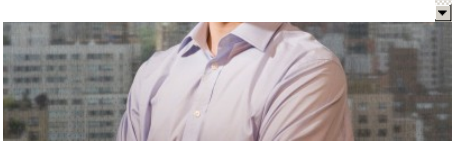
the clinic he cares for cancer patients with a wide variety of infections, and in the laboratory he studies the interaction between bacterial pathogens and host cells. He holds the Catherine and Frederick R. Adler Chair for Junior Faculty.



Michael Glickman

I come from an academic medical family, with both my father and my older brother working in the field, which meant that a physician-scientist's lifestyle was familiar to me. Although I got my undergraduate degree in English literature, I had always been interested in biomedical research. I agonized over the decision of whether to pursue a dual MD/PhD degree. In the end, I decided against it, choosing instead to go to medical school at Columbia University College of Physicians and Surgeons.

When I completed medical school in 1993, I went on to do my clinical training in internal medicine at Massachusetts General Hospital, in Boston. As I was becoming a clinically trained doctor, I began to develop an interest in the study of infectious diseases. I was surprised to see a tremendous disconnect between the way the subject was taught in medical school and the way it was practiced with patients. Caring for patients with infections was far more exciting and rewarding than I had ever expected. I was interested enough to do a subspecialty fellowship in infectious diseases. The first year was clinically focused, followed by two years of laboratory research.

> Understanding how infections develop and how pathogens infect host cells is important to understanding how to treat infections in cancer patients.

For my postdoctoral fellowship I decided to work with William Jacobs, a professor of microbiology and immunology at Albert Einstein College of Medicine in the Bronx. Bill is a Howard Hughes Medical Institute investigator studying mycobacteria, a particular type of bacteria that is the common cause of many serious human infections, including tuberculosis (TB) and leprosy.

It was a seminal time in mycobacterial research, which had until then lagged behind other areas of microbiology and bacterial pathogenesis research. The reason for this was the absence of genetic tools to work with these organisms. Bill had spent ten years developing genetic tools to break down those barriers, and when I started in his lab these tools were ready to be used to answer some of the big questions. Chief among them were the molecular basis for TB, which remains a major cause of mortality worldwide, and the search for new antimicrobials that would shorten TB treatment time.

I enjoyed the research end of things so much that, by the end of my postdoctoral fellowship, I opted to work for another two years in Bill's lab. I was

studying a novel family of enzymes involved in the biosynthesis of the cell walls of *Mycobacterium tuberculosis* and other mycobacteria. Through my work, I was able to show that these enzymes were important for modifying molecules called lipids, which make up the outer surface of the bacterium, and that the enzymes played an important role in the disease-development process known as pathogenesis.

In January 2002, I joined Memorial Sloan Kettering Cancer Center as a physician-scientist, treating patients as a member of the Infectious Diseases Service in the Department of Medicine and starting my own laboratory in the Sloan Kettering Institute's Immunology Program . As a researcher, I am a microbiologist specializing in microbial pathogenesis. This area of study is relevant to cancer because cancer patients can develop a number of infections as complications of either the cancer itself or the therapies used to treat cancer. Understanding how these infections develop and how pathogens infect host cells is important to understanding how to treat infections in cancer patients.

In my laboratory, we use a multidisciplinary approach that includes microbial genetics, biochemistry, molecular biology, lipid biochemistry, and immunology. The long-term goal of our studies is to identify and understand bacterial molecules essential for *M. tuberculosis* pathogenesis that would be attractive therapeutic targets and to gain insight into the novel physiology of mycobacteria.

A new direction of our work involves antibiotic development. We are actively working with Memorial Sloan Kettering's High-Throughput Drug Screening Facility to try to identify and test compounds that we have isolated to kill mycobacteria. It turns out that a number of these compounds are successful at killing a wide range of bacteria, many of which are directly related to infections in cancer patients.

Six years ago, when I started at SKI, I would not have imagined that I would be doing some of this work, especially the drug screening projects. These unanticipated directions are a result of the rich scientific environment at Memorial Sloan Kettering, which encourages investigators to explore new directions. This environment is, for me, one of the most rewarding things about the clinical and research parts of my job.

In the clinic I see patients who have serious mycobacterial infections. When they learn that I also do research on infectious disease, they say, "Oh, you have a lab? Have you discovered anything new that can help me?" It's frustrating for me to have to tell them that my research will most likely not be directly and immediately available as a clinical therapy for them. It will, however, lay the groundwork for understanding the underlying strategies used by these infectious agents, which can and hopefully will lead to better therapies.