



ASTOUNDING PRECISION

Richard Ransohoff '68, Researcher and Reader

Richard Ransohoff '68, M.D., is director of the Neuroinflammation Research Center at the Lerner Research Institute and staff neurologist at the Mellen Center for Multiple Sclerosis Treatment and Research, both at the Cleveland Clinic. In 2002 he received the John and Samuel Bard Award in Medicine and Science. Yet as a Bard student, Ransohoff had embraced the humanities, without a thought to a future in medicine or an inkling of the research scientist he would become. He majored in literature and wrote his Senior Project on Jorge Luis Borges. Today, his groundbreaking work with chemokines, the small proteins that direct leukocytes (white blood cells) to places of inflammation or injury, has engendered a new understanding of the cellular mechanisms of multiple sclerosis (MS)—an inflammatory and possibly autoimmune disease of the central nervous system—and offers promising implications for its treatment.

Describing the correlation between the science of chemokines and his deep immersion in reading and writing at Bard, Ransohoff recalls Hsi-Huey Liang, associate professor of history. Liang “would sit holding a Parliament, balancing a cigarette lighter between two fingers, turning the lighter over and over” as he lectured, perhaps on the Berlin police force anthem as a microcosm of the Weimar Republic. “He would swirl through all these complicated currents of things that seemed unrelated, and at the end, he would snap open his lighter, light his cigarette, and bring everything to a conclusion. He gave me an appreciation for how the details that were not obviously related to the big questions could be used to address and answer those questions.”

Inspired as well by Heinrich Bluecher, “a formidable intellectual,” Ransohoff envisioned becoming an academic. He also studied with Elizabeth Stambler, with whom he read André Gide’s translation of *Hamlet*. “Going back and forth between the English and the French, seeing how different this story was, purely as a reflection of the way the language worked to tell it,” he says, “was my introduction to detailed hard work and intense fun.”

Ransohoff set out to do graduate work in the humanities at San Francisco State, but the riots of 1968 shut down the campus and he returned to New York in need of a job. He worked the night shift in the admitting department of Lenox Hill Hospital and served as poetry editor of *Corpus*, a literary magazine edited by Pierre Joris '69. Against his expectations, Ransohoff found the hospital a fascinating place to work. He began taking premed courses at Hunter while still a night clerk—"to biopsy my interest," he says, and went on to earn his M.D. from Case Western Reserve School of Medicine in 1978.

During six years of residencies in internal medicine and neurology, Ransohoff discovered that he was "overwhelmed by curiosity about what was going on with my patients, well beyond what was useful to them. In medicine, if you try something and it works, you're done." But Ransohoff wanted to know "why something worked and what it meant, and if it didn't work, why not?"

In 1989, after almost five years of postdoctoral research in advanced molecular biology and virology under the auspices of Dr. Tim Nilsen at Case Western Reserve, Ransohoff set up his own lab at the Cleveland Clinic, which had established the Mellen Center and a new Department of Molecular Biology. Early on, he says, "I was lucky to happen upon a particular biological problem involving chemokines that I've studied ever since." A pilot project involving research on a multiple sclerosis model in mice and a specific pair of genes that "turned out to be a key part of the inflammatory cascade" demonstrated for the first time that the cells of the nervous system generated chemokines during inflammation. "The authentic communication between the nervous system and the leukocytes was especially evocative and enticing as a field of study," says Ransohoff, and his lab changed direction in response to this discovery. Later, his group and others found that chemokines also help orchestrate the elaborate ballet of nervous system development and function. The Neuroinflammation Research Center was established in 2006, to help apply this knowledge to other disorders including stroke, muscular dystrophy, and Alzheimer's disease.

Chemokines help regulate inflammation. What's key about them, says Ransohoff, is their specificity and the precision with which they function, and what this tells us about the pathogenesis of a whole battery of diseases including diabetes, HIV-1, rheumatoid arthritis, and multiple sclerosis. Natalizumab, a relatively new drug for the treatment of multiple sclerosis that suppresses leukocyte entry into the central nervous system, is one of a series of treatments that evolved in the context of Ransohoff's advances in the study of chemokines and leukocyte migration through the bloodstream and into the nervous system. Although safety concerns still surround Natalizumab, the drug offers hope and has the potential to provide insights into the disease. "Inflammation and deterioration coincide within the nervous system of persons with MS," says Ransohoff. "We act on the belief that inflammation causes damage, but we don't know for sure. The inflammation may be secondary. The only way to ask the question is to get rid of the inflammation and see if the degeneration stops. Not only might we have the most important treatment yet, but we might be able to solve an incredibly fundamental problem."

Ransohoff, whose summer reading included *Diary of a Bad Year*, by J. M. Coetzee, has never lost the appreciation for literature that he discovered as a student—"for what is beautiful and true . . . and astoundingly precise." Like his experience with the humanities at Bard, "in biology," he says, "if you get deep enough, almost anything you study is going to bear on the important questions."

—Stephanie Fleischmann



ACCESS TO LIFE is a project organized by the Global Fund to Fight AIDS, Tuberculosis, and Malaria in collaboration with Magnum Photos, a New York-based cooperative of photographers. Gilles Peress, visiting professor of human rights and photography, is one of the eight Magnum photographers who went to nine countries—Haiti, India, Mali, Peru, Russia, Rwanda, South Africa, Swaziland, and Vietnam—to chronicle the positive effect that free antiretroviral drugs are having on AIDS patients around the world. The resulting photography exhibition, *Access to Life*, opened at the Corcoran Gallery in Washington, D.C., in June. The show travels to Mexico City, Paris, London, and other cities around the world over the next year; a catalogue will be published in time to accompany the European stages of the exhibition. While he was teaching at Bard last spring, Peress finalized his part of the project—photographs of AIDS patients in Rwanda, where free lifelong treatment has been made available to 44,000 Rwandans in just five years. The photographs by Peress that accompany this article were selected from the *Access to Life* exhibition.