Influenza Virus A/H5N1: ATLAS of Reproduction and Pathological Changes of Mice Visceral Organs (Вирус гриппа A/H5N1: Атлас репродукции и патологических изменений внутренних органов мышей)

By G. G. Onishchenko, E. I. Ryabchikova, A. N. Sergeev, and I. G. Drozdov (Г. Г. Онищенко, Е. И. Рябчикова, А. Н. Сергеев, и Г. Г. Дроздов)
215 pp. (English and Russian), approximately $26.00 USD based on currency conversion (RUB 800), hardcover

Most virology books hardly excite people—not even virologists. The majority of these books are collections of reviews on particular subjects within a given subfield, designed to allow outsiders to quickly attain knowledge and insiders to keep up with novel developments. They are usually released by one of the few big international publishers, which have stringent rules for layout and style, thus making most books look and feel alike. Black-and-white and color images have increasingly found their way into modern virology books; however, their overall number is still small and most often these images, especially if they are in color, are collected either at the center of the book to save production expenses. But every now and then, true gems are published that make even the hearts of stoic virologists beat a little faster.

Influenza Virus A/H5N1: ATLAS of Reproduction and Pathological Changes of Mice Visceral Organs is such a gem. This extraordinary atlas was assembled by Dr. Ryabchikova with the support of Drs. Onishchenko, Sergeev, and Drozdov. Until recently, Dr. Elena I. Ryabchikova headed the Laboratory of Ultrastructural Investigations and Pathomorphology at the world-renowned Russian State Research Center for Virology and Biotechnology (SRCVB) “Vector” in Koltsovo, Novosibirsk. An expert in electron microscopy, Dr. Ryabchikova had already published an outstanding book on Marburg and Ebola viruses (reviewed in Applied Biosafety: Journal of the American Biological Safety Association, [2004] 9[1], 37-38). In her newest publication, Ryabchikova illustrates the pathogenesis of mice suffering from “avian influenza” using more than 100 images and illustrations.

The book is divided into three sections. Section 1 describes the morphology of influenza A virus (FLUAV) H5N1 using numerous electron micrographs (EM) of single spherical and filamentous virions grown in chicken embryos, followed by images of whole infected Madin-Darby Canine Kidney (MDCK) epithelial cells and Vero (grivet monkey kidney) cells with descriptions of their ultrapathological changes. Every stage of the FLUAV life cycle has been captured, including the formation of inclusion bodies and viral egress. Sections 2 and 3 contain a very detailed morphological description of FLUAV infection of mice. Light-microscopic and EM images were obtained from a serial sampling study using white outbred mice infected with three Russian FLUAV strains (A/chicken/Kurgan/05/2005, A/duck/Kurgan/08/2005, and A/chicken/Suzdalka/Nov-11/2005), all of which differ in their virulence. Section 2 focuses on the direct and indirect pathomorphology of blood cells, whereas Section 3 describes pathomorphological events in lung tissue.

It is important to stress that this atlas is not a review of previously published data, but rather an accumulation of new results, organized into a logical order reminiscent of actual FLUAV infection. The images are, to say the least, absolutely superb in quality and clarity so that even non-pathologists can follow the descriptions and explanations easily. Novices to virology will surely enjoy the visualization of FLUAV and be astounded by the destruction it causes in cells and living tissue, thereby gaining even more respect for this tiny pathogen. It is, after all, a different experience to actually see the result of FLUAV infection instead of just having academic knowledge of its potential for tissue destruction. EM remains a unique and specific investigative tool for the characterization of virus infections, and we haven’t seen a book lately that makes a more convincing case for further training of EM specialists.

Another interesting feature of the atlas is that it comes in two languages, Russian and English. This is an elegant solution to a little-known problem facing Russian researchers, namely the pressure to publish in Russian specialty journals to achieve higher academic accolades in that country and the need to publish in English to become internationally recognized, while publication of the same data in different journals is usually prohibited by both Russian and international peer-reviewed journals. Unfortunately, it quickly becomes clear that the English in this atlas has not been edited by a native English speaker. It is, however, clear enough to follow the scientific descriptions. In the case of this book, an old adage is ever so true—a picture is worth a thousand words.