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News and Notes 2000

The Rockefeller University News and Notes

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## **NEWS AND NOTES 2000, VOL.12, NO.12**

The Rockefeller University

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# news & notes

THE NEWSLETTER OF THE ROCKEFELLER UNIVERSITY

FRIDAY LECTURE

## Botstein to give two talks on Dec. 18

On Mon., Dec. 18, David Botstein, a geneticist at Stanford University School of Medicine, will give two talks at The Rockefeller University. At noon he will give a scientific lecture entitled "When Good Genes Go Bad: Genomewide Gene Expression in Cancer." Then in the evening, he will present a Centennial Cohn Forum lecture entitled "What Are We Learning From the Genome Project?"

### When Good Cells Go Bad

Scientists classify tumors on the basis of patterns of gene expression—which genes are turned on or off in the cascade of biological processes that results in cancer. For example, different forms of breast cancer or lymphomas differ both in the biology of their tumor cells and in their clinical outcomes. Botstein will discuss the current state of classifying tumors on the basis of gene expression patterns.

Botstein's research has centered on genetics, especially the use of genetic methods to understand biological functions. The bacteriophage P22 was the focus of his earliest research, which included studies of DNA replication, recombination, head assembly and DNA maturation.

Botstein also contributed to the understanding of the regulation and evolution of temperate bacteriophages. In the early 1970s Botstein turned to budding yeast (*Saccharomyces cerevisiae*) and devised novel genetic methods to study the functions of the actin and tubulin cytoskeletons.

Other scientific interests of the Botstein laboratory include protein secretion (both in bacteria and yeast) and the use of localized random mutagenesis technologies to understand

*continued on page 2*

## Leaders of Gates, Rockefeller foundations on campus

On Tues., Dec. 5, leaders from the Bill & Melinda Gates Foundation, The Rockefeller Foundation and other major philanthropies visited campus to take part in a meeting on "Philanthropy in a Global Century." Sponsored by The Rockefeller University Council, the event focused on infectious diseases and other problems that disproportionately affect developing nations, and on how private philanthropy can make a difference.

Speakers on the program included William H. Gates Sr., co-chair and CEO of the foundation that was created by his son and daughter-in-law; Gordon Conway, president of The Rockefeller Foundation; and



Left: Life Trustee David Rockefeller (at left), William H. Gates Sr. (center) and David Rockefeller Jr. took part in The Rockefeller University Council event "Philanthropy in a Global Century." Right: Patty Stonesifer, co-chair and president of the Bill & Melinda Gates Foundation, spoke with Gordon Conway, president of The Rockefeller Foundation.

David Rockefeller, honorary chairman of the Rockefeller University Council, as well as university scientists George A.M. Cross, David D. Ho and John McKinney.

In his opening remarks for the evening's program, Rockefeller University President Arnold J. Levine cited the university's history of combating disease worldwide and noted that

nearly a third of the university's 75 laboratories are working to find better ways to treat and prevent infection.

*continued on page 2*

Development Photos

## David Rockefeller honored with named professorship

### Barry Collier will be first David Rockefeller Professor

David Rockefeller received a surprise "belated birthday gift" at the Rockefeller University Council event last Tues., Dec. 5.

Chairman of the Board Richard Fisher told the assembled guests that the board and many of David Rockefeller's friends thought that the university's Centennial would be the ideal time to celebrate David Rockefeller's more than half-century of service. As they considered how to pay tribute to him, they realized that "although David's father and several other family members are honored by endowed professorial chairs in their names, the university did not have a David Rockefeller Professorship."

Fisher then announced the creation of a new endowed profes-

sorship to mark Rockefeller's 85th birthday earlier this year. "David, this is our belated birthday gift to you," Fisher said, noting that Rockefeller's friends had contributed more than \$5 million to endow the David Rockefeller Professorship.

"David is the personification of the enlightened philanthropist," said Fisher, "because in addition to financial support, he gives generously of his time, talents and energy. The university could not have asked for a stronger advocate throughout half its history."

The chair will be occupied by Barry S. Collier, who will soon join the university as vice president for medical affairs and physician-in-chief of the Hospital. Collier will set the course of

the university's clinical investigations, a key area that is one of David Rockefeller's principal interests.

David Rockefeller has a longstanding commitment to the Hospital, and he recently made an exceptional gift toward the Hospital's revitalization. Upon learning about the new professorship in his honor, he said, "I am touched and thrilled by the announcement that Barry Collier will be the new David Rockefeller Professor."

David Rockefeller joined the board of trustees in 1940, served as its chairman from 1950 to 1975, and chaired the board's executive committee from 1975 to 1995. He is now honorary chairman and a life trustee, as well as honorary chairman of

The Rockefeller University Council.

Fisher's announcement of the new David Rockefeller Professorship came just after he reported on the progress of the Centennial Campaign, aimed at preparing the university for the scientific demands of the new century. At the Nov. 8 Board of Trustees meeting, Fisher reported, the Board adopted a goal of \$350 million.

The university is now two and one-half years into this six-year campaign, and the gifts and pledges to date total more than \$205 million. More than half of this amount represents gifts from the university's trustees.

## University to toast a year of great science

The Rockefeller community is invited to a champagne reception on Tues., Jan 9, to toast the outstanding achievements of university scientists in 2000.

Many Rockefeller scientists received awards and honors for their research this year, including Vincent Astor Professor Paul Greengard, who shared the Nobel Prize in Medicine or Physiology with Rockefeller

University trustee Eric Kandel and Arvid Carlsson.

The reception will take place in the library's Welch Hall Reading Room at 3:30 p.m.

A list of the scientific awards that Rockefeller scientists received since May 1999 will be included in a future issue of *News&Notes*.



On Sun., Dec. 10, Professor Paul Greengard (left) received his Nobel Prize from the King of Sweden. AP photo

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- 3 IN THE LAB
- 4 CALENDAR

## Group Life Insurance Enhancement Deadline

The Group Life Insurance Enhancement deadline is Fri., Dec. 22, 2000. Effective Jan. 1, 2001, there will be an increase in the amount of life insurance offered to eligible active employees. A summary of the individual current life insurance policy, as well as the new options available, was sent to each eligible employee on Nov. 20, 2000.

This is a good opportunity to reassess your life insurance needs and determine how the optional life insurance may help you meet the requirements of those who are financially dependent on you.

All employees must return the Group Life Insurance election form, including a statement of health if required by the selected option, to Human Resources by the deadline. All election forms to increase the optional life benefits received after this deadline must be accompanied by a statement of health regardless of the option selected. This election form will also serve to update beneficiary information. If you need additional information, please call Human Resources, x8300.

## 2000 Flexible Spending Accounts Deadline

The 2000 Flexible Spending Accounts (FSA) Plan year ends Sun., Dec. 31, 2000. Please note that Dec. 31, 2000, is the last day to incur all eligible expenses for the 2000 Healthcare Expense and Dependent Care Expense Accounts. Any unused amounts in the FSA at year-end cannot be applied to expenses incurred after 2000 and will not be returned to you. If you have any questions, please call 21st Century at (800) 443-2111.



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## Centennial corner

### 92nd Street Y lectures

This year several Rockefeller University scientists are taking part in a lecture series co-sponsored by the 92nd Street, entitled "Cracking the Code of Life: Genes, DNA and You." One of the goals of these centennial lectures is to introduce Rockefeller science to a broader audience.

On Tues., Jan 9, Richard M. and Isabel P. Furlaud Professor Stephen Burley, an HHMI inves-

tigator, will discuss "After the Genome: Tailor-made Drugs." On Tues. Feb. 27, Professor Michael Young will discuss "Keeping Time with Biology." On Tues., April 10, F.M. Kirby Professor A. James Hudspeth, an HHMI investigator, will discuss "Senses and Sensitivity." The three lectures take place at 7 p.m. in Caspary Auditorium.

Rockefeller scientists will also participate in a panel discussion

of "The Next 100 Years of Science" at the 92nd Street Y's Kaufmann Auditorium on Thurs., March 22. President Arnold J. Levine and Professor David Ho will join tri-institutional neighbor Harold Varmus, president of Memorial Sloan-Kettering Cancer Center in a discussion.

Call 996-1100 for tickets (use discount code ROC).



Professor Stephen Burley will give a public lecture on "tailor-made" drugs on Tues., Jan. 9

## Foundations continued

David Rockefeller emphasized the importance of cooperation among philanthropists, research institutions and government agencies, drawing on an example from the university's early history, when scientists at The Rockefeller Institute helped to ensure the purity of New York City's milk supply.

"The same sequence of events can be seen over and over again in American history," said Rockefeller. "A philanthropic institution endowed by private American wealth collaborates with the public sector to bring about positive social change. That was at the heart of the Green Revolution initiated by The Rockefeller Foundation in the 1950s."

Conway, an agricultural ecologist who has headed the 87-year-old Rockefeller Foundation since 1998, discussed its current initiatives and

described the complexities that confront foundations working in a worldwide arena.

The much newer Gates Foundation is dedicated to improving global access to innovations in health and learning. Bill Gates Sr. spoke in particular of the Global Alliance for Vaccines and Immunization. GAVI is a collaboration among governments, groups like UNICEF, WHO and the World Bank, the International Federation of Pharmaceutical Manufacturers Association and foundations like the Rockefeller and Gates foundations. Its aim is to raise money internationally for life-saving vaccines, then buy those vaccines and deliver them to children in the 74 poorest countries.

Gates said that "Taking our lead and our inspiration from work already done by The Rockefeller Foundation, our founda-

tion actually started GAVI by pledging \$750 million to something called the Global Fund for Children's Vaccines, an instrument of GAVI."

He also praised the Rockefeller family's century of philanthropy, saying, "It seems like every new corner we turn, the Rockefellers are already there. And in some cases, they have been there for a long, long time."

Following Gates's talk, three Rockefeller University scientists gave progress reports about research on diseases for which truly effective vaccines have not yet been found. Professor George Cross discussed malaria and trypanosomiasis, Professor David Ho, scientific director of the Aaron Diamond AIDS Research Center spoke about efforts to develop vaccines and microbicides against HIV, and Assistant Professor John McKin-

tuberculosis research.

The event concluded with a question and discussion period that brought all of the program speakers together for a panel discussion that included Patty Stonesifer, former senior vice president of Microsoft Corporation who is now co-chair and president of the Gates Foundation.

Last week's program attracted an audience of more than 220 Council members and guests. The Rockefeller University Council is an international advisory group of leaders in philanthropy, business and industry, education, law, finance, and many other fields. Council members help to increase public awareness of the importance of basic research and the excellence of the university's scientific investigations.

## Botstein continued

protein structure/function relationships.

Botstein began his theoretical contributions on linkage mapping of the human genome beginning in 1980 by suggesting, with collaborators, that restriction fragment length polymorphisms (RFLPs) could be used to produce a linkage map of the human genome and to map the genes that cause disease in humans. His current research activities include studies of yeast genetics and cell biology, linkage mapping of human genes predisposing to manic-depressive illness, hypertension and other complex diseases and the development and maintenance (with J. Michael Cherry) of the *Saccharomyces* Genome Database on the World Wide Web (www-genome.stanford.edu).

### What Are We Learning From the Genome Project?

Last June, the international Human Genome Project and Celera Genomics Corporation announced the completion of a "working draft" of the human genome sequence—the genetic code that carries the instructions allowing us to develop, grow and live. Scientists can now begin to understand the secrets of life processes to an extraordinary degree, personalizing medicine and offering clues to the differences—and remarkable similarities—among us. Botstein will discuss what researchers are learning from the human genome sequence. (See last week's *News&Notes* for more details.)

Botstein was educated at Harvard (A.B. 1963) and the Uni-

versity of Michigan (Ph.D. 1967). He joined the faculty of the Massachusetts Institute of Technology, where he rose through the ranks from instructor to professor of genetics. In 1987 he moved to Genentech Inc. as vice president—science, and in 1990 he moved to his present position as Stanford W. Ascherman, M.D., Professor and chairman of the Department of Genetics at Stanford University School of Medicine.

Botstein was elected to the U.S. National Academy of Sciences in 1981 and to the Institute of Medicine in 1993. He has won several awards, notably the Eli Lilly Award in Microbiology (1978), the Genetics Society of America Medal (1988) and the Allen Award of the American Society of Human Genetics (1989). He served on many

policy-making and peer-review committees, most recently the NAS/NRC study on the Human Genome Project (1987-88), the NIH Program Advisory Panel on the Human Genome (1989-90) and the Advisory Council of the National Center for Human Genome Research (1990-1995).

Both of Botstein's talks take place in Caspary Auditorium on Mon., Dec. 18. His talk on genomewide gene expression in cancer will take place at 12 p.m. The Centennial Cohn Forum discussion of the genome project takes place at 5:30 p.m. and is preceded by sherry in the Abby Aldrich Rockefeller Lounge at 5:00 p.m. All are welcome.

## Brain scans confirm hunch about methadone's effect

Those who pursue heroin's fleeting pleasures suffer long-term damage that goes well beyond deteriorating mood and stability. As if the excruciating addictive effects weren't bad enough, heroin also profoundly disrupts essential physiologic systems regulated by the brain—including response to stress and pain, gastrointestinal and immune function and control of reproductive hormones.

Heroin's temporary rush and its physical disruptions have something in common—they both can be traced to specific receptors in the brain, the mu opioid receptors. The appealing sensation sought by heroin users occurs when the drug, a short-acting opiate, binds to these receptors.

Through animal and human studies, researchers have determined that these same receptors normally interact with the body's own opioids to help govern neuroendocrine function. When artificial opioids bind to the receptors, the body's natural opioids are displaced from the site and cannot carry out their usual role.

Because of heroin's short half-life, addicts must re-dose themselves frequently to avoid painful withdrawal symptoms. This constant re-dosing causes great fluctuations as the opiate bombards the receptors and then quickly loses effect. During the short-acting, on-off cycles of heroin addiction, the percentage of occupied mu opioid receptors swings wildly between high and low, and the systems they regulate move in and out of balance.

Heroin addicts had little hope of escaping these agonizing rhythms until the advent of methadone maintenance therapy. The approach was pioneered at Rockefeller in 1964 by Professor Emeritus Vincent Dole, his wife and colleague Marie Nyswander, and Mary Jeanne Kreek, then an assistant resident at New York Hospital. Since then, methadone maintenance has proven to work remarkably well, and Kreek, now a Rockefeller professor and head of the Laboratory of Biology of Addictive Diseases, has remained a leading figure in addiction research.

A synthetic drug developed as a replacement for morphine, methadone, which is a long-acting opioid in humans, relieves the craving for heroin and negates its effects. It does this essentially by taking heroin's place, binding to the same

receptors. Unlike those of heroin, the effects of methadone last 24 hours, so patients need only take it once a day. And perhaps best of all, because it provides a steady state of opioid, methadone does not cause heroin's physiologic disturbances.

But if methadone relieves cravings by binding to the same receptors, why doesn't it cause the same disruptions? Kreek and her colleagues hypothesized that it was because methadone, in addition to having slow onset of action and long-acting effects, mimics heroin's action in the brain without occupying all the mu opioid receptors, leaving enough of them free to perform their roles. This theory has been difficult to prove conclusively, as researchers had no way of directly observing the receptors being bound.

Recently, however, Kreek's laboratory got the chance to see

with a synthetic tracing chemical called cyclofoxy, which binds to opioid receptors and shows up on PET scans.

The PET scans focused on opioid-receptor binding in 13 different brain regions, the first study to do so in young-to-middle-aged patients—the age range of most patients in addiction treatment. (Previous multi-region studies on opioid receptors have been conducted on elderly patients.) The cyclofoxy indicated the various binding densities in the 13 regions.

In both groups, the study showed the highest binding in brain regions that have been of specific interest for addiction and pain research. The area with the most binding was the thalamus, where opioids are known to play an enormous role in the modulation of pain. Other densely bound regions included the amygdala, the insula and the anterior cingulate cortex, which

### “THIS STUDY PROVIDES MORE EVIDENCE THAT METHADONE MAINTENANCE IS A SAFE, EFFECTIVE FORM OF THERAPY OVER THE LONG TERM.”

opioid-receptor binding occur in living brains. Through collaboration with the National Institutes of Health (NIH) and the use of positron emission tomography (PET), the researchers were able to map receptor binding, both in healthy volunteers and in former heroin addicts who were in long-term methadone maintenance.

The researchers conducted PET scans on 28 subjects, mostly from the New York City area, who were recruited through The Rockefeller University Hospital. They included 14 healthy volunteers and 14 former heroin addicts who were long-term stabilized methadone-maintenance patients (MTPs) at the Hospital. The scans were done at an NIH Clinical Center in Bethesda, Md.

The scientists took images of the methadone-maintained patients during 90-minute periods that began 22 hours after their last methadone dose. (The delay between dosage and PET scan ensured that methadone levels—and the amount of opioid binding—would be stable throughout the imaging session.) The patients were injected

are involved in emotion, fear and pleasure, and the caudate and putamen, which are involved in well-known locomotor effects of commonly abused drugs.

“It was very fascinating to us because those included the very areas we thought might be differentially regulated, if any would be, since they are centrally involved in reinforcing and rewarding properties of drugs of abuse,” Kreek says.

Perhaps more important was that the PET scan results from the methadone-maintained group confirmed what Kreek and others had hypothesized: Methadone leaves a significant number of opioid receptors unoccupied, allowing those regions of the brain to carry out normal physiological roles.

Although the MTPs, not surprisingly, showed less binding than the normal volunteers did, the reduction was only 19 to 32 percent, depending on the region. This means that methadone leaves a significant percentage of receptors unbound.



Professor Mary Jeanne Kreek is head of the Laboratory of Biology of Addictive Diseases.

“Through this look at the living brain, we've validated that in methadone-maintained patients there is modest occupancy of the receptors but still a lot of available receptors for normal cognition, normal reproductive function and normal stress responsiveness,” Kreek says. Results of the study were published in the December issue of the *Journal of Pharmacology and Experimental Therapeutics*.

The modest occupancy may be the key to why methadone can have such powerful effects against addiction without causing its own problems. The bulk of evidence shows that methadone can be taken daily over very long periods—sometimes for decades—without apparent harm to the body. For all that scientists have learned about the brain since methadone treatment began, researchers have yet to come up with a more effective treatment for heroin addiction.

“This study provides more evidence that methadone maintenance is a safe, effective form of therapy over the long term,” Kreek says. “It is now our 36th anniversary of this therapy, and some of the patients in the methadone program, initially started at The Rockefeller University Hospital, have been in continuous treatment for the entire period. The studies, dating all the way back to the original trio of researchers, show that the treatment not only worked in the 1960s, it works in 2000, and we expect it to keep working in 2001.”

*The research was supported in part by the National Institute on Drug Abuse and the Center for Research Resources, both part of the National Institutes of Health.*

### In memoriam: Edward H. Ahrens Jr.

Edward H. Ahrens Jr., professor emeritus at The Rockefeller University and a pioneer in early research on lipids and cholesterol metabolism, died Sat., Dec. 9. He was 85.

Ahrens's studies contributed important information toward a better understanding of cardiovascular diseases, diabetes, hormonal disorders and obesity. In the early 1950s, he was the first to perform careful dietary studies, using formula diets, to test the effects of different types of fats on cholesterol levels, and his laboratory provided definitive confirmation that the kind of fats we eat can alter the level of cholesterol in our blood.

In attempting to separate and identify fractions of the complex mixture of fats that exist in all biological systems, Ahrens and his colleagues introduced a variety of physico-chemical techniques, including countercurrent distribution, invented by another Rockefeller scientist, the late Lyman C. Craig, and column and gas-liquid chromatography. These methods made it possible to define extremely minute amounts of fatty material.

His clinical studies spanned more than four decades and centered on fat digestion and absorption, fat transport through the body, control of serum cholesterol levels, deposition of fat in adipose tissues and factors controlling the composition of mother's milk. His primary interest in later years was the relationship of cholesterol metabolism to the genesis of coronary heart disease. His research on the synthesis and degradation of cholesterol in patients are classics of patient-oriented research.

Ahrens joined The Rockefeller University, then known as The Rockefeller Institute for Medical Research, in 1946 as an assistant. He was a senior fellow of the National Research Council from 1949 to 1950 and a National Foundation for Infantile Paralysis senior fellow from 1950 to 1952. From 1958 to 1959, he worked as a fellow of the National Science Foundation with G. Popják of the Medical Research Council, London. He was appointed professor at Rockefeller in 1960 and became the university's first Frederick Henry Leonhardt Professor in 1982.



# calendar

DECEMBER 15 THROUGH JANUARY 21

## EVENTS

## Friday Lectures

THESE EVENTS IS 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, JANUARY 12  
Thomas Steitz, Eugene Higgins Professor, Molecular Biophysics and Biochemistry Dept., Yale U., and Investigator, HHMI.

FRIDAY JANUARY 19  
**Centennial Tropical Disease Lecture. Mycolic Acids: The Defining Signature of *Mycobacterium tuberculosis* are a Life and Death Struggle.** William R. Jacobs Jr., Investigator, HHMI, Albert Einstein College of Medicine.

The next issue of the  
Calendar of Events will be  
Fri., Jan. 12.

FRIDAY, DECEMBER 15  
10:00 A.M. **Optimizing Score Functions for the Detection of Remote Homologs.** Richard Goldstein, Associate Professor, Dept. of Chemistry, Associate Research Scientist, Biophysics Research Division, U. of Mich. Seminar. 116 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST.

12:00 P.M. **Cell Adhesion Signal Transduction and Cancer: The Armadillo Connection.** Mark Peifer, Associate Professor, Dept. of Biology, U. of North Carolina, Chapel Hill. 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, DECEMBER 18  
12:00 P.M. **The Role of CD4 Help and CD40 Ligand in HIV-1 Specific CTL Memory Responses.** Mario Ostrowski, U. of Toronto. CFAR Seminar. SIXTH FLOOR CONFERENCE ROOM, ADARC, 455 FIRST AVE. CONTACT GARY GAILOR, 448-5163.

12:00 P.M. **When Good Cells Go Bad: Genomewide Gene Expression in Cancer.** David Botstein, Stanford W. Ascherman, M.D., Professor and Chairman, Dept. of Genetics, Stanford U. School of Medicine. Seminar. CASPARY AUDITORIUM. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

1:30 P.M. **Somatic Hypermutation and VDJ Recombination.** David G. Schatz, Professor, Section of Immunology, Yale U. Immunology Seminar. WEILL AUDITORIUM, WMCCU, 1300 YORK AVE.

5:00 P.M. **Factors Regulating the Positive and Negative Selection of Developing B Lymphocytes.** John G. Monroe, Professor, Dept. of Pathology and Laboratory Medicine, U. of Penna. School of Medicine. Pathology Seminar. C-405 WMCCU, 1300 YORK AVE. REFRESHMENTS WILL BE SERVED. CONTACT PAOLO CASALI, 746-6460.

5:30 P.M. **What Are We Learning from the Genome Project?** David Botstein, Stanford W. Ascherman, M.D., Professor and Chairman, Dept. of Genetics, Stanford U. School of Medicine. Zanzvil A. Cohn Forum on Health Affairs/Centennial Lectures on Science and Society. CASPARY AUDITORIUM. SHERRY AT 5:00 P.M. IN THE ABBY LOUNGE.

WEDNESDAY, DECEMBER 20  
12:00 P.M. **Role of Apolipoprotein E in Mouse Models of Alzheimer's-like Neurodegeneration.** David M. Holtzman, Associate Professor, Dept. of Neurology, Molecular Biology and Pharmacology, Washington U. School of Medicine. Seminars in Clinical Research. 110B NURSES RESIDENCE. CONTACT DALE MILLER, 327-8411.

4:30 P.M. **New Strategies for Selective Genetic Vector Targeting of Gliomas in Vivo.** Howard A. Fine, Chief, Neuro-Oncology Branch, National Cancer Institute and the National Institute of Neurologic Disorders and Stroke, NIH. MSKCC President's Research Seminar. HOFFMANN AUDITORIUM, MSKCC, 1275 YORK AVE. TEA AT 4:00 P.M.

WEDNESDAY, DECEMBER 27  
10:30 A.M.-3:00 P.M. **From Egg to Embryo.** Ali Hemmati Brivanlou, Professor, RU. Alfred E. Mirsky Christmas Lectures on Science for High School Students. CASPARY AUDITORIUM. ADMISSION BY TICKET ONLY. CONTACT GLORIA PHIPPS, 327-8967.

TUESDAY, JANUARY 9  
4:00 P.M. **Recent Advances of Garlic-derived Allylsulfides in Cancer Treatment and Control.** John T. Pinto, Associate Laboratory Member, SKI, Associate Director, Clinical Nutrition Research Unit, and Associate Professor of Biochemistry in Medicine, WMCCU. CNRU Research Lecture. 117 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST. CONTACT LINDA COTTE, 639-8352.

7:00 P.M. **After the Genome: Tailor-Made Drugs.** Stephen K. Burley, Professor, RU, and Investigator, HHMI. Genes, DNA and You: The Impact of the Human Genome Project. CASPARY AUDITORIUM. A PUBLIC LECTURE SPONSORED WITH THE 92ND STREET Y. TICKETS ARE AVAILABLE FROM THE 92ND STREET Y AT 996-1100.

11:00 P.M. **The S-Phase Checkpoint in Budding Yeast.** Duncan Clarke, Dept. of Molecular Biology, The Scripps Research Institute. Chromosome Biology/Gene Expression Seminar. 301 WEISS. CONTACT BOBBIE LARRAGA, 327-7240. OPEN TO RU COMMUNITY AND GUESTS.

WEDNESDAY, JANUARY 10  
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.

12:00 P.M. **Specific T-cell Immunity to Lipid Antigens in Tuberculosis.** Steven Porcelli, Associate Professor of Microbiology and Immunology, Albert Einstein College of Medicine. Seminars in Clinical Research. 110B NURSES RESIDENCE. CONTACT DALE MILLER, 327-8411.

4:30 P.M. **Cell Biology of Antigen Presentation by Dendritic Cells.** Ira Mellman, Professor, Dept. of Cell Biology and Section of Immunobiology, Ludwig Institute for Cancer Research, Yale U. School of Medicine. MSKCC President's Research Seminar. AUDITORIUM, ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST. TEA AT 4:00 P.M.

THURSDAY, JANUARY 11  
4:00 P.M. **Pulsatility of JAK-STAT Signaling: Regulation of Sex-dependent Liver Gene Expression by Growth Hormone.** David Waxman, Professor of Cell and Molecular Biology and Professor of Medicine, Boston U. School of Medicine. Endocrinology and Reproductive Biology Seminar. 301 WEISS.

FRIDAY, JANUARY 12  
2:00 P.M. **Identification of Xkid, a Chromokinesin That Binds Chromosomes in Anaphase and Is Degraded in Anaphase.** Hironori Funabiki, Dept. of Molecular and Cellular Biology, Harvard U. Cell Biology Seminar. 116 Rockefeller Research Laboratories, MSKCC, 430 East 67th St.

TUESDAY, JANUARY 16  
11:00 A.M. **Regulation of Mitosis and Replication by Cell-cycle Checkpoints.** Nicholas Rhind, The Scripps Research Institute. Chromosome Biology/Gene Expression Seminar. 301 WEISS. CONTACT BOBBIE LARRAGA, 327-7240. OPEN TO RU COMMUNITY AND GUESTS.

WEDNESDAY, JANUARY 17  
12:00 P.M. **DNA Dependent Protein Kinase (DNA-PK), Innate Immunity and Vaccines: The Case of Immunostimulatory DNA.** Eyal Raz, Associate Professor of Medicine, UC San Diego. Seminars in Clinical Research. 110B NURSES RESIDENCE. CONTACT DALE MILLER, 327-8411.

4:30 P.M. **Gene Regulation during Lineage Specification in the Thymus.** Dan Littman, Investigator, HHMI, Skirball Institute for Biomolecular Medicine, NYU Medical Center. MSKCC President's Research Seminar Series. Auditorium, Rockefeller Research Laboratories, MSKCC, 430 East 67th St. Tea at 4:00 p.m.

THURSDAY, JANUARY 18  
3:00 P.M. **The Influence of Efficient Processing of Brief Auditory Temporal-spectral Cues in Infancy on Later Language Development.** April Benasich, Assistant Professor, Center for Molecular and Behavioral Neuroscience, Rutgers U. Systems Neuroscience Seminar. 305 WEISS. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

8:00 P.M. **Ubiquitin, The N-End Rule, and the Functions of Protein Degradation.** Alexander Varshavsky, Smith Professor of Cell Biology, Division of Biology, Caltech. Harvey Society Lecture. CASPARY AUDITORIUM.

FRIDAY, JANUARY 19  
9:00 A.M. **Using HIV-1 Viral Dynamics to Document the Greater Potency of a Novel Four-drug Regimen Relative to Standard HAART.** Michael Louie, Clinical Scholar, Aaron Diamond AIDS Research Center, RU. Clinical Scholar's Grand Rounds. 110B NURSES RESIDENCE. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

12:00 P.M. **Checkpoint Responses and Repair of a Broken Chromosome.** James Haber, Professor, Dept. of Biology, Brandeis U. Cell Biology Seminar. 116 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST.

## The Arts and Other Events

FRIDAY, DECEMBER 15  
9:00 A.M. **Child and Family Center Winter Sing-Along.** WEISS 17TH FLOOR. REFRESHMENTS AT 8:30 A.M. IN THE WEISS 17TH NORTHEAST AND SOUTHEAST DINING ROOMS. CONTACT KATHY BURKE, 327-8580.

12:00 P.M. **Tri-Institutional Noon Recitals.** Chen Reiss, soprano; Inbal Segev, cello; Alexander Fiterstein, clarinet; Ronald Sat, piano. Performing four songs of Brahms and Schubert's *Die Forelle*; Shulamit Ran: *For an Actor—Monologue for Clarinet*; Schubert: *Die Hirt auf dem Felsen* (The Shepherd on the Rock), for soprano, piano and clarinet obbligato; Brahms: *Sonata in F major for Cello and Piano*. CASPARY AUDITORIUM. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

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