physics Seminar. **B Level Conference Room, Smith Hall Annex.**

## THURSDAY, APRIL 20

12:00 p.m. **Cell Biology of Human Trophoblast Differentiation and Implantation/Human Oocyte Maturation.** Christos Coutifaris, Dept. of Obstetrics and Gynecology, U. of Penna. Endocrinology and Reproductive Biology Seminar. **301 Weiss.**

4:00 p.m. **Evolution of Prokaryotes—Generalizations Stemming from Genome Comparison.** Eugene Koonin, National Center for Biotechnology Information. 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.

4:00 p.m. **Structural Basis of Immune Recognition of Foreign Antibodies.** Ian Wilson, Dept. of Molecular Biology, The Scripps Research Institute. Seminar. **New York Blood Center, 310 E. 67th St., Lower Level Conference Room.** Tea at 3:45 p.m.

8:00 p.m. **Leptin and the Regulation of Body Weight.** Jeffrey Friedman, Professor, RU; Investigator, HHMI. Harvey Society Lecture. **Caspary Auditorium.** All are welcome.

## FRIDAY, APRIL 21

12:00 p.m. **Signal Transduction during T Lymphocyte Development.** Daniel R. Littman, Investigator, HHMI; Kimmel Professor of Molecular Immunology, Skirball Institute of Biomolecular Medicine, NYU. Immunology Seminar. **117 Whitney, WMCCU, 1300 York Ave.** Contact Michele Lavarde, 746-6452.

3:45 p.m. **Eukaryotic Gene Transcription: Mechanism and Regulation at Atomic Resolution.** Roger D. Kornberg, Professor of Structural Biology, Stanford U. School of Medicine. Seminar. **Auditorium, Rockefeller Research Laboratories, MSKCC, 430 East 67th St.** Tea at 3:15 p.m.

## MONDAY, APRIL 24

12:00 p.m. **Vaccines and Emerging Viruses.** Gary Nabel, U. of Mich. CFAR Seminar. **Sixth Floor Conference Room, ADARC, 455 First Ave.**

## TUESDAY, APRIL 25

11:00 a.m. **Modeling Gliomas with Somatic Cell Gene Transfer.** Eric Holland, Assistant Neurosurgeon and Assistant Professor, Depts. of Neurosurgery and Molecular Genetics, U. of Texas M.D. Anderson Cancer Center. Neurology and Cell Biology Seminar. **116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.**

3:00 p.m. **The Genetics of Diabetes.** Soumitra Ghosh, Director and Associate Professor, the Max McGee National Research Center for Juvenile Diabetes, Medical College of Wisc., Milwaukee. Starr Center for Human Genetics Seminar. **305 Weiss.** Contact Emily Gegeliya, 327-7387.

4:00 p.m. **On the Sophistication of DNA Binding Proteins: Iron-dependent Repressors and Human Topoisomerase I.** Wim Hol, U. of Washington. Tri-Institutional Structural Biology 1999-2000 Seminar Series of RU, SKI and WMCCU. **Weill Auditorium, 2nd Floor Room C-200 Cornell Med., 1300 York Avenue.** Contact Ronnie Gulli, 327-8836. Coffee will be served at 3:45. Open to RU/WMCCU/NYPH/MSKCC community and guests.

5:30 p.m. **Pels Family Center Seminar.** Pels Family Center Seminar. **110B Nurses Residence.** Contact Andrej Šali, 327-7550. Open to RU/WMCCU/NYPH/MSKCC community and guests.

7:00 p.m. **The Legal and Ethical Issues of Genetic Medicine.** Bartha M. Knoppers, Faculty of Law, U. of Montreal; Nancy Wexler, Columbia U. Michael Waldholz, *Wall Street Journal*. Revolutionizing Medicine in the 21st Century: Impact of Genetics and Molecular Biology Lecture. **Main Auditorium, American Museum of Natural History, Central Park West at 79th St.** Admission is \$50 for series (\$45 Museum members, students, senior citizens); \$12 for single lecture (\$10 Museum members, students, senior citizens.) To register, call 439-4300 or fax reservation requests to 769-5272. Tickets also can be reserved at [tickets@amnh.org](mailto:tickets@amnh.org). Reserved tickets can be paid for at the door on the night of the lecture.

## WEDNESDAY, APRIL 26

12:00 p.m. **Seminars in Clinical Research.** Spyros Kalams, Harvard U. Seminars in Clinical Research. **110B Nurses Residence.**

4:00 p.m. **Evo-Devo and Eco-Devo: Developmental Biology Meets the Real World.** Scott Gilbert, Professor, Swarthmore College. Student-Sponsored Seminar. **301 Weiss.** Followed by pizza and refreshments at 5:00 p.m. in the Weiss 17th northeast dining room. Open to RU/WMCCU/NYPH/MSKCC community and guests.

## FRIDAY, APRIL 28

11:00 a.m. **Molecular Chaperone-like Activity of  $\alpha$ -crystallin.** Ch. Mohan Rao, Deputy Director, Centre for Cellular and Molecular Biology, Hyderabad, India. Seminar. **305 Weiss.**

## THE ROCKEFELLER UNIVERSITY Friday Lectures & Thesis Presentations

These events are held in Caspary Auditorium at 3:45 p.m. Tea is served in Abby Aldrich Rockefeller Lounge at 3:15 p.m. All are welcome.

### FRIDAY, APRIL 14

**First Annual Richard M. Furlaud Lecture: Structural Biology of Eukaryotic Gene Expression.** Stephen Burley, Professor, RU; Investigator, HHMI.

### TUESDAY, APRIL 18

**Thesis Presentation: Regulation of the Gating of a CFTR Channel by its Cytoplasmic Domains.** László Csanády, Graduate Fellow, RU.

### THURSDAY, APRIL 20

**Thesis Presentation: Comparative Protein Structure Modeling of Genes and Genomes.** Roberto Sánchez, Graduate Fellow, RU.

### TUESDAY, APRIL 25

**Thesis Presentation: The Brain Invaders: Widespread Neuronal Dispersion in the Developing and Adult Brain.** Hynek Wichterle, Graduate Fellow, RU.

### THURSDAY, APRIL 27

**Thesis Presentation: Dendritic Cells, Modified by Recombinant Adenovirus-SIV, Elicit SIV-specific Immunity.** Lei Zhong, Graduate Fellow, RU.

### FRIDAY, APRIL 28

**SREBPs: Master Regulators of Metabolism.** Michael S. Brown, Director, Center for Medical Genetics, and Joseph L. Goldstein, Professor and Chairman, Dept. of Genetics, U. of Texas Southwestern Medical Center, Dallas.

## The Arts and Other Events

### FRIDAY, APRIL 14

12:00 p.m. **Tri-Institutional Noon Recitals.** Timothy Fain, violin, and Steven Beck, piano. Performing Beethoven, *Spring Sonata*; W. Bolcom, *Sonata No. 2*; Sarasate, *Introduction and Tarentella*. Celebrating National Library Week. **Caspary Auditorium.** Contact John Gerlach, 327-7776. Open to RU/WMCCU/NYPH/MSKCC community and guests.

### THURSDAY, APRIL 27

8:00 p.m. **Rockefeller University Film Series.** *La Notte* (1960). Directed by Michelangelo Antonioni. **Caspary Auditorium.** Open to RU/WMCCU/NYPH/MSKCC community and guests.

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