Number 12/Fall 2002

PASTEUR FOUNDATION

PASTEUR PERSPECTIVES

THE NEWSLETTER OF THE PASTEUR FOUNDATION DEVOTED TO THE WORLD OF THE INSTITUT PASTEUR

MEET THE FELLOWS: DR. ALEX POLONSKY

The Pasteur Foundation Post-Doctoral Fellowship Program was created this year to send gifted young American researchers to the Institut Pasteur laboratories in Paris. The program is made possible by the generosity of the foundation's U.S. donors, including significant support from the Florence Gould Foundation. Pasteur Perspectives *launches this new feature, "Meet the Fellows," with Caitlin Hawke's interview of Alex Polonsky.*

Q: ***Are you familiar with the body of Louis Pasteur's work and have you visited the Pasteur Museum?***

A: Yes, I am familiar with some of Louis Pasteur's work. I have been to the museum and was glad to see that great scientists such as Pasteur are revered in France. I don't know of a similar museum in the United States.

Q: ***Describe some of the differences between your U.S. and Pasteur lab experiences.***

A: Overall, I prefer the research environment at Pasteur. The atmosphere in the lab is more genial and the people in my research group are friendlier with each other. Also, the work is more scientific in the true sense of the word – the focus is on doing interesting and useful research rather than on producing easily publishable "catchy" results. In reality, unfortunately, the two are sometimes mutually exclusive.

Q: ***How would you describe your subject?***

A: My work is in the area of bioinformatics. Modern biological research produces vast amounts of information that cannot be analyzed without computer technology and mathematics. Bioinformatics utilizes these tools to organize and analyze biological information, and is therefore essential to the progress of biology.

Q: ***What is the object of your research?***

A: Currently I am working on organizing biological information relevant to malaria research, the object of study in my lab. Applying some of my own ideas to the latest advances in information technology, we are in the process of developing software tools for organizing the data yielded from ongoing research projects. We are also working on creating a database of information relevant to malaria research such as, for example, a research bibliography focused on the subject of malaria.

Q: ***What do you believe will be the best possible application?***

A: My work will assist research in several ways. It will help researchers to better manage their projects, to find pertinent information faster, to have a better overall picture of their subject areas, and so forth. Our tools will save time and help us make better decisions about where and how to move research forward. In addition to developing these tools, I will also use them to explore new ways of combating malaria.

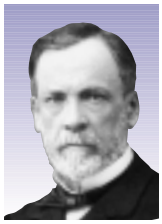
Q: ***If there were one thing in any scientific domain you could fully understand today, what would it be?***

A: The biological mechanisms of consciousness.

continued on page 2

ALEX POLONSKY

DATE OF BIRTH: August 25, 1972
PLACE OF BIRTH: Kiev, Ukraine
B.A.: Biology (MIT)
M.S.: Electrical Engineering (Stanford University)
PH.D.: Biophysics (Stanford University)
LAST POSITION: Research Assistant
LAST U.S. ADDRESS: Whitehouse Station, NJ
MOST PERSONALLY MEANINGFUL DISCOVERY: Mapping the anatomical and physiological boundaries of visual consciousness in the human brain using functional magnetic resonance imaging (MRI)
HOME ARRONDISEMENT: 15th
FAVORITE METRO STATION: Bastille
FAVORITE GUILTY PARISIAN PLEASURE: Good restaurants
FAVORITE PARISIAN SITE: Jardin du Luxembourg
FAVORITE FRENCH WORD: "Voilà"
FAVORITE FRENCH FILM: *Amélie*
FAVORITE FRENCH WINE: Corton Charlemagne
FAVORITE PIECE OF LAB EQUIPMENT: My laptop
WHAT YOU MISS MOST: Friends and family
WHAT YOU'LL MISS MOST ABOUT FRANCE: Hopefully, the people



NEXT CALL FOR APPLICATIONS ANNOUNCED

The next deadline to apply for the Pasteur Foundation Post-Doctoral Fellowship Program is Friday, February 14, 2003. For application guidelines, please call the foundation or visit our website at: www.pasteurfoundation.org

Q: ***What made you decide to come to the Institut Pasteur?***

A: The ability to pursue my particular area of research and the opportunity to live in Paris.

Q: ***What would you say to an American tempted by the idea of working abroad?***

A: I would certainly recommend it, especially in Europe. It's a unique chance to learn about another interesting culture, which is good for both one's personal and professional life.

Q: ***Life is more than just work. When you are not in the lab, where are you likely to be?***

A: Going out with friends, listening to music, playing a bongo drum, watching a movie, dancing, and other similar activities.

Q: ***Did you speak French before you came to France? If not, have you reached a comfortable level of fluency?***

A: I didn't speak French before I arrived, so it will take me some time to feel comfortable with the language – but I'm working on it.

Pierre-Louis Roederer and Agnès Hibon with Alex Polonsky

Q: ***Have you mastered the differences in everyday activities – food shopping, for example?***

A: For the most part, yes – but I'm also working on that.

Q: ***What is your favorite aspect of life in Paris?***

A: I appreciate the Parisians' consistent focus on the quality of experience: in food, in movies, in parks, in public events – in all their activities.

Q: ***What is your least favorite aspect?***

A: Parisians are often unable or reluctant to speak English, causing difficulties for someone who speaks English but is not fluent in French.

Q: ***What do you miss most about the U.S.? And least?***

A: The U.S. is very accepting of immigrants. Although I grew up in the Ukraine, I also feel American. What I miss least would have to be the New York public transportation system.

Q: ***Do you think you may return to France after your fellowship, either professionally or for pleasure?***

A: Definitely.

More to the Point: News in Brief from Pasteur

SIDS Incidence Linked to Smoking: Though greatly reduced over the last 20 years by preventive measures such as placing infants on their backs in cribs without blankets or pillows, sudden infant death syndrome (SIDS) is still a leading cause of infant mortality in developed countries. In September, an international team led by Pasteur's Jean-Pierre Changeux published compelling results of new work in the *Proceedings of the National Academy of Sciences (PNAS)*. They found that the beta-2 (B2) receptor in the brain, which plays a role in learning, also regulates breathing during sleep, particularly in the reflexes activated by a lack of oxygen. When exposed to nicotine, the fetus's B2 receptors are continuously activated, which leads postpartum to the infant's diminished capacity to respond to sleep apnea (brief respiratory pauses) and an increased risk of sudden death. The study provides conclusive evidence that exposure to nicotine during pregnancy is an important risk factor for SIDS.

Susceptibility to West Nile Virus: The infection caused by the West Nile virus, transmitted by mosquitoes and reaching epidemic proportions in some areas of the U.S., has claimed over 200 lives here already this year. In a very small percentage of cases, the virus can cause fatal encephalitis. However, the infection is usually harmless, producing no symptoms in most of those who become infected. This difference in susceptibility is the subject of current research by a team of laboratories coordinated by Jean-Louis Guenet and Philippe Desprès in one of the Institut Pasteur Transversal Research Projects. Published in August in *PNAS*, their results have led to the identification in mice of a gene that may be responsible. Researchers are now exploring the possibility that variations in the corresponding human gene may predict vulnerability to severe infection. In addition to a test that may predict individual risk, it is hoped that this study will lead to effective methods for combating flaviviruses, which include the organisms that cause West Nile, dengue and yellow fever.

A Hot Time for Bacteria: *Listeria monocytogenes* is responsible for listeriosis, a severe foodborne infection that appears principally in industrialized nations (see *Pasteur Perspectives*, Number 3). The bacterium has now been shown to possess a thermostat that allows it to remain passive in food until the host reaches the optimum activating temperature – 98.6° F, or human body temperature. The September issue of *Cell* features an article on the work of a team of Pasteur researchers, directed by Pascale Cossart, which led to detection of this "thermostatic" mechanism. Its discovery has promising applications in bacterial protein production both in laboratory experimentation and industrial use.

BIOTERRORISM: PASTEUR RESPONDS

The events of last fall brought to light a terrifying reality: the risk of bioterrorism. In view of potential attacks, the Institut Pasteur, in its capacity as one of the world's primary research centers for infectious disease, has reinforced its ability to implement a coordinated response with French health officials. For the past year, the institute has pursued expanded research on agents subject to weaponization, including those that cause anthrax, plague and botulism, and has reinforced its epidemiological surveillance facilities. In the event of an attack, the Institut Pasteur can now intervene immediately to assist in rapid identification of the causal agent by using already developed detection probes and diagnostics and those rapidly being perfected in its labs. Also in development are antisera and vaccines for use in case of attack.

NATIONAL REFERENCE CENTERS: The National Reference Centers are an integral part of the public healthcare mission of the Institut Pasteur. These centers are research units appointed by ministerial decree for three years' duration as microbiological observatories to monitor certain transmissible diseases. They work in conjunction with the French General Directorate of Health and France's National Institute for Health Monitoring. Many of the units are also World Health Organization Collaborating Centers and function as reference and advisory bodies for WHO, forming an important element of an international network of expert laboratories.

There are 22 state-designated National Reference Centers on Pasteur's Paris campus, seven of these directly involved in areas of research on bioterrorism. The Anthrax National Reference Center was created earlier this year at the express request of the French government. The others are involved in research on botulism, plague, hemorrhagic fever viruses, arboviruses, diphtheria and antibiotic resistance. Of the remaining 15, several are possible sources of help in dealing with outbreaks of influenza, cholera, salmonellosis and shigellosis. Fully trained staff personnel are available if needed in emergency situations.

HIGH-SECURITY FACILITIES: The new high-security Bio-Urgency Laboratory, located on the Paris campus and staffed by biologists and technicians with specialized training, can be mobilized within three hours in the event of an attack. The Institut Pasteur manages an additional facility in Lyon with emergency capabilities that can also be readily activated if needed. This lab, the only one of its kind in Europe, is devoted to the study of the deadliest extant and emerging infectious agents.

RESEARCH PROGRAM: In addition to formation of the quick-response units mentioned above, the Institut Pasteur has for many years conducted research on pathogenic agents capable of being weaponized. As a reaction to recent events, the institute has grouped the labs devoted to their study under an umbrella program: "Urgent Biological Interventions."

Techniques and tools for rapid detection and diagnosis are of critical importance. Time is the essential element in identification and effective treatment of infected patients.

ANTHRAX PROGRAM: The aims of the program are to develop the following:

- rapid-detection methods in humans via serodiagnostics and in the environment by identifying spores and bacterial surface antigens;
- treatments such as monoclonal antibody immunotherapy;
- a vaccine.

As readers may remember, the last issue of *Pasteur Perspectives* described the development of a candidate anthrax vaccine already shown to be effective in rodents. It will soon be tested in humans.

The search continues for the identification of new therapeutic applications and vaccines.

BOTULISM PROGRAM: Various botulin toxins are currently under study; the primary aim of the research is the refinement of monoclonal antibodies that can be used therapeutically to neutralize these toxins.

PLAGUE PROGRAM: A rapid-detection method has been developed and additional methods are under study. Also underway: research on a vaccine that will be effective on both bubonic and pulmonary plague.

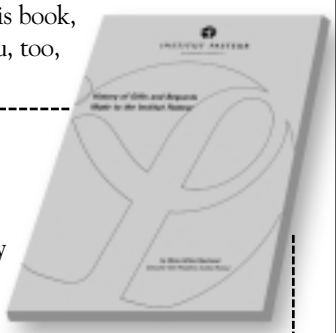
Source: Press Office, Institut Pasteur

HOT OFF THE PRESS: A HISTORY OF GENEROSITY

What did the Emperor of Brazil, the Sultan of Turkey and the Emperor of Russia have in common? In 1887, all contributed to the fund to establish the Institut Pasteur. Since then, gifts and bequests remain a crucial base of financial support for this private institution dedicated to the service of humanity. For almost 20 years, the Pasteur Foundation has also benefited from the generous support of Americans and French residents of the United States. Thanks to their philanthropy, we were able to create our fellowship program to bring American researchers to Pasteur laboratories. With their gifts and bequests to the Pasteur Foundation, our U.S.-based donors advance a cause that improves the health of individuals worldwide while opening doors for American scientists.

In recognition of this century-old tradition of private support, the Pasteur Foundation has just published a book by Marie-Hélène Marchand entitled *History of Gifts and Bequests Made to the Institut Pasteur*, a unique story of how the generosity of donors was instrumental in the evolution of this renowned scientific institution.

To receive a *complimentary copy* of this book, please complete the order form below. You, too, can become part of this venerable history.



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Yes, I would like to read about the unique history of the world's generosity toward Pasteur. Please send a complimentary copy of ***History of Gifts and Bequests Made to the Institut Pasteur***.

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Please return this order form to: Pasteur Foundation, Attn.: Book Order, 420 Lexington Avenue, Suite 1654, New York, NY 10170.

PASTEUR PERSPECTIVES

A **501(c)(3)** organization, the Pasteur Foundation is the U.S. nonprofit affiliate of the Institut Pasteur. Located in New York City, the foundation works to introduce the research conducted at the Institut Pasteur to the American public, to develop exchanges between Pasteurian and U.S. scientists, and to raise funds for Pasteurian research. For more information, please contact the Pasteur Foundation.

A copy of the latest annual report may be obtained, upon written request, from the Office of the Attorney General, Charities Bureau, 120 Broadway, New York, New York 10271.

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☐ Please provide me with more information about how I can support the research of the Institut Pasteur and ensure its excellence by making provisions in my testament naming the Pasteur Foundation a beneficiary *(please check)*: ☐ in my will ☐ in my trust ☐ in my insurance policy ☐ in my retirement plan

☐ I would like to help support the research conducted at the Institut Pasteur to improve worldwide public health by making a tax-deductible gift to the Pasteur Foundation in the amount of:

☐ $1,000 ☐ $500 ☐ $100
☐ $50 ☐ $25 ☐ Other $_____

☐ Please add my name to your mailing list.

☐ Please send more information about the Institut Pasteur.

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Spring 2002 Gala Raises Fellowship Funds

On May 23, 2002, the Pasteur Foundation held its annual gala, raising more than $380,000. A portion of the proceeds will fund the Pasteur Foundation Post-Doctoral Fellowship Program, which sends gifted American researchers to work in the laboratories of the Institut Pasteur in Paris. The work of these talented scientists advances basic research on infectious diseases such as malaria, AIDS and anthrax.

Under the patronage of the Ambassador of France and Mrs. François Bujon de l'Estang, and the Consul General of France in New York and Mrs. Richard Duqué, the evening featured the first U.S. performance in 10 years by students from the Paris Opera Ballet School under the direction of Claude Bessy, a former Paris Opera dancer. Dinner followed at Tavern on the Green.

The Gala Committee included Ambassador Anne Cox Chambers, Ambassador and Mrs. Felix G. Rohatyn and Dr. Judith P. Sulzberger, who served as the event's Honorary Chairmen. Mrs. Anastassios Fondaras, Georges and Agnès Hibon, and Guy and Kristina Wildenstein were the Gala Chairmen, and Luc de Clapiers of CDC Ixis North America served as Corporate Chairman. Generous underwriting was provided by Aventis Pasteur CEO David Williams; additional major corporate support came from Merck & Company, CDC Ixis, Wyeth Pharmaceuticals, The New York Times Company, Procter & Gamble Company, Bloomberg, Eli Lilly & Company, Fortis Financial Services, Kos Pharmaceuticals, L'Oréal USA and Sankyo Pharma.

Among the attendees were Ambassador and Mrs. Jean-David Levitte, Institut Pasteur President Philippe Kourilsky, Paris Opera Ballet School Director Claude Bessy, Françoise Gilot-Salk, John and Mary Young, Barry and Yvonne Cohen, Alain Malraux, Henriette Beilis, Mary Sharp Cronson, Jacques and Katharina Bouhet, Sam and Judy Peabody, Spiros and Antonia Milonas, and Pierre and Nadia Valla. Our thanks go to L'Occitane en Provence and Neuhaus Chocolates who generously provided party favors. And finally, we thank the American Friends of the Paris Opera & Ballet for their collaboration.

Note: We regret that space constraints do not permit us to list all of our gala donors. However, we extend our sincere thanks for your support.

Alain Roizen and Françoise Gilot-Salk

Judy and Sam Peabody

Mrs. Anastassios Fondaras

Institut Pasteur President Philippe Kourilsky, Andreya and Shawn Gomez, and Advisory Board member Judith Sulzberger. Dr. Shawn Gomez, a Pasteur Fellow, works on a joint Institut Pasteur–Columbia University research project examining the genome of the mosquito that transmits malaria.

Jacques and Katharina Bouhet

Mary Sharp Cronson and Caroline Cronson

Antonia and Spiros Milonas

Photos by P.McMullan

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Do not miss this special opportunity to support the Pasteur Foundation
and to reserve your *avant-première* seats
to a show that is sure to be sold out for months!

SAVE THE DATE: MONDAY, APRIL 14, 2003

Our Spring Gala features a pre–opening night performance
of the eagerly awaited revival of the musical

GYPSY

Music by Jules Styne Lyrics by Stephen Sondheim Book by Arthur Laurents
Directed by Tony and Oscar Award winner Sam Mendes
and starring two-time Tony Award winner Bernadette Peters

To reserve corporate or benefactor tables or for additional ticketing
information, please contact Caitlin Hawke at the Pasteur Foundation.
Tel: 212 599-2050 E-Mail: PasteurUS@aol.com
Check our website for updated information: www.pasteurfoundation.org