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Dengue and Zika: Control and Antiviral Treatment Strategies

 Springer

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Preface

Many emerging viruses have their origin in Africa. For example, Ebola virus was first recorded after the outbreak in the Democratic Republic of Congo (then known as Zaire) in 1976 and Chikungunya virus emerged and was isolated in Tanzania (formerly known as Tanganyika) in 1952. During that outbreak, a number of cases also occurred in Northern Mozambique. Furthermore, a particularly virulent strain of Dengue virus (serotype 3) first appeared in Mozambique, and antibodies to Zika virus have been detected in the Mozambican population decades ago (see Chap. 2 of this book).

Mozambique, with its tropical climate, seems to be an ideal breeding ground for newly emerging viruses. Yet, even though Africa, perhaps along with South East Asia and Latin America, carries the largest burden of outbreaks of emerging viruses, almost all scientific conferences dealing with these viruses take place in the USA or Europe. To address this gap, one of us (RH) started the Tofo Advanced Study Week (TASW) series on Emerging Viral Diseases in 2015, during the Ebola outbreak in West Africa, and managed to convince about 50 prominent Ebola researchers from around the world to gather in Tofo, Mozambique, for an in-depth discussion of the scientific and public health issues connected with the epidemic. Very importantly, this workshop provided a forum for many African scientists to report their results, when most of them did not have the opportunity to speak at the large Ebola conferences in Paris or Washington, D.C.

Building on this success, the 2nd Tofo Advanced Study Week on Emerging Viruses was held from Aug 28 to Sep 01, 2016, when the Zika virus epidemic was gripping the world. The meeting brought together experts from around the world to discuss Dengue and Zika epidemiology, diagnosis, immunopathology, mosquito control, and antiviral targets ranging from entry mechanism to viral replication enzymes or their protein interactions. The discussions also briefly considered the merits and issues of the Dengvaxia® vaccine that has been approved in more than 10 countries.

Given the very unique presence of experts from around the globe, this time we also endeavored to produce a scientific book that would collate the contributions written by the lecturers. Today, we are proud to present a collection of papers in this book entitled *Dengue and Zika: Control and Antiviral Treatment Strategies* arising from the Proceedings of the 2nd Tofo Advanced Study Week on Emerging Viral Diseases, published by Springer as a contributed volume in the Advances in Experimental Medicine and Biology series.

The industry perspective on antiviral development against flaviviral diseases was discussed briefly at the meeting and a comprehensive chapter on this topic from industry-based authors is included in the book. As in the first TASW meeting, the attendance and participation of young scientists from the African continent, as well as international scientists working on epidemiological aspects of arboviruses in Africa, was a key component. The abstracts of the presentations by these scientists are collectively provided in Chap. 25, and we envisage that these should allow international scientists interested in emerging viruses to connect, collaborate, and help extend and build virology-related research capacity in Africa. In total, the book contains 25 chapters written by leading international experts and reflects the current state of knowledge on Dengue and Zika and occasionally also other arboviruses. Moreover, we include transcripts of the discussions following each presentation that were recorded during the conference. In fact, Chap. 8 comprises the transcript of an in-depth discussion on flavivirus entry and on the NS1 protein as potential drug targets, where you can read the opinion of leading experts, which to a large part you will not find published anywhere else. We consider these lively discussions the “salt in the soup” of this book and very much hope that you will equally enjoy them.

We believe that the wide spectrum of topics covered in this book will bring the field up to date to consider the merits of a three-pronged approach to Dengue and Zika control involving vaccines, antivirals, and mosquito control. We would like to thank all the authors who contributed to this volume, as well as people who helped with producing it: Nina Eichler, Charlotte Flory, Antje Lindae, Jan Magonov, and the dedicated staff of Springer. Others have to be mentioned because they provided essential support with the organization of the meeting: Charlotte Flory, Nobina Morimoto, Linda Ngoromani, Eduardo Samo Gudo, and the staff of the conference venue, Hotel Tofo Mar. We also thank the organizations and companies that sponsored the meeting: Casa do Mar Guesthouse, Euroimmun AG, Gilead, Hotel Tofo Mar, Instituto Nacional de Saúde de Mocambique, Terra Agua Ceu Travel Agency, and Top-of-the-Dune Guesthouse. The German Centre for Infection Research (DZIF) supported the conference as a co-organizer.

We sincerely hope that you will be delighted by this lively and comprehensive compendium of flavivirus science and decide to join us at future Tofo Advanced Study Week meetings to discuss emerging viral diseases.

Lübeck, Germany
Singapore, Singapore

Rolf Hilgenfeld
Subhash G. Vasudevan



Photo taken by Subhash G. Vasudevan during a post-conference tour of the Kruger National Park. Dedicated to Dr. Wilfred LF Armarego (The Australian National University).



Participants of the 2nd Tofo Advanced Study Week on Emerging Viral Diseases, Praia do Tofo, Inhambane, Mozambique, August 28 - September 01, 2016:

First row: Vanessa Monteiro, Imelda Rogério Chelene, Flora Inalda Mula, Onélia Cecília Guilliche, Aruna Sampath, Suzanne Kaptein, Maurice Demanou

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Third row: Katja Fink, Kateil Bidet, Beate Kümmerer, Anuja Mathew, Claudia Ohst, Ana Rita Chitico, Aravinda de Silva, David Jans

Fourth row: Inocência Chongo, Paul Young, Subhash G. Vāsudevan, Edward Jaszi, Sailas Witimosi, Scott O'Neill, Félix Rey

Fifth row: Vijaykrishna Dhanasekaran, Robert Lowen, John Oludayo Oludele, Jonas Schmidt-Chanasit, Charlotte Flory, Christoph Nitsche, Linda Ngoromani, Yi Shi, Norbert Heinrich

Sixth row: Joanna Miller, Kerstin Falk, Xavier Gundana, Jan Magonov, Rolf Hilgenfeld

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