

Alexander (Sasha) I. Klimov, PhD, ScD (1943–2013)



On Tuesday February 5, 2013, Alexander (Sasha) Klimov passed away after a valiant battle with cancer. Sasha was an internationally renowned influenza scientist and Deputy Director of the World Health Organization (WHO) Collaborating Center on Surveillance, Epidemiology and Control of Influenza at the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. In his position as Chief of the Virus Surveillance and Diagnosis Branch, Influenza Division, CDC, Sasha led work to understand the global etiology of influenza viruses and their comprehensive genetic and antigenic characterization. His group pioneered the use of highly sensitive and specific molecular genetic techniques to enable early identification of seasonal and potentially pandemic influenza virus strains as well as those that exhibited antiviral resistance. Most notably, his work on the genetic and antigenic characterization of seasonal, pandemic, and novel influenza were crucial for biannual WHO recommendations on influenza vaccine compositions for the Southern and Northern Hemispheres that impacted the health and well-being of hundreds of millions of individuals worldwide.

After completing an MS degree in biophysics at the Moscow State University where he studied molecular biology, Sasha completed his doctoral (PhD) and postdoctoral (ScD) studies in the Research Institute for Viral Preparations,

Moscow, Russia. Both his PhD and ScD dissertations focused on elucidating the genetic properties of influenza viruses. From 1986 to 1991, he served as Director, WHO Collaborating Center for Molecular Biology and Genetics of Epidemic and Vaccine Influenza Virus Strains, Research Institute for Viral Preparations, in Moscow, Russia. After several short-term visits to CDC in the 1980s, Sasha finally left his beloved Russia and moved to Atlanta in 1991 where he joined the Influenza Branch as a visiting scientist and worked on genetic features of and protection afforded by live attenuated influenza vaccines, influenza antivirals and their mechanism of action, and the influenza A M2 protein as a component for broadly cross-protective influenza vaccines. In 1997, he became the team lead for the Strain Surveillance Section in the Influenza Branch, and in 2006, he became Chief of the Virus Surveillance and Diagnosis Branch as the Influenza Branch became the Influenza Division.

Sasha's decades of research focused on many aspects of influenza, including the antigenic and molecular evolution of seasonal and pandemic influenza viruses, mechanisms of drug resistance, new antiviral drug discovery, and the development of new influenza vaccines. He was well recognized for his substantial contributions to the development of the Russian live attenuated influenza vaccine that now has become a WHO platform of choice for the transfer of influenza vaccine technology to developing countries. Many isirv members may best recognize Sasha's efforts in building global laboratory capacity for influenza surveillance. Under his leadership, his Branch conducted training in methods of diagnosis and characterization of seasonal and H5N1 influenza viruses for all 50 US State Public Health Laboratories and for hundreds of laboratorians in international ministries of health. His group produced influenza detection and characterization reagent kits for nearly 400 laboratories worldwide and provided around the clock diagnostic and surveillance support for influenza virus outbreak investigations. Sasha and his group provided laboratory support for over 25 outbreak investigations, from the first identification of H5N1 virus in humans in Hong Kong in 1997 to the emergence of H3N2v in the US in the summer and fall of 2012. In 2009, Sasha and his group were the first to identify and describe the molecular characteristics of the novel swine-origin pandemic H1N1 virus.

Over the years, Sasha served frequently as a temporary advisor to the World Health Organization, the US Food and Drug Administration (FDA), and the Association of Public

Health Laboratories. He also was an active member of the Neuraminidase Inhibitor Susceptibility Network, now known as the ISIRV Antiviral Group. His scientific legacy is evident in the more than 220 peer-reviewed research publications, two US patents, and several key chapters on laboratory methods. Most notably, he contributed to articles that characterized the first H5N1 viruses infecting humans in Hong Kong in 1997, the 2009 pandemic virus, the novel influenza A (H3N2) v that infected over 300 people in 2012, as well as an article that identified a high level of antiviral resistance in influenza A (H3N2) viruses circulating in the United States in the early 2005–2006 season. Since 1995, he contributed to 145 reports and updates in *Morbidity and Mortality Weekly Reports*. He received the 2001 Charles C. Shepard Science Award, a prestigious and highest honor CDC award for scientific excellence, in addition to numerous FDA, CDC, and other federal agency awards recognizing his contributions to the detection of pandemic and emerging influenza A viruses with high public health consequence. He was also recognized by the Academy of Medical Sciences of the USSR for his study of live attenuated influenza vaccines.

Sasha was widely sought after as a CDC representative and speaker, particularly for his expertise on the influenza vaccine virus selection process, the development of improved molecular diagnostics for influenza, and the detection of antiviral drug resistance. He liked to use his artistic knowledge and skills in his presentations and often delighted his audiences with unique analogies and artwork that illustrated the challenges associated with the vaccine virus

selection process. Over the years, Sasha served frequently as a temporary advisor to the World Health Organization, the Pan-American Health Organization, the US FDA, US Department of Agriculture, and National Institutes of Health. These appointments attest to the high regard in which he was held within the influenza research and public health community.

Sasha's scientific contributions to the field of influenza were truly outstanding, but he will be best remembered by many at CDC and around the world for his superb mentorship, his kind and extremely generous nature, and his wry sense of humor which endeared him to all who knew him well. In addition to his professional accomplishments, Sasha was an avid collector of beautiful seashells and was a gifted artist. His caricatures of his coworkers and international colleagues adorn the walls of many offices and homes around the world. Sasha's ability to capture the essence of those he knew in a few strokes of a brush or pen was extraordinary. He is survived by his wife Marina Khristova, son Peter and daughter Tatyana, and their families including five beautiful granddaughters. We have lost a remarkable leader and colleague in the world of influenza and above all, a gracious gentleman and friend. Sasha will be dearly missed by all who had the honor of knowing him.

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