In Memoriam

Lloyd F. Mayer, MD June 21, 1952–September 5, 2013

**Charlotte Cunningham Rundles • The Editorial Board
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It is with great sadness that we report the passing of our dear colleague and friend, Dr. Lloyd F. Mayer, on September 5th, 2013 at the age of 61, after a 3 year battle with glioblastoma. Lloyd graduated from the Bronx High School of Science in Manhattan, and was admitted to Mount Sinai School of Medicine after 3 years of undergraduate education at Union College. He graduated in 1976 and completed an internal medicine residency at Bellevue/ New York University. After this, he returned to Mount Sinai for a 3 year fellowship in Gastroenterology and worked as a Postdoctoral Fellow in the laboratory of Henry Kunkel at The Rockefeller. He remained at the Rockefeller for 4 more years during which time he was promoted to Assistant Professor in 1984, and was made Assistant Editor of the *Journal of Experimental Medicine*. In 1985, Lloyd returned to Mount Sinai as an Associate Professor of Internal Medicine, and after 1 year became the Chief of the Division of Clinical Immunology, a position he held for

the rest of his career. He was promoted to Professor of Medicine and Microbiology, and in 1994, he became Vice-Chairman of Medicine, and was bestowed the Dorothy and David Merksamer Professor of Medicine endowed chair. In 1997, Lloyd founded, and became Chair of the Immunobiology Center at Mount Sinai, with oversight of basic and clinical immunology research. He also served as Chief of the Dr. Henry D. Janowitz Division of Gastroenterology from 2003 to 2010.

Lloyd was a member of the American Society of Clinical Investigation and the Association of American Physicians. He served on the editorial boards of *Gastroenterology*, *Journal of Immunology*, *Journal of Experimental Medicine*, and *Journal of Clinical Investigation*. He provided years of service to the National Institutes of Health, including membership on the Immunological Sciences Study Section. He received the Jeffrey Modell Foundation Lifetime Achievement Award, the Jaffe Food Allergy Institute Scientific Achievement Award, and the Scientific Achievement Award of the Crohn's and Colitis Foundation of America (CCFA). He was the integral medical and scientific advisor to the CCFA for 3 decades, and a key member of the International Organization for the Study of Inflammatory Bowel Disease. At Mount Sinai, Lloyd was awarded the Saul Horowitz, Jr. Award, and the Jacobi Medalion for distinguished achievement in the field of medicine.

Lloyd's research was primarily based on the clinical and translational work in the field of human mucosal immunity. He is well known for his insights into the interactions between human gut epithelial cells and CD8⁺ regulatory T cells, and the perturbations of these functions in inflammatory bowel disease. He discovered that a member of the CEACAM family, a novel epithelial CD8 ligand, was impaired in Crohn's disease, and he was one of the very first to use novel biologics in the treatment of mucosal inflammation.

Clinical immunologists always recall that while at Rockefeller, Lloyd discovered the basis of X-linked Hyper-IgM

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Syndrome. The story of this certainly bears repeating here. As a gastroenterologist Lloyd was particularly interested in the production of IgA. T cells were known to produce factors that augmented B-cell proliferation and differentiation and sometimes, isotype switch. However, supernatants of the mixed lymphocyte cultures and mitogen-activated cells contained many substances. To answer this problem, Lloyd then produced a series of T cell hybridomas, some of which led to an isotype switch to IgA [1]. Then, investigating the potentials of malignant T-cells, he used lymphocytes from a patient who had a Sezary phenotype with 30 % T peripheral cells bearing Tac antigen (IL-2 receptor) to explore the reason why this patient had abundant serum IgG and IgA but no serum IgM. As there was no defect in B-cell IgM secretion in and of itself, as the addition of EBV to these B-cells showed, nor was suppression of IgM production identified, Lloyd set up experiments to determine whether this patient's T-cells could induce a class switch in normal cells. This indeed proved to be the case, as co-culture experiments with tonsillar B-cells demonstrated enhanced IgA and IgG production instead of IgM. At that time, the Hyper-IgM Syndrome was largely considered to be an intrinsic B-cell defect. However, Lloyd then tested the B-cells of these patients and showed that isotype switching occurred in a proportion similar to that of normal B-cells [2, 3], and he suggested that Hyper-IgM Syndrome might result from defects in switch T cells. As history shows, 7 years later Hyper-IgM Syndrome was identified as a mutation in CD40L, which is required for functional CD40 activation and class switch [4].

Lloyd was a gifted mentor and teacher. He trained legions of gastroenterology and immunology fellows and faculty, many of whom came from around the world to benefit from his intellectual genius and his uncanny knack for crystallizing and tackling critical research questions. Among the gastroenterology leaders in inflammatory bowel disease, Lloyd's knowledge of basic immunology uniquely positioned him to incorporate molecular and immunological concepts to

envision the design of important clinical trials that have changed the lives of thousands of patients. Perhaps most importantly, Lloyd was a brilliant and compassionate physician. He was beloved by his patients as a steadfast advocate for their care.

Well known for his brilliance, energy and customary directness, Lloyd was set back only briefly after his initial surgery for glioblastoma in 2010. Within months he was back in his laboratory, continuing to serve as a mentor, write and receive grants, and publish important research. Most incredibly, despite difficulties with speech, he continued to lecture publicly, and participate in conferences, undeterred by his struggles with expression. This left his friends and colleagues always in awe of the tremendous willpower and passion for research.

Lloyd is survived by his mother, Mary; his sister, Florence and her family; his wife Dr. Jill Fishbane-Mayer, and their children, Sara, Marisa and Josh. He will be deeply missed by his family, and his many friends and colleagues across the globe. We extend our deepest condolences to Jill and the entire Mayer family. The world of gastroenterology has lost a marvelous human being and a truly gifted physician–scientist.

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