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## Bryn Mawr College

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### Investigating Infections from Multiple Perspectives

By Barbara Spector

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Carol Shoshkes Reiss '72, a professor of biology at New York University who specializes in viral immunology, has a lot on her plate. "I attend meetings, and I organize meetings," says Reiss. "I write and review papers, and I edit a journal. I write and review grants. And I try to keep the public, as well as my students, informed."

Reiss's research interests encompass innate and cellular signaling, molecular aspects of infection and infection pathogenesis. Her lab is investigating the role of the immune system in clearing viral infections from the central nervous system. Recently, she has been focusing on analysis of components involved in the breakdown of the blood-brain barrier (BBB) during viral infection. Her work in this area led to a patent on a method for regulating the permeability of the BBB, which she hopes could be used to enable the transfer of drugs from the blood system to the brain.



Carol Shoshkes Reiss '72

Photo by: Bryan Burkey

"At times my work is terribly basic, and at other times it's applied," Reiss says. "I'm always learning something new. I ask questions, and I get answers; however, the answers are not always what we expected. Many people I know just have jobs, but I love what I do. I'm never bored." She has been the editor-in-chief of *Viral Immunology* since 1999 and has organized Keystone Symposia as well as programs held under the auspices of the New York Academy of Sciences and other organizations. "It's all part of the science," she says, "and I enjoy all of it."

### Putting Risks in Perspective

Among her many committee appointments, Reiss served on a panel of scientists that advised the Defense Advanced Research Project Agency and the Department of Defense on the feasibility of grant applications to study countermeasures against unconventional pathogens, including infectious diseases. The proposals involved vaccines, therapeutics, diagnostics, and protective and decontamination devices.

Because of her expertise in viral encephalitis, Reiss was interviewed countless times by the media during the West Nile virus outbreaks. She was also frequently quoted during the anthrax scare that followed the terrorist attacks of Sept. 11, 2001. The press — "ranging from the student newspaper here to live television" — continues to call her for comment on bioterrorism issues.

In her media appearances, Reiss says, she tries to put the issues into perspective. "I do not think that bioterrorism is a highly likely event. There are a lot of people who have tried it, but most have not been successful." A much greater threat, she says, is posed by gun-, knife- or Molotov cocktail-wielding criminals, as well as by infectious agents occurring naturally in the population. "We are a highly mobile group of people," she notes. "If someone picks up an infection and gets on a plane, three hours later they can be bringing that infection to a different country." Other risks exist as well, Reiss adds — for example, the risk that drinking water could be contaminated with an agent such as the gastroenteritis virus. "That can be horribly disabling over a short while," she notes. "It could stop the army."

Because the notion of bioterrorism increases citizens' level of anxiety, she says, "It gets spun out of proportion by the media." To minimize the likelihood that her comments on the issue will be taken out of context or misquoted, Reiss now

declines interview requests from certain broadcast outlets unless they agree to air her comments live. "I can spend an hour with a reporter and appear for only 30 seconds on television," she notes.

Media sensationalism, Reiss says, often results from fear of the unknown. "Many people are afraid of science. They choose not to learn about it, for reasons I cannot understand."

### **Varied Interests**

Reiss herself became interested in biomedicine at an early age; her father was an internist. After graduating from a very large public high school in New Jersey, she relished the small classes at Bryn Mawr, where she majored in biology. "The single-sex environment gave me confidence, and the feeling that I could do anything," Reiss recalls. "The motto was that women don't just marry; they go on to have independent careers."

At first, Reiss planned to become a genetic counselor and received her master's degree in human genetics from Sarah Lawrence College in 1973. While at Sarah Lawrence, she had the opportunity to do research and decided to make it her career. She graduated in 1978 with a Ph.D. in microbiology from Mount Sinai School of Medicine, New York City, where she studied the influenza virus in the mouse. "From there, I wanted to learn more about basic science," she recalls. She spent 13 years (1978-91) as an independent investigator at Harvard Medical School and worked with Baruj Benacerraf, who won the Nobel Prize in physiology or medicine in 1980. She arrived at New York University as a tenured full professor in 1991.

In addition to her numerous professional activities, "I'm a parent, and I have a social life," says Reiss. "It's all a juggling act. What keeps me healthy and sane is being able to go to a wonderful concert with first-class musicians or to go to one of the museums and galleries. I'm fortunate to be in New York City — this is what recharges my batteries."

*Barbara Spector writes on science and technology as well as business topics. She is the editor-in-chief of Family Business magazine and former editor of The Scientist.*

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