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RU finances show improvement

New budget includes salary and wage increases, reflects rise in health insurance costs

The university's 1993-94 budget, which will be presented to the Board of Trustees on June 10, shows continued improvement in reducing the operating deficit. Included in the budget is the president's recommendation for an increase in employee salaries averaging between 4.0 and 4.5 percent beginning July 1. At the same time, the budget requires both the university and its employees to contribute more for health insurance.

"The financial picture for the university is getting better," said President Torsten Wiesel. "Private giving to the university has remained strong, expenses in both laboratories and support offices have been contained, and the uni-

versity is holding its own in acquiring Federal support, our principal lifeline of external income. However, the overall levels of Federal money are limited by intense competition for research funds and Federal efforts to contain the national deficit.

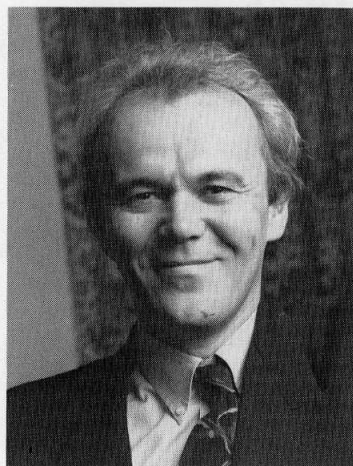
"In sum, while we have made some progress, money for operations, including salaries, remains very tight," he continued. "We wish we could do more to compensate our faculty and staff, but given the university's fiscal situation—and that of similar institutions—we believe this package is a fair and realistic one."

Fred Bohen, executive vice president and chief operating officer, said: "We have reduced the university's operating deficit from \$7.4 million in fiscal year 1991-92 to \$4.4 million last year, thanks in no small part to the efforts of our dedicated faculty and staff. The university's overall deficit, which includes capital expenditures, has dropped from \$8.6 million in fiscal year 1991-92 to \$6.9 million last year.

"While this is a marked improvement, we are still striving to achieve a balanced budget," Bohen continued. "The university's health insurance costs have doubled in the last four years and continue to grow much faster than any other expense item in our budget. This rapid growth in our costs for health insurance benefits cannot continue without undermining our efforts to achieve financial equilibrium in all other aspects of university operations."

See *Budget*, page 3

Three faculty to join Rockefeller



William Hall and Ulrike Gaul will head new labs at The Rockefeller University this fall. Another investigator, Ali Hemmati-Brivanlou, will join the faculty in the fall of 1994.

New lab heads explore different facets of biology

Three investigators have been recruited to join the faculty of The Rockefeller University, President Torsten Wiesel announced this week. They are virologist William Hall, developmental biologist Ulrike Gaul, and developmental neurobiologist Ali Hemmati-Brivanlou.

"I am very pleased that these three promising investigators will be joining our faculty," said Wiesel. "They will strengthen the university's research base and bring fresh ideas to the campus."

William Hall

Hall, currently associate professor of medicine at Cornell University and adjunct faculty member at Rockefeller, will begin his new position as associate professor and head of lab this fall. Hall's studies have focused on the molecular and immunological properties

of human retroviruses, specifically the human immunodeficiency viruses and human T-cell leukemia viruses.

A native of Northern Ireland, Hall attended the Queens University of Belfast (B.S., 1971; Ph.D., 1974), Cornell University Medical College (M.D., 1984), and London School of Hygiene and Tropical Medicine (Diploma of Tropical Medicine and Hygiene, 1987). From 1974 to 1977, he was a scientific research fellow at the Institute of Virology and Immunobiology at the University of Wurzburg, Germany. Hall came to Rockefeller as a research associate in 1977 and was appointed an assistant professor in 1978. After completing his medical training, Hall returned to Rockefeller in 1987. The next year, he was named assistant professor at Cornell University Medical School and director of virology and assistant attending physician at the North Shore University Hospital, Cornell University Medical College.

A member of the American College of Physicians and fellow of the Royal Society of Tropical Medicine and Hygiene, Hall was awarded the Northern Ireland Ministry of Education Postgraduate Scholarship Prize, the Rita Allen Foundation Scholarship, and an American Cancer Society Special Post-Doctoral Fellowship.

See *University*, page 2

President to discuss state of university

President Torsten Wiesel will hold two meetings to discuss the state of the university on Mon., June 7 in Caspary Auditorium. He will meet with faculty at 10:00 A.M. (coffee will be served in the lounge at 9:30 A.M.). He will meet with staff at 4:00 P.M. (coffee will be served at 3:30 P.M.). The president invites your questions and comments. For those who would like to submit questions in writing, see page 3 for a submission form.

2 New building wins awards

4 Roster set for 1993-94 concerts

5 Research reveals structures of life

Marching toward Convocation

The Rockefeller University will hold its 1993 convocation ceremonies on Thurs., June 10. The procession, which, weather permitting, will move along the west side of Caspary Hall, up the 66th St. drive, and into Caspary Auditorium, will begin at

3:00 P.M. Presentations of Ph.D. and honorary degrees will follow.

Tickets are required for those not in the procession. They are available from the Deans' Office, Founder's Hall 106, until Wed., June 9. All are welcome.

New building wins awards

The John D. Rockefeller, Jr. and David Rockefeller Research Building has won two awards for engineering excellence: First Prize for Excellence in Engineering from the New York Association of Consulting Engineers, and the 1993 Grand Award for Engineering Excellence from the American Consulting Engineers Council's national competition.

"The prizes, awarded to our engineer, the Office of Irwin G. Cantor, P.C., recognize the unique structural engineering of the new building," said George Candler, director of Planning and Construction. "The building rests on four funicular arches spanning 90 feet across the Franklin D. Roosevelt Drive, an innovation that saved months of construction time and millions of dollars. The structure is also unusual in that it combines construction materials, using structural steel on the bottom and poured-in-place concrete above the second floor to minimize vibration."

The 70-ton funicular steel arches are supported on two v-shaped steel and stone columns spaced 60 feet apart between the highway edge and the East River. Prefabricated in a Montreal steel foundry, the arches were transported on flat barges down the Erie Canal, the Hudson River, and the East River. The FDR Drive was shut down between midnight and 5:00 A.M. for just five consecutive nights so that the huge crane, located on another barge, could lift the arches onto the university site.

The plaques for the awards, which were presented to President Torsten Wiesel last month, will hang in the new building.



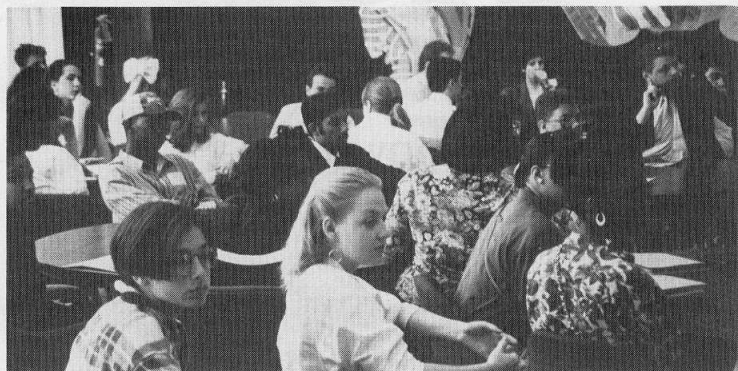
The John D. Rockefeller, Jr. and David Rockefeller Research Building was dedicated last fall.

Young students learn about biomedical careers

Over 20 high school students and their teachers visited The Rockefeller University last week as part of the first Biomedical Research Careers Day. The event, sponsored by the New York Academy of Medicine, included brief presentations from seven university researchers and tours of the investigators' laboratories.

"This was an excellent opportunity for us to give young students a flavor of science at Rockefeller," said Bonnie Kaiser, coordinator of the Science Outreach Program, who hosted the event. "The idea was to give our visitors an introduction to some of the different fields of study at the university and show them how many of these are connected. I am grateful to the faculty and the university for their participation, which made the event such a success."

Rockefeller participants who spoke about their fields of study included: Director of the Laboratory Animal Research Center Michael Hayre, Assistant Professor Elizabeth Gould, Associate Professor Stephen Burley, Postdoctoral Fellow Suguru Tsuchimoto, Associate Professor Arleen Auerbach, Director of the Transgenic Service Laboratory Annemarie Walsh-Mullen, and



A group of high school students learn about careers in science last week at The Rockefeller University.

Hospital Administrator Ted Rock.

The Rockefeller investigators set up special demonstrations for the students. In her facility, Walsh-Mullen demonstrated the insertion of human DNA into a fertilized mouse egg by microinjection. Three young high school students watched the procedure in disbelief. "Why doesn't the egg burst?" one student asked. Walsh-Mullen explained that the needle—which is especially crafted in the laboratory—is too fine to cause a rupture. Later, she also gave the students a tour of the cryo-preservation facility where the mouse eggs are frozen for transport and storage, and the room where some of the most

recent 'knock-out' mice are maintained.

Walsh-Mullen, who taught high school for many years, said: "It's so important for young students to see science in action. I feel sure that giving them an introduction to some basic techniques and principles along with a glimpse of the progress that we've made so far will have conveyed our enthusiasm for science. I like to see Rockefeller opening up its doors this way."

Rockefeller was one of six biomedical institutions to participate in the event, which drew over 200 students and teachers from 22 of the city's public, private, and parochial schools.

University recruits three new junior heads of laboratory

(continued from page 1)

Ulrike Gaul

Gaul, currently a postdoctoral fellow at the University of California at Berkeley, will come to campus as an assistant professor and head of lab in the fall. Her work focuses on cell determination in the eye of the developing *Drosophila* (fruit fly), using this as a model system to understand signal transduction pathways involving two important signaling proteins, Ras and Gap.

Gaul, a native of Germany, attended the University of Tübingen, where she received a diploma in biochemistry in 1983 and a diploma in physics in 1985. She received a Ph.D. in developmental biology in 1987 from the Max-Planck Institute for Developmental Biology. Shortly thereafter, she became a research associate at the Max-Planck Institute. Gaul was a visiting scholar at the University of Washington at Seattle in 1989 before assuming her current position at University of California at Berkeley.

Gaul's awards have included a

Max-Planck Postdoctoral Fellowship, a Miller Postdoctoral Fellowship, and an American Cancer Society Senior Fellowship.

Ali Hemmati-Brivanlou

Hemmati-Brivanlou, currently a postdoctoral fellow at Harvard University, will join the faculty as assistant professor and head of lab in the fall of 1994. Hemmati-Brivanlou's studies focus on the molecular mechanisms of cellular interactions involved in neural induction—an early event in the development of vertebrate embryos. The primary animal model system used in his studies are species of the frog, *Xenopus*.

A native of Iran, Hemmati-Brivanlou, received a master's degree equivalent in biochemistry from the Université des Sciences et Techniques du Languedoc, Montpellier, France, in 1982. He was as a research scientist at International Genetic Engineering, Inc. in Santa Monica, California from 1983 to 1985, before working toward a Ph.D. in molecular biology from the University of California at Berkeley, which he received in 1990. The next year he

continued his studies at Berkeley as a postdoctoral fellow. He joined Harvard University in 1991.

Hemmati-Brivanlou's awards have included a National Institute of Health Postdoctoral Fellowship and a Lucille P. Markey Charitable Trust Postdoctoral Fellowship.

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New budget includes salary increases, changes in health contributions

(continued from page 1)

Salaries and wages

Salaries and wages will increase July 1 as follows:

- For tenured faculty/heads of labs, an average of 4.0 percent, as determined personally by the president;
- For assistant and non-tenured associate professors, postdoctoral fellows and research associates, an average of 4.5 percent, in the range of 4.0 to 5.0 percent as recommended by research supervisors, and approved by the president;
- For staff with current salaries above \$65,000, whose work performance is judged as satisfactory in all respects, in the range of 3.0 to 5.0 percent, averaging 4.0 percent, as determined by the president or executive vice president;
- For those with current salaries of \$65,000 or less, whose work performance is judged as satisfactory in all respects, an average of 4.5 percent, with individual adjustments determined in relation to performance.

In addition to these salary and wage increases, the university's budget for compensation was raised an extra 1/2 percent to help cover the rising costs of health insurance for university employees. The university is projected to pay an additional \$250,000 to cover these

expenses in the next fiscal year.

The university's total annual costs for health insurance are now \$4.5 million. The average annual cost for 'single' coverage is \$2,644; for 'family' coverage, \$6,736.

Health Insurance

Employee contributions for health insurance, which have not changed since 1976, now cover less than five percent of its costs. After July 1, employee contributions will cover about 10 percent. On average, employees will pay about \$15 per month more, with larger increases asked of those who are more highly compensated.

An administrative task force led by David Lyons and Virginia Huffman considered the two options: reducing the university's comprehensive health insurance benefits or asking employees to pay a larger share of the costs. It concluded that employees should pay more to help support the current high level of coverage.

The new contribution rates were established with the following principles in mind. First, the university should continue to bear a large fraction of the costs of health benefits—at least 75 percent. Second, members of the university community electing "couples" coverage (i.e., individual plus spouse or child) or "family" coverage should

Some examples of the new rates for health insurance coverage

Following are some examples of the new rates that employees will contribute for health insurance beginning July 1, 1993:

- a postdoc earning \$29,000 per year, whose spouse does not work and who has two children, would contribute \$25 per month or \$300 annually toward health insurance. The postdoc is currently paying \$30 per month or \$360 per year.
- a custodian earning \$23,000 who is unmarried and who does not have children would contribute \$10 per month or \$120 per year. The custodian currently pays \$5 per month or \$60 per year.

- a manager of a support service earning \$45,000, whose spouse needs health insurance coverage, would contribute \$40 per month or \$480 per year. The manager currently pays \$30 per month or \$360 per year.

- an associate professor, earning over \$60,000, needs coverage for a spouse and children would contribute \$75 per month or \$900 per year. The associate professor is currently paying \$30 per month or \$360 per year.

- a professor earning over \$100,000, who has one child and whose spouse cannot obtain coverage elsewhere, would contribute \$100 per month or \$1200 per year.

pay an increasing fraction of these costs—gradually moving towards 50 percent by the year 2000, with specific adjustments decided year by year taking into account affordability and fairness. Finally, monthly contribution rates should be geared to income, with highly compensated faculty and staff asked to contribute a higher fraction of the costs of coverage than less highly compensated staff.

Employee contributions beginning July 1 will be as follows:

- For those making under \$30,000: single coverage, \$10; cou-

ples coverage, \$20; family coverage, \$25;

- For those making between \$30,000 and \$60,000: single, \$20; couples, \$40; family, \$50;
- For those making between \$60,000 and \$100,000: single, \$30; couples, \$60; family, \$75;
- For those making over \$100,000: single, \$40; couples, \$80; family, \$100.

Under current tax law, employees can make health insurance contributions with "before tax" dollars through the Flexible Spending Account Plan.

University's operating deficit

					(projected)
1989-90	1990-91	1991-92	1992-93	1993-94	
\$10.3 m.	\$12.3 m.	\$7.4 m.	\$4.4 m.	\$3.1 m.	

President Torsten Wiesel invites your questions at his open meetings with the Rockefeller University community on June 7 in Caspary Auditorium (faculty, 10 A.M.; staff, 4 P.M.). Those who wish to submit their questions in writing should fill out this form and deposit it as soon as possible in one of the boxes located in the Tower lobby or in the entrance way to Founder's Hall.



Elizabeth Ostrow, artistic administrator of the New York Philharmonic, stands with President Torsten Wiesel in Caspary Auditorium, where internationally renowned musicians will perform in the university's 1993-94 concert series.

1993-94 concert series to feature new and established talent

Members of The Rockefeller University and their friends will be able to enjoy solo recitals and chamber music from a new roster of internationally renowned musicians, to be featured in the university's 35th Concert Series beginning Oct. 20, 1993. In keeping with tradition, the concerts will be held Wednesday evenings at 8:00 P.M. in Caspary Auditorium.

Associate Professor George Reeke, who for four years has helped to select the musicians for the series, is eagerly anticipating the performances, especially those of celebrated pianist Alicia De Larrocha, and of soprano Harolyn Blackwell, who was released from her contract with the Metropolitan Opera to sing at Rockefeller.

"I heard Harolyn Blackwell sing several times at the Met and knew we had to have her in the series," he said. "I am always looking to discover a star. Blackwell is in the early stage of her career and already shows great promise, as soprano Kathleen Battle did when she came to Rockefeller several years ago. It will be a treat to have Blackwell sing here before she becomes impossible to book!"

Also noteworthy are two concerts by the New York Philharmonic Chamber Players, who will perform at the university for the first time. "Adding the Philharmonic Ensemble to the series will give the Rockefeller community an opportunity to hear some of the impressive members of the Masur team," said Ingrid Reed, vice president for public affairs and corporate secretary.

By popular demand, the season will conclude with a concert by the Guarneri String Quartet, an

ensemble that has played here since the first years of the series.

The concert series was founded in 1958 by the late Professor Theodore Shedlovsky, who was also founder and first director of the university's Children's School. A scientist who applied the techniques of physical chemistry to the study of life processes, Shedlovsky ran the series until the mid-1970s, establishing a precedent of bringing some of the world's best musicians to the community.

The following concerts are planned for the 1993-94 season:
Oct. 20, 1993—New York Philharmonic Ensemble;
Nov. 24, 1993—Pianist Alicia De Larrocha;
Dec. 15, 1993—Aspin Wind Quintet;
Jan. 19, 1994—New York Philharmonic Ensemble;
Feb. 2, 1994—Soprano Harolyn Blackwell;
Mar. 2, 1994—Pianist Jean-Yves Thibaudet;
Apr. 13, 1994—Violinist Benny Kim;
May 11, 1994—Guarneri String Quartet.

A subscription to the series of eight concerts costs \$120, a reduction from last year's price; postdocs and graduate students of the Tri-Institutional community pay \$50. Tickets to individual concerts are \$17; postdocs and graduate students of the Tri-Institutional community pay \$7. Starting this year, tickets may be interchanged and pooled, as long as advance notice is given to the concert administrator, Catherine Rogers. For more information about the series or to obtain a subscription card, contact Rogers at x8971.

Physicist, molecular biologist to speak

The Rockefeller University will host a Friday lecture by Albert Libchaber, professor of physics at Princeton University, today (Jun 4). Harry Noller, professor of biology and molecular biology at the University of California at Santa Cruz, will speak on Fri., Jun. 11.

States of turbulence

In today's lecture, entitled "Thermal Turbulence," Libchaber will discuss the different characteristics of turbulence. He will focus on recent findings from an experiment which brought helium gas to extremely low temperatures.

Professor Mitchell Feigenbaum, who is hosting the lecture and whose theories on non-linearity were experimentally verified by Libchaber, noted: "Libchaber is an original and meticulous experimenter who regards problems of a biological origin as a conceivable source for the discovery of new physical concepts. It is difficult to imagine another physicist who could more naturally enhance the basic mission of science at The Rockefeller University."

After receiving a bachelor's-equivalent in mathematics from the University of Paris in 1956, Libchaber worked at the Ecole Nationale Supérieure des Télécommunications. He received an M.S. in physics at the University of Illinois in 1959 and a Ph.D. at the Ecole Nationale Supérieure, Paris, in 1965. After completing his French military service, Libchaber worked as an investigator at the Centre National de Recherche Scientifique. He then returned to this country, where he became professor at the University of Chicago and Fermi Institutes in 1983 and professor at Princeton University and fellow of the NEC Research Institute in 1991. Among Libchaber's honors are the Grand Prix de Physique of the French

Physical Society, the renowned Wolf Prize in Physics, and a MacArthur Fellowship. Libchaber is a member of the French Academy of Science and of the American Academy of Arts and Sciences.

A new role for rRNA

On Fri., Jun. 11, Noller will speak on "Involvement of rRNA in Translation." The ribonucleic acid (RNA) component of the ribosome—the site of protein synthesis in living cells—was thought to play a mostly structural role. Recent work in Noller's laboratory strongly suggests, however, that ribosomal RNA is capable of catalyzing the central step in protein biosynthesis resulting in the peptide bond.

"The implications of Noller's work are tremendously exciting," remarked Assistant Professor Magda Konarska, who is hosting the lecture. "His striking observation strongly supports the 'RNA World' hypothesis, namely, that early during evolution, RNA-based organisms used RNA molecules to catalyze important biological reactions."

A California native, Noller received an A.B. in biochemistry from the University of California at Berkeley in 1960 and a Ph.D. in chemistry from the University of Oregon in 1969. As a National Institutes of Health (NIH) Fellow, he worked at the MRC Laboratory of Molecular Biology in England from 1965 to 1966. As an NIH Fellow, he worked at the Institute of Molecular Biology at the University of Geneva from 1966 to 1968. In 1968, Noller joined the faculty of the University of California at Santa Cruz as the Robert L. Sinsheimer Professor of Molecular Biology. A recipient of a National Institute of Health MERIT award, Noller is a member of the National Academy of Sciences.

Folding stars and stripes



Security guards fold the flag in front of Caspary Hall every afternoon. Here, security guard Ian Huggins (left) and Sergeant Vivian Jones do the honors.

Research reveals 3-D structures of working molecules of life

By Doron Weber

The Burley lab is on a roll.

Within the past 10 months, the seven-person laboratory of molecular biophysics headed by Rockefeller University Associate Professor and Howard Hughes Medical Institute Assistant Investigator Stephen Burley has struck pay dirt at least four times. Using the latest techniques of X-ray crystallography, Burley's group has determined the three-dimensional structure of four new DNA-binding proteins. These proteins, dubbed by Burley as "the saddle, the crocodiles, and the butterfly," are all involved in transcription, the process by which genes are activated and cells take on their special roles in life. A fifth effort is near fruition.

In the competitive field of structural biology, where labs vie with one another to solve new structures, such impressive results in such a short time have catapulted the Burley lab to international prominence. The lab, located on the third floor of the Rockefeller Research Building, is adjacent to the Kuriyan lab, another pacesetter in the field. It also benefits from the rich store of biological expertise of other groups at Rockefeller, including the Blobel, Chua, Darnell, and Roeder labs.

Finding function from form

Burley and his fellow crystallographers are interested in the physical nature—the size, weight, and shape—of the large molecules involved in the processes of life. Revealing the minute structure of these molecules helps scientists to understand their biological activity.

"Ever since Watson and Crick deduced the structure of the DNA double helix, it has been axiomatic that, in biology, function can be understood from form," said Burley. "Crystal structures can be thought of as a Rosetta stone. They help us make sense of a linear sequence of protein which serves as the first clue to deciphering a new language."

The art of crystallography

The first step in crystallography is to obtain large amounts of the molecule of interest. Traditionally, researchers were limited to what nature gave them in a form that could be crystallized. But recent advances in genetic engineering revolutionized the process, enabling researchers to produce the protein product of virtually every gene.

"We can go to the Roeder lab, for example, and say 'please make me a



Members of the Burley lab, whose work illuminates the 3-D structures of molecules, include (left to right): Graduate Fellow Adrian Ferré-D'Amaré, Postdoc Kirk Clark, Associate Professor Stephen K. Burley, Postdoc Joseph Kim, Research Technician Elaine Halay, and Graduate Fellow Dimitar Nikolov.

gene for X—a gene that only expresses one part of the protein," said Burley. "It's one of the many advantages of working here at Rockefeller, surrounded by this wealth of biology."

After producing proteins or DNA, two research technicians in the Burley lab, Elaine Halay and Steve Jacques, help to separate and purify them. Next, the protein or the protein-DNA complexes are grown into crystals, a major undertaking that can take years.

Even after crystals emerge, researchers must often go through a painstaking process of trial and error—experimenting with levels of salt, temperature, and pH—until they get the right combination. "We don't know if it will be a good crystal for X-ray diffraction and data-collection until we've done the experiment," said Kirk Clark, a postdoc whose structure took almost two years to bring to three-dimensional high resolution.

High-tech X-ray and computer imaging are used to generate a preliminary model of the protein. Scientists then analyze, manipulate, and refine this model by drawing on concepts from theoretical physics, chemistry, and mathematics.

Recognition in transcription

In order to initiate transcription and activate a specific gene, proteins, known as transcription factors, must recognize and bind to specific DNA sequences. How do these crucial molecular recognition events take place? And which part of the proteins is involved? Burley's group is trying to understand, at the level of individual atoms, what interactions between molecules allow them recognize one another so that transcription can begin. In the long term, their goal is to classi-

fy systematically the interactions underlying molecular recognition.

TBP saddle

One long-awaited structure, the key control protein for all gene transcription, known as TATA-box binding protein (TBP), was hotly pursued by at least half a dozen labs across the country before Dimitar Nikolov, a second-year student in the Burley lab, solved it first in collaboration with the Chua and Roeder labs. The dramatic pictures of the TBP "saddle"—a new protein fold that sits astride the DNA and binds to it—were published on the cover of *Nature* last November.

TBP is required for the expression of every eukaryotic gene—and it is genes that determine where each cell in the body is positioned and what its role will be. According to Burley, one can think of the transcription machinery as a "cowboy" sitting on a "saddle" (TBP) with DNA as the "horse." When the cowboy sits on the TBP saddle, which can recognize the DNA on which it sits, activation of transcription can begin.

"This is a totally new structure," said Nikolov, "and it should provide a framework to understand many of the protein-protein interactions involved in transcription." Nikolov continues to study how transcription factors interact while Postdoc Joe Kim is close to solving the structure of TBP recognizing the DNA TATA sequence.

Max and USEF, the crocodiles

In May, *Nature* hailed the Burley team's first pictures of the structure and binding action of Max, a key transcription factor involved in cancer. The work on Max, solved by third-year student Adrian Ferré-D'Amaré in collaboration with

Professor Ed Ziff of NYU Medical Center, is important because of Max's central role in orchestrating the biological activities of a whole class of similar transcription factors, known as basic/helix-loop-helix/leucine zipper (b/HLH/Z) proteins. (The structure was accurately predicted by Professor David Baltimore several years ago.) Among its roles, Max is the specific partner for Myc, a common oncogene or cancer-causing protein which can only work with Max.

"This structure shows for the first time how an oncogene works," Ferré-D'Amaré said. "By showing how Max binds to itself we can see how Myc interacts with Max and recognizes DNA—the most critical part of oncogenesis." In collaboration with Roeder's lab, Ferré-D'Amaré also solved the structure of another b/HLH/Z protein, upstream stimulatory factor (USF).

HNF3, the butterfly

Next month *Nature* will publish the group's fourth structure, another transcription factor known as hepatocyte nuclear factor-3 (HNF-3). HNF-3 was solved by Postdoc Kirk Clark in collaboration with Professor Eseng Lai of Memorial Sloan-Kettering. HNF-3 is found in all eukaryotes. It influences transcription by binding to DNA elements, known as enhancer sequences, that are located far from the transcriptional start site.

HNF-3 was first isolated and cloned in Darnell's lab a few years ago. One of the Burley group's most surprising discoveries was that the structure of HNF-3 resembled histone H5, one of a family of proteins that binds nonspecifically to DNA and "packages" or protects it from damage. The connection between DNA packaging and transcription was totally unexpected and will lead to further investigation in the lab.

The new structures solved by the Burley lab include representative proteins that recognize the three key DNA control regions involved in transcription: the primary core promoter, where the actual signal to start is given, as well as the secondary promoter proximal and tertiary distal enhancer regions, which both regulate the rate at which transcription takes place. Taken together, these four structures offer the first glimpse ever of the entire transcription apparatus.

Those "big, beautiful, diamond-like crystals," as Burley calls them, may lead to further insights into the working molecules of life and, ultimately, to therapeutic intervention.

Potpourri

Tri-Institutional Noon Recital
Terra Brasil, a Brazilian vocal and instrumental jazz quintet, will perform at the Tri-Institutional Noon Recital today (June 4). The group has played regularly at the club Amazonas and at many clubs and concerts throughout the Northeast.

Lutenist Ronn McFarlane will play music from the Renaissance at the Tri-Institutional Noon Recital, Fri., June 11. McFarlane, who teaches lute at Peabody Conservatory, is featured in a number of recordings.

The concerts, to be held in Caspary Auditorium at noon, are free. All are welcome.

Call for volunteers

All those willing to help prepare for graduation or to assist in on-site activities on Convocation Day June 10 are invited to attend a meeting today (June 4) at 2:00 P.M. in Nurses Residence 110B. For more information, call Sandi Walsh, x8072.

Barbecue

Weather permitting, the university will hold its annual barbecue outside the Faculty and Students' Club today (June 4), at 5:30 P.M. The rain date is Fri., June 11. Advance tickets may be purchased for \$8 from the club or from Angie Dohnert, x8201. Tickets at the door will cost \$10.

Sprayings

Two sprayings of the campus trees and shrubs have been scheduled for Sat., June 5 and Sat., June 12, from 6:00 A.M. to noon. The rain dates will be Sat., June 19 and Sat., June 26. It is recommended that those on campus close the windows, shut off air conditioners, stay out of direct contact of the drift, and keep pets inside. For further informa-



Students of The Rockefeller University Children's School charmed the audience with their renditions of animals in the Amazon rain forest in the school's annual play last week.

tion, call James Sullivan, x8001.

Concert

The Children's Orchestra Society will perform its 24th annual concert at The Rockefeller University, Sun., June 6, at 4:30 P.M. Founded in 1962 by the late H.T. Ma, (father of cellist Yo-Yo Ma), the 120-member group aims to teach children between the ages of seven and seventeen to play music. The orchestra recently toured Boston, Washington, D.C., and San Francisco. In Sunday's concert, to be held in Caspary Auditorium, the group will play works by Haydn and Beethoven. A \$10 donation is suggested for admission (children under the age of eight are free). All are welcome to attend.

Symposium

The Rockefeller University will host a symposium entitled "Advances in Headache Research

and Treatment," to be co-sponsored by the New York and National Headache foundations, on Mon., June 7 at 6:00 P.M. in Caspary Auditorium. The two-hour program will feature a panel discussion by headache experts on topics such as the roles of food, stress, and hormones in causing headaches, and a question-and-answer session. The symposium is free. All are welcome.

Sweat Shirt Shop

Instead of its usual Tuesday hours next week, the Sweat Shirt Shop will open on Convocation Day, Thurs., June 10, from 11:30 A.M. to 1:30 P.M. and 4:30 to 6:00 P.M.

Recital

The Rockefeller University Women's Association will sponsor the eighth annual Faculty House and Scholars Residence children's recital, Mon., June 7. The children of the residences, ages 5 through 13 years, will perform a program featuring two choreographed dances and 13 short instrumental pieces. Organized by Robin Raskin, the free recital will be held on the 17th floor of the Tower Building from 7:00 to 8:30 P.M. A reception will follow. All are welcome.

Memorial ceremony

The Dr. Hideyo Noguchi Memorial Association of Japan invites members of the university community to attend the unveiling of the footstone marker for Dr. and Mrs. Hideyo Noguchi at the Dr. Noguchi Monument erected by The Rockefeller University (then The Rockefeller Institute for Medical Research). The ceremony will take place at the Woodlawn

Cemetery, in the Bronx, on Fri., June 11, at 3:00 P.M. For directions call the cemetery, (212) 547-5400. For further information, call Samuel Koide, x8751.

Discussion of Health Benefits

The Employee Representative Committee on Health Insurance will hold another meeting within the next two weeks to discuss extending health insurance benefits to same-sex domestic partners. Members of the community who would like to express an opinion on this subject are encouraged to contact Virginia Huffman, director of Personnel, x8300, or any of the members of the committee: Edgar da Cruz e Silva, Steven diNardo, Nicola Khuri, Jeff Prout, Sonia Reynes, James Schaefer, Candice Scheiner, or Ralph Steinman.

Graduation

Beate Hirsch, a former member of the Cohn-Steinman lab and former assistant in the Deans' Office, graduated summa cum laude from Marymount Manhattan College in art history on May 28.

Construction Manager Joseph Sanchez received an M.B.A. from Baruch College, City University of New York, yesterday (June 3).

Transcript

A printed transcript of the first Tri-Institutional Biomedical Forum lecture, "The Early History of Clinical Investigation at The Rockefeller Institute," delivered by Professor Emeritus Maclyn McCarty last fall, is now available from Grace Silvestri, x7763.

Honor

President Emeritus Frederick Seitz was one of a select group invited to attend three days of events during Pope John Paul II's visit to the Ettore Majorana Center for Scientific Culture in Erice, Sicily early this month.

Promotion

Michael Rosenbaum, of the Hirsch lab, was promoted from research associate to assistant professor.



Terra Brasil, a Brazilian vocal and instrumental jazz quintet, will perform at the Tri-Institutional Noon Recital today (June 4).

News&Notes schedule

The next issue of *News&Notes* will be published Fri., June 18. *News&Notes* will be published on a monthly basis in July and August.