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news & notes

T H E N E W S L E T T E R O F T H E R O C K E F E L L E R U N I V E R S I T Y

FRIDAY LECTURE

Stillman to discuss chromosome inheritance next week

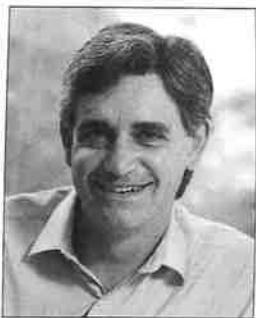
Bruce Stillman, director of the Cold Spring Harbor Laboratory, will present the Friday lecture next week (Feb. 2). Stillman's topic will be "Chromosome Inheritance."

Stillman's research focuses on the mechanism and regulation of DNA in eukaryotes, a process that ensures accurate inheritance of genetic material from one cell generation to the next. He has contributed to the elucidation of the mechanism of DNA replication of human adenovirus DNA and the mechanism of replication of DNA virus 40 genome. The latter research led to the discovery of many DNA replication proteins that function to replicate the human genome.

In addition to this work, Stillman studies *Saccharomyces cerevisiae*. His laboratory has elucidated the fine structure of chromosomal origins of DNA replication and identified proteins that bind to these sequences. One of these is the initiator protein called the Origin Recognition Complex, which facilitates initiation of chromosome DNA replication.

A native of Australia, Stillman received his Ph.D. at the John Curtin School of Medical Research at the Australian National University. He then moved to Cold Spring Harbor

continued on page 4



Bruce Stillman, director of the Cold Spring Harbor Laboratory, is next week's Friday lecturer.

2 A R O U N D C A M P U S

3 I N T H E L A B

4 E T C E T E R A

Van Cliburn program to showcase scientist-musicians

The Van Cliburn Foundation and The Rockefeller University are collaborating on an event that kicks off the Eleventh Van Cliburn International Piano Competition Screening Recitals. The program, "Polymaths and the Piano," showcases outstanding amateur pianists from the mathematics, scientific and medical communities.

Polymaths and the Piano

The program, which will be held in Caspary Auditorium on Thurs., Feb. 8, begins at 7:30 p.m. with a recital by each pianist. The concert will include works by Bartok, Beethoven, Brahms, Chopin, Copland, Debussy, Liszt, Rachmaninoff, Scarlatti, Schubert and Scriabin.

Michael Kimmelman, chief art critic for *The New York Times*,

will moderate a panel discussion from 9 p.m. to 10 p.m. The panelists will discuss the relationship between the study of science and music. They will also discuss the impact the serious study and performance of music has had on their professional careers and how they maintain their proficiency both as pianists and as full-time employed professionals.

Performers at the event will include Seth Darst, molecular biophysicist and professor, The Rockefeller University; Henri-Robert Delbeau, physician, Long Island Jewish Medical Center; Per Enflo, mathematician and professor, Kent State University; Michael Hawley, professor of Media Technology, Massachusetts Institute of Technology; Len Horovitz, physician, Lenox Hill Hospital; Stephen Hubbard, elec-

trical engineer and professor, Clemson University; Rebecca Martin, physician and professor, University of Arkansas for Medical Sciences; and Carl Tait, computer scientist, IBM.

Darst, the Jack Fishman Professor and head of a Laboratory of Molecular Biophysics at The Rockefeller University, began studying piano at the age of eight with his mother, Judith Darst, and received several honors and awards in the Seattle area. As a junior in high school, following a move to Colorado in 1972, he performed Saint-Saens' *Carnival of the Animals* with his mother and the Greeley Philharmonic Orchestra. In 1976, he performed Grieg's *Piano Concerto* as a competition winner with the Fort Collins, Colo., Symphony Orchestra.



Jack Fishman Professor Seth Darst will perform at the "Polymaths and the Piano" program on Thurs., Feb. 8.

Darst continues to play and perform as his time allows.

New York Screening Recitals

The Eleventh Van Cliburn International Piano Competition New York Screening Recitals will take place from Fri., Feb. 9 to Wed., Feb. 14 in Caspary

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Seven Science Outreach students in Intel semifinals

Seven high school students who participated in Rockefeller University's Science Outreach Program have been named semifinalists in the Intel Science Talent Search (formerly the Westinghouse Science Talent Search).

This program, now in its 60th year, is one of the most prestigious science awards for high school students in the country. More than 70 percent of the former finalists have gone on to

earn Ph.D.s or M.D.s; five have won Nobel Prizes.

This year's semifinalists are:

Rodica Buzescu of Franklin K. Lane HS, who was mentored by Chenjian Li in the McEwen lab.

Michael Corwin of Bronx HS of Science, who was mentored by Derek Gordon in the Ott lab.

Melanie Napier of Saint Frances Preparatory School, who was mentored by Daniel Lim in the Alvarez-Buylla lab.

Vincent Chen of Hunter College HS, who was mentored by Lee-Ming Kow in the Pfaff lab.

Daniel Leeds, of Hunter College HS, who was mentored by Penio Penev in the Feigenbaum lab.

Shohye Kim, of Stuyvesant HS, who was mentored by Nandini Vasudevan in the Pfaff lab.

Robert Lindquist of Stuyvesant HS, who was mentored by Jonathan Smith in the Breslow lab.

Bonnie Kaiser, director of the Science Outreach Program, says, "I'm thrilled with the students' performance in the contest. It is wonderful when these students who love science so much are also rewarded for their efforts."

Lederberg to deliver Sackler lecture today

Raymond and Beverly Sackler Foundation Scholar Joshua Lederberg, president emeritus of The Rockefeller University, will give the Raymond and Beverly Sackler Centennial Lecture on Fri., Jan. 26. His talk is entitled "Crowded at the Summit: The Future of Infectious Disease."

The last 20 years have seen the emergence of new infectious diseases, such as AIDS and hepatitis C, and the resurgence of diseases, like tuberculosis, once considered vanquished. Scientists have discovered that the pace of microbial evolution vastly outstrips that of their multicellular hosts. As a result, most encoun-

ters are dominated by parasite adaptations, taking account of ancient innovations like our immune system. Lederberg, a Nobel laureate, will discuss the danger of attempts to eradicate microbes without considering backup strategies.

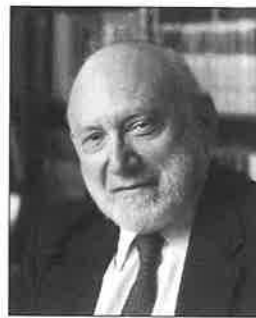
Lederberg discovered a mechanism of genetic recombination in bacteria while a doctoral student at Yale University, demonstrating that a form of sexual reproduction occurs in these microorganisms. This work earned him the Nobel Prize in Physiology or Medicine in 1958 at the age of 33.

In 1978, Lederberg came to The

Rockefeller University as its fifth president, serving until June 1990. Since retiring as president, he has returned to research as head of the Laboratory of Molecular Genetics and Informatics.

Throughout his career, Lederberg has taken important advisory roles in government, serving as scientific counselor to world leaders and heading a number of influential committees and policy studies.

Lederberg's talk will take place in Caspary Auditorium at 3:45 p.m. and will be preceded by a tea at 3:15 p.m. All are welcome.



President Emeritus and Sackler Foundation Scholar Joshua Lederberg will discuss the future of infectious disease.

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University scientists earned many honors in past year

Below is a list of recent faculty honors, as provided by the researchers.

Jan Breslow

2000 Bristol-Myers Squibb Award in Cardiovascular Research

2000 Scientific Councils Distinguished Achievement Award, AHA

Brian Chait

2000 Bijvoet Medal, Utrecht University, Holland

1999 Columbia IAP Lecturer

Joel Cohen

2000-2004 Councilor, Class II (Biological Sciences), American Academy of Arts and Sciences

2000 Member, Board of Governors, The Nature Conservancy

2000 Hitchcock Professor, University of California, Berkeley

1999 Commencement speaker, University of California, Berkeley, College of Natural Resources

2000 Appointed to Executive Committee, American Academy of Arts and Sciences

2001-2003 Reappointed to Class V Membership Committee, American Philosophical Society

2001 Nominated to stand for election to the Council, National Academy of Sciences

Gheorghe Lazar Prize of the Romanian Academy for the book, *Comparisons of Stochastic Matrices, with Applications in Information Theory, Statistics, Economics, and Population Sciences*

2001 Executive Committee (committee of selection), Tyler World Prize for Environmental Achievement

James E. Darnell

2000 Chiron Lectures, University of California, Berkeley

2000 Wellcome Visiting Professor in the Basic Medical Sciences, University of California, Santa Barbara

2000 Honorary Doctor of Science, Albany Medical College

2000 Novartis/Drew Award in Biomedical Research

Robert Darnell

2000 Burroughs Wellcome Fund Clinical Scientist Award in Translational Research

Titia de Lange

2000-2004 Ellison Medical Foundation Senior Scholar Award

2000-2001 President, Harvey Society

2000 Elected Foreign Member of the Royal Dutch Academy of Sciences

Vincent Dole

2000 Warren Williams Award, American Psychiatric Association

Vincent Fischetti

2000 Keynote Address, Joint German Conference for Microbiology

1999 Keynote Address, Japanese Lancefield Society Annual Meeting

1999 John H. Hanks Memorial Lecture, Johns Hopkins University School of Public Health

1999 Pfizer Lectureship, University of Pittsburgh

Jeff Friedman

2000 Osborne Mendel Award, American Society for Nutritional Sciences

2000 Endocrinology Transatlantic Medal, Society for Endocrinology, United Kingdom

1999 Janssen Award for Special Achievement in Gastroenterology

1999 Steven C. Beering Award, Indiana University School of Medicine

1999 Van Wyk Lecture, University of North Carolina

Verna and Marrs McLean Lecture, Baylor College of Medicine

Theresa Gaasterland

1999 NSF Career Award

2000 Burroughs Wellcome Fund

New Investigator Award in Molecular Parasitology

International Society for Computational Biology, Certificate of Appreciation for Service as Secretary, 1996-2000

2000 Presidential Early Career Award in Science and Engineering

David Gadsby

2000-2001 Benjamin Meaker Visting Professorship Award, University of Bristol, UK

1999-2000 President, Society of General Physiologists

Chair, Ion Channels 2000, Gordon Research Conference

NIH MERIT Award

Ulrike Gaul

2000 Seth Feldman Chair of Research, The Brain Tumor Society

Charles Gilbert

2000 Fellow, American Association for the Advancement of Science

Paul Greengard

1999 Ellison Medical Foundation Senior Scholar Award

1999 Mayor of New York City's Award for Excellence in Science and Technology

1999 Senior Member, Institute of Medicine of the National Academy of Sciences

2000 Nobel Prize in Physiology or Medicine

Mary E. Hatten

2000 Fellow, American Association for the Advancement of Science

David Ho

1999 Hoechst Marion Roussel Award

1999 Honorary Doctor of Science, State University of New York, Institute of Technology

2000 Honorary Doctor of Science, Columbia University

2000 Commencement Speaker, Harvard School of Public Health

2000 American Association for Clinical Chemistry Award

2000 Presidential Citizen's Medal

A. James Hudspeth

1999 Hitchcock Lectureship, University of California, Berkeley

2000 Hughes Knowles Prize, Northwestern University

Mary Jeanne Kreek

1999 American Society of Addiction Medicine, R. Brinkley Smithers Distinguished Scientist Award and Lecture

1999 College on Problems of Drug Dependence Nathan B. Eddy Memorial Award for Lifetime Excellence in Drug Abuse Research

2000 Honorary Doctor of Science, University of Uppsala, Sweden

2000 Fellow, New York Academy of Sciences

Joshua Lederberg

1999 Morris Collen Award, American College of Medical Informatics

Arnold Levine

1999 Rabbi Shai Shacknai Memorial Prize, Hebrew University, Hadassah Medical School, Israel

1999 Charles S. Mott Prize, General Motors Cancer Research Foundation

1999 Centennial Gold Medal Award, National Institute of Social Sciences

2000 Thomas P. Infusino Prize in Cancer Causation and Epidemiology, Launtenberg Center and Hebrew University

2000 Honorary Doctor of Laws, Rider University

2000 Medal for Outstanding Contributions to Biomedical Research, Memorial Sloan-Kettering Cancer Center

2000 Honorary Doctor of Science, Bard College

2000 Keio Medical Science Prize, Keio University Medical Science Fund, Japan

Roderick MacKinnon

1999 Lasker Basic Medical Research Award

Rosenstiel Award

Hodgkin Huxley Katz Prize Lecturer, Physiological Society, England

2000 Cruickshank Lecture, GRC on Ion Channels

Bruce McEwen

Honorary Doctor of Science, Oberlin College

John McKinney

"Core Scientist" Sequella Global TB Foundation

Tom Muir

Alfred P. Sloan Research Fellow

Burroughs Wellcome Fund New Investigator Award

Jürg Ott

NIH MERIT Award

Donald Pfaff

ISI Highly Cited Researcher Award

Michael Rout

Irma T. Hirsch Trust Career Scientist

Sinsheimer Scholar Award

Rita Allen Foundation Scholar

Merck Genome Research Institute Grant

Thomas Sakmar

1999 Sonderforschungsbereich Lecture, Albert-Ludwigs Universität, Freiburg, Germany

2000 Merck Frosst Lecture, Great Lakes GPCR Symposium, London, Ontario, Canada

2000 Ellison Medical Foundation Senior Scholar Award

Andrej Šali

2000 Irma T. Hirsch Trust Career Scientist Award

Ralph Steinman

1999 Robert Koch Prize, Germany

1999 Honorary Doctorate, Vrije Universiteit, Brussels, Belgium

Markus Stoffel

Emerald Foundation

Juvenile Diabetes Research Foundation

Milton Werner

W.M. Keck Distinguished Young Scholar Award

Guest Lecturer, Naito Memorial Foundation

Naito Foundation International Scholar

Torsten Wiesel

Secretary General, Human Frontiers Science Program Organization



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calendar

JANUARY TWENTY-SIXTH THROUGH FEBRUARY EIGHTEENTH

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, JANUARY 26

Centennial Sackler Lecture: Crowded at the Summit: The Future of Infectious Disease. Joshua Lederberg, Professor and President Emeritus and Sackler Foundation Scholar, RU.

FRIDAY, FEBRUARY 2

Chromosome Inheritance. Bruce Stillman, Director, Cold Spring Harbor Laboratory.

FRIDAY, FEBRUARY 9

Mobile Self-splicing Introns: Structure, Function, Evolution. Marlene Belfort, Professor, Wadsworth Center, New York State Department of Public Health.

FRIDAY, JANUARY 26

11:00 A.M. **A Role for Bruton's Tyrosine Kinase in Pre-B Cells: Regulation of the Initiation of Immunoglobulin Light Chain Rearrangements.** Rudi Hendriks, Faculty of Medicine, Erasmus University, Rotterdam. Seminar. 301 WEISS. CONTACT VIRGINIA MENENDEZ, 327-8076. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

MONDAY, JANUARY 29

12:00 P.M. **New Approaches to HIV Therapy.** Martin Hirsch, Massachusetts General Hospital. CFAR Seminar. SIXTH FLOOR CONFERENCE ROOM, ADARC, 455 FIRST AVE. CONTACT GARY GAILOR, 448-5163.

1:30 P.M. **Modulation of Immunity.** Nina Bhardwaj, Associate Professor for Clinical Investigation, RU. Immunology Seminar. WEILL AUDITORIUM, WMCCU, 1300 YORK AVE.

4:30 P.M. **Biophysical and Molecular Dissection of Vesicle Traffic in Synaptic Terminals.** Timothy A. Ryan, Assistant Professor, Department of Biochemistry and Structural Biology, WMCCU. Cell Biology and Genetics Seminar. PAPANTICOLAOU LIBRARY, A-106 WMCCU, 1300 YORK AVE. COFFEE WILL BE SERVED. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

TUESDAY, JANUARY 30

11:00 A.M. **Genetic Dissection for Vasculogenesis in Zebrafish.** Tao Zhong, Cardiovascular Research Center, Massachusetts General Hospital, and Department of Medicine, Harvard Medical School. Medical Science Seminar. 301 WEISS. CONTACT BOBBIE LARRAGA, 327-7240. OPEN TO RU COMMUNITY AND GUESTS.

4:00 P.M. **Generation of Target Sites for cAMP via AKP-PKA Complexes.** Charles Rubin, Professor and Chairman, Department of Molecular Pharmacology, Albert Einstein College of Medicine. Pharmacology Seminar. WEILL AUDITORIUM, WMCCU, 1300 YORK AVE. COFFEE AT 3:45 P.M. CONTACT LISSETT CHECO, 746-6250.

4:00 P.M. **Science as a Social Enterprise.** Harold Varmus, President, MSKCC. Tri-Institutional Course on the Responsible Conduct of Research. URIS AUDITORIUM, WMCCU, 1300 YORK AVE. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

WEDNESDAY, JANUARY 31

11:00 A.M. **Dissecting Gene Regulatory Networks — Lessons from Yeast.** Bing Ren, Department of Molecular and Cellular Biology, Harvard University. Cancer Biology Seminar. 305 WEISS. OPEN TO RU COMMUNITY AND GUESTS.

12:00 P.M. **A Protein Engineering Approach to Controlling Protein Secretion.** Tim Clackson, Vice President, Gene Therapy, ARIAD Pharmaceuticals, Inc. Student-Sponsored Seminar. 301 WEISS. PIZZA LUNCHEON AT 1:00 P.M. ON THE WEISS 17TH FLOOR. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

12:00 P.M. **Hematopoietic Stem Cell Therapies for Chronic Granulomatous Disease: Allogeneic Transplantation or Autologous Gene Therapy.** Harry L. Malech, Deputy Chief, Laboratory of Host Defenses, National Institute of Allergy and Infectious Diseases, NIH. Seminars in Clinical Research. 110B NURSES RESIDENCE. CONTACT DALE MILLER, 327-8411.

4:30 P.M. **Cell Signaling by Tyrosine Phosphorylation.** Joseph Schlessinger, Chair and Professor of Pharmacology, and Director, Skirball Institute of Biomolecular Medicine, NYU School of Medicine. 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 GILLEAUDEAU, 327-8333.

THURSDAY, FEBRUARY 1

4:00 P.M. **Making a Difference: The Asymmetric Division of Stem Cells in the Germline.** Haifan Lin, Assistant Professor, Department of Cell Biology, and Head, Laboratory of Stem Cells and Germline Development, Duke University Medical School, Comprehensive Cancer Center, Durham, N.C. Endocrinology and Reproductive Biology Seminar. 301 WEISS.

FRIDAY, FEBRUARY 2

2:00 P.M. **Spontaneous Transitions in Transcriptional Regulation: Mathematical Modeling of Fluctuations.** Tom Kepler, Santa Fe Institute. Seminar. B LEVEL CONFERENCE ROOM, SMITH HALL ANNEX. CONTACT ERIK VAN NIMWEGEN, 327-8184.

MONDAY, FEBRUARY 5

1:30 P.M. **T Cell Survival.** Steven Jameson, Assistant Professor, University of Minnesota. Immunology Seminar. 116 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST.

TUESDAY, FEBRUARY 6

11:00 A.M. **A Transposon That Regulates Transposition with Host DNA Metabolism.** Joseph Peters, Department of Molecular Biology and Genetics, Johns Hopkins University School of Medicine. Chromosome Biology/Gene Expression Seminar. 301 WEISS. CONTACT BOBBIE LARRAGA, 327-7240. OPEN TO RU COMMUNITY AND GUESTS.

4:00 P.M. **Attachment of Dietary Fatty Acids to Src Family Kinases: You Are What You Eat.** Marilyn Resh, Member, Cell Biology Program, SKI, and Professor of Cell Biology and Genetics and of Biochemistry, WMCCU. CNRU Research Lecture. 117 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST. CONTACT LINDA COTTE, 639-8352.

4:00 P.M. **Comparison of Enthalpy and Volume Changes in Primary Reactions of Three Photosynthetic Systems.** David Mauzerall, Professor, RU. Seminar. B LEVEL CONFERENCE ROOM, SMITH HALL ANNEX. CONTACT ERIK VAN NIMWEGEN, 327-8184.

WEDNESDAY, FEBRUARY 7

10:30 A.M. **Biostatistics Course.** Knut Witkowski, Biometrician and Senior Research Associate, RU Hospital. Biostatistics Course. 128 HOSPITAL. CONTACT KNUT WITKOWSKI, 327-7175. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

12:00 P.M. **Sitosterolemia.** Gerald Salen, Professor of Medicine and Chief of Gastroenterology, University of Medicine and Dentistry, New Jersey Medical School. Seminars in Clinical Research. 110B NURSES RESIDENCE. CONTACT DALE MILLER, 327-8411.

4:30 P.M. **The Human Genome and Beyond.** Eric Lander, Professor of Biology and Director, Center for Genome Research, Massachusetts Institute of Technology. MSKCC President's Research Seminar Series. AUDITORIUM, ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST. REFRESHMENTS AT 4:00 P.M.

11:00 P.M. **Cyclophilin A Function in HIV-1 Replication and in CD4+ T Cells.** Jeremy Luban, Associate Professor of Microbiology and Medicine, Columbia University. Immunology Seminar. 117 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST.

THURSDAY, FEBRUARY 8

1:00 P.M. **Negative Regulation of Cytokine Signallings by SOCS and Manipulation of Inflammatory Diseases.** Tadamitsu Kishimoto, President, Osaka University, Japan. Pathology Seminar. WEILL AUDITORIUM, WMCCU, 1300 YORK AVE. REFRESHMENTS WILL BE SERVED. CONTACT SELINA CHEN-KIANG, 746-6440.

3:00 P.M. **Dopamine Systems and Behavior.** John Horvitz, Assistant Professor, Department of Psychology, Columbia University. Systems Neuroscience Seminar. 305 WEISS. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

4:00 P.M. **Peripheral-type Benzodiazepine Receptor (PBR): Structure and Function of an Ubiquitous Lipophorin.** Vassily Papadopoulos, Professor, Department of Cell Biology, Georgetown University Medical Center. Endocrinology and Reproductive Biology Seminar. 301 WEISS.

FRIDAY, FEBRUARY 9

12:00 P.M. **Mammalian DNA Ligases: Keeping the Genome Together.** Alan Tomkinson, Associate Professor, Institute of Biotechnology, San Antonio, Tx. Molecular Biology Seminar. 116 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST. TEA AT 11:45 A.M. CONTACT LINDA SMITH, 639-7655. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

TUESDAY, FEBRUARY 13

11:00 A.M. **Modulation of Myelination and Demyelination by Neurotropic Pathogens.** Anura Rambukkana, Research Associate, RU. Infectious Disease Seminar. 301 WEISS. OPEN TO RU COMMUNITY AND GUESTS.

12:00 P.M. **Host Genetic Determinants of HIV Infection.** Sunil Ahuja, University of Texas Health Science Center, San Antonio, Tx. CFAR Seminar. SIXTH FLOOR CONFERENCE ROOM, ADARC, 455 FIRST AVE. CONTACT GARY GAILOR, 448-5163.



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JANUARY TWENTY-SIXTH THROUGH FEBRUARY EIGHTEENTH

TUESDAY, FEBRUARY 13

2:00 P.M. **NY Lipid and Vascular Biology Research Club Meeting.** 301 WEISS. REFRESHMENTS AT 4:00 P.M. CONTACT KIE CUNDEY, 327-7708. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

4:00 P.M. **KIX is for KID's: Signalling via the cAMP Responsive Factor CREB.** Marc Montminy, Professor; Peptide Biology Laboratories, Salk Institute, La Jolla, Calif. Pharmacology Seminar. E-415 WMCCU, 1300 YORK AVE. COFFEE AT 3:45 P.M. CONTACT LISSETT CHECO, 746-6250.

WEDNESDAY, FEBRUARY 14

12:00 P.M. **Host Genetic Determinants of HIV-1 Infection.** Sunil K. Ahuja, Associate Professor of Medicine (Infectious Diseases) and Microbiology, University of Texas Health Science Center, San Antonio, Tx. Seminars in Clinical Research. 110B NURSES RESIDENCE. CONTACT DALE MILLER, 327-8411.

12:00 P.M. **The CDI System: Presenting Lipid Antigens to T Cells.** Steven A. Porcelli, Associate Professor, Department of Microbiology and Immunology, Albert Einstein College of Medicine. Student-Sponsored Seminar. 301 WEISS. PIZZA LUNCHEON AT 1:00 P.M. ON THE WEISS 17TH FLOOR. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

4:30 P.M. **Potassium Channels.** Roderick MacKinnon, Professor, RU, and Investigator, HHMI. MSKCC President's Research Seminar Series. AUDITORIUM, ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST. TEA 4:00 P.M.

THURSDAY, FEBRUARY 15

8:00 P.M. **The Plant Plan: Multicellular Life in the Other Kingdom.** Elliot M. Meyerowitz, Professor of Biology, and Chair, Division of Biology, California Institute of Technology. Harvey Society Lecture. CASPARY AUDITORIUM.

FRIDAY, FEBRUARY 16

12:00 P.M. **Dystroglycan: An Extracellular Matrix Receptor and Its Role in Muscular Dystrophy.** Kevin Campbell, HHMI, University of Iowa. Cellular Biochemistry and Biophysics Seminar. 116 ROCKEFELLER RESEARCH LABORATORIES, MSKCC, 430 EAST 67TH ST.

The Arts and Other Events

FRIDAY, JANUARY 26

12:00 P.M. **Tri-Institutional Noon Recitals.** Lukas Vondracek, piano. Performing Mendelssohn: *Variations Serieuses*; Rachmaninov/Mendelssohn: "Scherzo" from *A Midsummer Night's Dream*; Chopin: *Ballade No. 3 in A-flat, Grand Valse in A-Flat, Nocturne in F and Grande Valse Brillante in A-flat*; Smetana: *Czech Dances*—Hulan, Cibulicka, Furiant; Martinu: *Czech Dances*—Okrocak, Dupak, Polka; Listz: *Hungarian Rhapsody No. 12*. CASPARY AUDITORIUM. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

SUNDAY, FEBRUARY 4

3:00 P.M. **Chamber Music Concert.** Möbius String Quartet, featuring Rockefeller University Biomedical Fellows. Performing works by Schubert, Scott Johnson and Hindemith. CASPARY AUDITORIUM. ADMISSION IS FREE. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

THURSDAY, FEBRUARY 8

7:30 P.M.—10:00 P.M. **Polymaths and the Piano.** A program showcasing amateur pianists from the mathematics, scientific and medical communities throughout the United States, with performances by Seth Darst, Professor, RU; Henri-Robert Delbeau, Internist, Long Island Jewish Medical Center; Per Enflo, Professor, Department of Mathematics and Computer Science, Kent State University; Michael Hawley, Assistant Professor of Media Technology at the Massachusetts Institute of Technology Media Lab; Len Horovitz, Attending Physician, Lenox Hill Hospital; Stephen Hubbard, Visiting Assistant Professor of Electrical and Computer Engineering, Clemson University; Rebecca Martin, Associate Professor, Division of Infectious Diseases, University of Arkansas for Medical Sciences; and Carl Tait, Computer Scientist, IBM. Panel discussion following the performance moderated Michael Kimelman, Chief Art Critic, *The New York Times*. Performances from 7:30 p.m. to 9:00 p.m.; panel discussion from 9:00 p.m. to 10:00 p.m. Caspary Auditorium. Contact Shoko Kashiyama, 327-7154.

FRIDAY, FEBRUARY 9

12:00 P.M. **Tri-Institutional Noon Recitals.** Andre-Michel Schub, 1981 Gold Medal Winner of the Sixth Van Cliburn International Piano Competition. Performing works by Mozart, Schumann, Clementi, Liszt and Paganini. CASPARY AUDITORIUM.

LAUNCHES THE EASTERN UNITED STATES SCREENING RECITALS FOR THE ELEVENTH VAN CLIBURN INTERNATIONAL PIANO COMPETITION AT ROCKEFELLER UNIVERSITY, FEBRUARY 9-14. OPEN TO RU/WMCCU/NYPH/MSKCC COMMUNITY AND GUESTS.

8:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

SATURDAY, FEBRUARY 10

12:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

8:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

SUNDAY, FEBRUARY 11

12:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

8:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

MONDAY, FEBRUARY 12

12:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

8:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

TUESDAY, FEBRUARY 13

7:30 A.M. **African Violet Sale.** Benefits the Rockefeller University Child and Family Center. WEISS CAFÉ LOBBY.

12:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

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WEDNESDAY, FEBRUARY 14

12:00 P.M. **Eleventh Van Cliburn International Piano Competition New York Screening Recitals.** Piano Competition. CASPARY AUDITORIUM. CONTACT SHOKO KASHIYAMA, 327-7154. ADMISSION IS FREE.

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Physics and biology intertwine at Rockefeller

Rockefeller University's Center for Studies in Physics and Biology began approximately seven years ago when some of the faculty and administration at the university began to sense the ways that biology and physics might be poised to enter a new dialogue. In the short time since its inception, the center has demonstrated prescience not uncommon to the university. For quite a while, Rockefeller was the only scientific institution in the country supporting such an alliance between physicists and biologists and even today, as other universities are scrambling to create centers for physics and biology, Rockefeller's remains the most powerful and productive.

Though relatively small, the center has a strong identity. Professors Albert Libchaber and Eric Siggia and Associate Professor Marcelo Magnasco, for example, have carved out distinctive work involving the physics of biology. Their work emblemizes the need for such centers devoted to the interfaces of physics and biology.

For Libchaber, Detlev W. Bronk Professor, biology provides an interesting means of studying information. "Life is a singular solution. For me it is the singularity of the solution which is interesting." By this Libchaber, an experimental condensed-matter physicist who studies DNA computation, means that biological idiosyncrasies are just as interesting to him as a physicist as to

biologists, only for vastly differing reasons.

At the level of DNA, for example, biologists are interested in aggregations of proteins as "malfunctions" that cause disease. In this sense, the malfunctioning of DNA gives it a machine-like quality that Libchaber and other physicists find useful. Libchaber explains that DNA is essentially a Turing machine, or a computer that consists of a "tape" coded with information and a reading/writing "head" that reads the information coded on the tape. When the head stops reading, it has a "solution." In molecular biology, the ribosome that reads the messenger RNA is the reading head and the RNA is the tape. There are stop codons at the ends of each gene which tell the ribosome when to stop reading and allow it to have its solution, or gene expression.

Libchaber says, "I benefit from participation in biological seminars, but I am not interested in the disease. I am interested in the malfunction. The malfunctioning of such a molecular machine tells you a lot about the machine... I'm interested, for example, in understanding why proteins don't aggregate all the time."

Speculating on DNA as a type of computer addresses Libchaber's goal of creating a new machine, modelled on DNA, but one that consists of different materials and conditions useful for computing. Libchaber runs experiments in

his lab that test the controls on DNA as a machine.

"In the cell, the control is biochemical," Libchaber explains. "Outside of the cell the control can be different. One study we have published is the effect of turning on and off the heat for control of the molecular mechanisms." Another aspect of DNA that Libchaber studies in his lab is evolution. "I try to change what is written by molecular evolution. I try to eventually make another ribosome, another machine that will not be DNA but will elaborate further the concept of molecular computing."

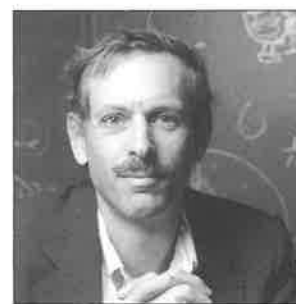
While perhaps more abstract than the goals that many biologists have in their studies of DNA, Libchaber's are no less significant. They are simply directed toward a different end. As he explains, "Computers now, in order to do what they do so fast, need to scale down in size. Right now they are reaching a limit of about .1 microns. If you go below that limit, by a factor of about 10, you enter molecular biology's scale." Biology offers a model for what computing may be within the next 40 years, as processing speeds double approximately every year.

Siggia, head of the Laboratory of Theoretical Condensed Matter Physics, occupies himself with molecular biology, too. However, his is a different focus. Siggia is committed to providing the means of generating qualitatively

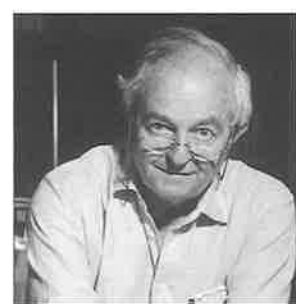
different questions in molecular biology, based on the quantitative work he does with bacteria genomes. His working premise is that understanding more about the non-coding regions of DNA will provide useful information about species evolution and the workings of cells. This is a physical problem as much as it is a biological one. The regulatory parts of the genome are little understood, and biologists for the most part haven't focused on them in their push to find biomedical applications for gene mutations related to disease.

Siggia's work takes up where some biologists' questions leave off and makes use of fully sequenced genomes. Thus far Siggia uses the bacterium *E. coli* as a reference point, because so much sequence data exists for it. His challenge is to find other bacteria genomes (such as salmonella, cholera, pneumonia) that are close enough to *E. coli*'s genome, but still different enough to be informative. Then there are three main processes of comparison that can be done and that reveal similar non-coding regions among species.

One method is to use probabilistic models of all the control regions among selected species, which Siggia and his colleagues have done with bacteria. This helps determine which regions might be functional. A more potent method is to mathematically compare the actual



ON FILE



ON FILE

Professors Eric Siggia (top) and Albert Libchaber are among the Rockefeller University scientists who are combining physics and biology.

genomes of different species, looking for shared control regions and examine their positions and densities. This requires full sequence data. Finally, another method is to analyze gene expression data such as mRNA expression to determine its causes across species. All three methods in combination would generate a full palette of constructive data. The problem is that it is not yet possible to thoroughly achieve all three methods for any set of species yet. With bacteria, Siggia can achieve the first two methods.

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Scientists propose mathematical answers to biological questions

Associate Professor Marcelo Magnasco came to The Rockefeller University in 1992 as a postdoctoral fellow. One year later he was the first faculty member recruited to Rockefeller's Center for Studies in Physics and Biology.

Magnasco's work at Rockefeller expands upon seeds planted by then-President Torsten Wiesel and Toyota Professor Mitchell Feigenbaum when they created the Center. Former NIH Director Harold Varmus (now president of Memorial Sloan-Kettering Cancer Center) reiterated the concept of a stronger physics and biology collaboration in a centennial lecture to the American Physical Society in 1999, identifying the "need to transport intellects across artificial disciplinary boundaries in attempting to open borders that have been traditionally hard to cross." True to this unwitting mandate, Mag-

nasco collaborates with Professor James Hudspeth, with whom he has an established publication record and with whom he published a recent paper that unifies seemingly disparate biological observations about the workings of the ear.

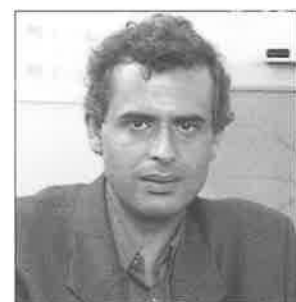
It is notable that Magnasco's graduate students, Guillermo Cecchi (now a postdoctoral fellow) and Mariano Sigman, have followed a similar trajectory and will soon co-publish a paper with Magnasco and another Rockefeller biology-based collaborator, Professor Charles Gilbert (Sigman is a graduate student of both Magnasco and Gilbert). This time the topic is identifying the structure shared by all natural images, the basic geometric units of which images are composed, and understanding how this relates to the function of the visual system. Magnasco, Cecchi and Sigman, in cooperation with their biology-

based colleagues, have focused on mathematical analysis to explain the physics of neurosensory organs.

What is also interesting, and perhaps radical in its simplicity, is that both projects use well-known mathematical concepts to fundamentally describe what biologists deem complex phenomenon—observations heretofore considered too random to be characterized by one equation or theory. Magnasco's research on the ear considers the biological theories that have attempted to characterize the dynamics of the aural system. For example, the cochlea, the organ inside the ear encased in a spiral minaret of bone, was long thought to function like a musical instrument such as a piano or a harp, whereby incoming sounds could make the strings vibrate at varying frequencies.

A succession of theories, starting

with astrophysicist Tommy Gold's in 1948, have proved otherwise, though not without considerable skepticism; Gold's argument, though largely dismissed at the time, was that without a feedback mechanism incoming sounds would simply drown or dissipate because of the fluid in the ear. It wasn't until the 1960s and 1970s, respectively, when Hungarian physiologist Georg Von Békésy and American physiologist William Rhode hinted at the presence of "biological amplifiers" in the ear, that scientists started altering their thinking. Magnasco's work provides an overview and consideration of this neuroscientific history as introduction. But little more was understood about ear amplification until the 1980s when biologists David Corey and Hudspeth fleshed out the theory by suggesting that stereocilia, or hair cells in the ear, are connected via a spring mechanism to tiny chan-



Marcelo Magnasco and his colleagues are using mathematical analysis to learn more about biological systems.

nels that, when pulled open, admit calcium ions through the membranes of the hair cells. This influx of ions triggers the nerve signal.

What Magnasco and colleagues have done is to provide a model for the existence of a "trapdoor amplifier." In other words, the ear tunes its response to acoustic stimulus in order to optimize its sensitivity. Because the ear is known through anecdotal and

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New *News&Notes* schedule

News&Notes will now be published every two weeks. The next issue will be on Fri., Feb. 9. The Calendar of Events will be published weekly as usual.

Employee Assistance Program has new Web site

The Employee Assistance Program Consortium is a free, confidential counseling service available to all employees of the five consortium members (Hospital for Special Surgery, New York-Presbyterian Hospital, Rockefeller University and Weill Medical College of Cornell University). The program now has a new Web site (eapc5.com) where you can learn more about this service.

Support group for “Improving Communications”

The Employee Assistance Program Consortium is sponsoring a six-part psychoeducational lunchtime support group on Improving Communication Skills, starting on Mon., Mar. 19, and run through Mon., Apr. 23. The group will meet from noon to 1 p.m. in the Whitney Conference Room #118 at New York-Presbyterian Hospital. Feel free to bring your lunch. Call Josephine at 746-5890 to register. Group size is limited.

Papers and talks

If you are about to publish a paper or give a scientific talk, *News&Notes* would like to know about it. Please send your information by campus mail to Box 68, by E-mail to newsno or by fax to x7876.

Physics continued

Once you generate some reliable data of similar non-coding regions you can start to ask interesting new questions, says Siggia. For example, how does evolution work at the molecular level? What role might shared non-coding regions in a species play in cell regulation?

Another way that Siggia explains some of the premises of his work

is that, if genetics is a language his focus is on grammar. What biologists have been studying so far is vocabulary, a crucial part of the language apart from grammar. The way Siggia studies “grammar” is by looking at whether and how non-coding parts of DNA somehow structure the rules, just as the coding parts of DNA, or genes, structure

the activities of the language. Bacteria genomes are good to use because there is a lot of sequence data on them, more so than for the mouse or human. Siggia’s work with bacteria genomes have encouraged him to consider other organisms, for which there is also much sequence data. For example, a future collaboration with Rocke-

feller Professor Fred Cross might lead to discovery of new control regions in yeast. After all, Siggia explains, “in yeast, for example, there’s something very non-trivial going on that we simply don’t understand.”

Math continued

empirical observations to “play tricks,” Magnasco and colleagues tried to figure out some of these tricks.

Why, for example, does the ear sometimes hear pitches that are not actually present, or succeed at compressing loud sounds to minimize damage to the system? Magnasco and colleagues propose that some of these so-called strange properties of our hearing apparatus are due to the fact that it operates at a delicate threshold, like a balance poised to tip one way or the other. The threshold has a mathematical representation, the Hopf bifurcation. A Hopf bifurcation is like “a sound technician adjusting the volume of an amplifier to the loudest possible setting before feedback oscillation ensues,” says Magnasco.

Sigman’s and Cecchi’s research on the structure of visual perception in the eye likewise shows that something that a priori was complex like the common structure to all scenes can be explained using the very simple geometric

rule of cocircularity.

If one assumes the prevailing analogy that the eye functions like a camera, it is relatively easy to discern the basic work of the organ. Light passes through the cornea and is reflected on the receptor cells of the retina.

The retina’s reception of light signals the optic nerve and sends messages to the “projection area” of the visual cortex in the brain—as easy as a point-and-shoot camera.

However, seeing involves much more than just creating a pixel-by-pixel description of an image. It involves recognizing faces and trees, and knowing that a face is always the same when seen from different views or with other objects occluding it. In fact, one of the most difficult problems (in terms of its computational complexity) that the visual system encounters is to group different elements of a scene into individual objects. In spite of this complexity, this process seems

spontaneous and effortless to us: We open our eyes and we immediately understand the scene as a whole.

Neuroscientists invest much labor in understanding precisely how the human visual system analyzes images. But what about the structure of the visual landscape itself? Does the world organize itself in a particular manner and does the visual system “know” this organization and make use of it?

Sigman, Cecchi and their colleagues at Rockefeller have asked whether or not natural images display consistent statistical properties that the eye recognizes that set them apart from random light and shadow displays. To attempt to answer this question they used 4,000 black and white pictures of natural scenes from a public database to study the geometric regularities of edges or line segments (oriented elements).

What they found is that there are correlations among objects in the whole visual field, and that their

arrangement can be predicted through the simple geometric rule of cocircularity. In other words, the many different images we see during our lives—faces, animals, trees, buildings—have a common organization. They are made of contours that are smooth and that are, most of the time, very close to being an arc of a circle. Circles are the common “skeleton” of all images. But of course, the world is not only circles. The regions where images part from these regularities, like corners and junctions, are important singularities that also characterize forms.

Sigman, Cecchi, Magnasco and their colleagues even identify similarities in their findings about the visual field and previous physiological and psychophysical studies, suggesting that the human visual system “reads” according to recognized geometries of natural scenes.

Stillman continued

Laboratory as a postdoctoral fellow in 1979 and has been at the laboratory ever since, having been promoted to the scientific staff in 1981. Stillman has been director of the Cancer Center at Cold Spring Harbor Laboratory since 1992, a position he still holds. In 1994, he succeeded James D. Watson as director of Cold Spring Harbor Laboratory.

For his accomplishments, Stillman has received a number of honors, including election as a Fellow of

The Royal Society in 1993. In 1994, he was awarded the Julian Wells Medal by the Australian Society of Molecular Biology, and in 1995, he was elected a Charter Fellow of the Molecular Medicine Society. In 1999, Stillman was appointed an Officer of the Order of Australia for service to scientific research in the field of molecular biology. He was also elected to the U.S. National Academy of Sciences.

Stillman is a past recipient of

research awards from the Damon Runyon-Walter Winchell Cancer Research Fund and the Rita Allen Foundation. In addition, he is a member of the editorial boards of a number of scientific journals, is a former chair of the Experimental Virology Study Section of the National Institutes of Health and is a member of a number of academic societies. Stillman is a member of the Scientific Advisory Boards of the Howard Hughes Medical Institute, the Imperial Cancer Research Fund in the

U.K., The M.I.T. Cancer Center, the Albert Einstein College of Medicine Cancer Center, the Australian National University, Tularik, Inc., Rosetta Inpharmatics and Merck and Co. He is also co-chair of the Board of Scientific Councilors of the National Cancer Institute.

Stillman’s talk on Feb. 2 begins at 3:45 p.m. in Caspary Auditorium and is preceded by a tea in Abby Aldrich Rockefeller Lounge at 3:15 p.m. All are welcome.

Van Cliburn continued

Auditorium. The Van Cliburn International Piano Competition, widely considered to be “the most prestigious classical piano competition in the world” (*Chicago Tribune*) was created by a group of Fort Worth music teachers and other volunteers in cele-

bration of Van Cliburn’s sensational victory at the first International Tchaikovsky Competition in 1958. Since the first gold medal was awarded in 1962, the Van Cliburn Competition continues, every four years, to identify outstanding young artists

and open doors for them by providing two years of concert management services and hundreds of engagements around the world.

The event is free and open to the public. Seating is on a first-

come first-served basis. For more information, consult the university’s Events Hotline, 327-7007, or visit the Web site: www.rockefeller.edu/pubinfo/polymaths.

