Development Of Dengue Vaccine World Health

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ROLLINS KELLEY

Dengue National Academies Press This publication contains a number of papers which consider the public health role of vaccines in improving the health of the world's populations, and looks at the challenges of using immunisation to combat emerging and re-emerging diseases.

Issues discussed include the innovative use of vaccines against diseases such as meningococcal infection in Africa, Haemophilus influenza type b, varicella, and hepatitis, efforts to develop a new generation of vaccines against cholera and typhoid, shigella and Helicobacter pylori, as well as developments in the quest for vaccines against tuberculosis, HIV/AIDS, dengue, malaria, and hookworm. It also deals with the use of vaccines to fight bioterrorism attacks; regulatory and safety issues; financing issues, impact of health sector reform and the sustainability of immunisation programmes.

New Vaccine Development

JHU Press

Continued geographic expansion of dengue viruses and their mosquito vectors has seen the magnitude and frequency of epidemic dengue/dengue hemorrhagic fever (DF/DHF) increase dramatically. Recent exciting research on dengue has resulted in major advances in our understanding of all aspects of the biology of these viruses, and this updated second edition brings together leading research and clinical scientists to review dengue virus biology, epidemiology,

entomology, therapeutics, vaccinology and clinical management. *CDC Yellow Book 2020* Frontiers Media SA Over 50% of known flaviviruses have been associated with human disease. The Flavivirus genus constitutes some of the most serious human pathogens including Japanese encephalitis, dengue and yellow fever. Flaviviruses are known for their complex life cycles and epidemic spread, and are considered a globally-emergent viral threat. Detection, Diagnosis and Vaccine Development, the third volume of The Flaviviruses details the current status of technologies for detection and differentiation of these viruses, their use in surveillance and outbreak investigation, and also reviews the latest clinical research. Comprehensiv e approach to the scientific disciplines needed to unravle the complexities of virus-host interactions Descibes the technologies that have contributed to our current knowledge about the Flaviviruses Identifies the major problems faced in understanding the virus-host interactins that result in disease An exhaustive compendium of current and past knowledge on the Flavivirus family

Blue Marble Health World Health Organization Vaccine reluctance and refusal are no longer limited to the margins of society. Debates around vaccines' necessity -- along with quesitons around their side effects -- have gone mainstream, blending with geopolitical conflicts, political campaigns, celebrity causes, and "natural" lifestyles to win a growing number of hearts and minds. Today's anti-vaccine positions find audiences where they've never existed previously. Stuck examines how the issues surrounding vaccine hesitancy are, more than anything, about people feeling left out of the conversation. A new dialogue is long overdue, one that addresses the many types of vaccine hesitancy and the social factors that perpetuate them. To do this, Stuck provides a clear-eyed examination of the social vectors that transmit vaccine rumors, their manifestations around the globe, and how these individual threads are all connected.

Protective Immune Response to Dengue Virus Infection and Vaccines: perspectives from the field to the bench World Health Organization Dengue Virus Disease: From Origin to Outbreak

provides a detailed accounting of one of the world's fastest growing infections. According to the World Health Organization, Dengue virus incidence has increased 30-fold over the past 50 years, with up to 50 to 100 million infections occurring annually in over 100 endemic countries. This estimate puts nearly half the world’s population at risk. This book reviews the history, clinical and diagnostic aspects of dengue virus, also presenting our current knowledge on the pathophysiology of severe dengue and addressing the importance of dengue virus infections in those traveling to parts of the world where it is endemic. Covers every important aspect of Dengue virus disease, from biological, to its social and economic impacts Highlights the unique aspects of Dengue virus infection and the evolving nature of our understanding of the virus Provides a complete description of Dengue virus disease, with details on more recent outbreaks, clinical features, first hand experiences, treatment modalities, and recent novel treatment regimens Gives insights into the detailed psychological impact the disease has caused in

outbreak regions
History of Vaccine Development
National Academies Press
Topic Editor Jay Evans is the co-founder, President and CEO of Inimmune Corporation. The other Topic Editors declare no competing interests with regard to the Research Topic subject.
Dengue Fever
WIPO
From the latest vaccination evidence, recommendations, and protocols . . . to new vaccine development and the use of vaccines in reducing disease, Plotkin’s Vaccines, 8th Edition, covers every aspect of vaccination. Now completely revised and updated from cover to cover, this award-winning text continues to provide reliable information from global authorities, offering a complete understanding of each disease, as well as the latest knowledge of both existing vaccines and those currently in research and development. Described by Bill Gates as "an indispensable guide to the enhancement of the well-being of our world," Plotkin’s Vaccines is a must-have reference for current, authoritative information in this fast-moving field. Contains all-new chapters on COVID-19, vaccine hesitancy, and non-specific

effects of vaccines, as well as significantly revised content on new vaccine technologies such as mRNA vaccines, emerging vaccines, and technologies to improve immunization. Presents exciting new data on evolution of adjuvants across the centuries, dengue vaccines, human papillomavirus vaccines, respiratory syncytial virus vaccines, tuberculosis vaccines, and zoster vaccines. Provides up-to-date, authoritative information on vaccine production, available preparations, efficacy and safety, and recommendations for vaccine use, with rationales and data on the impact of vaccination programs on morbidity and mortality. Provides complete coverage of each disease, including clinical characteristics, microbiology, pathogenesis, diagnosis, and treatment, as well as epidemiology and public health and regulatory issues. Keeps you up to date with information on each vaccine, including its stability, immunogenicity, efficacy, duration of immunity, adverse events, indications, contraindications, precautions, administration with other vaccines, and disease-control strategies. Covers vaccine-preventable

diseases, vaccine science, and licensed vaccine products, as well as product technologies and global regulatory and public health issues. Analyzes the cost-benefit and cost-effectiveness of different vaccine options. Helps you clearly visualize concepts and objective data through an abundance of tables and figures. *Vaccines* National Academies Press

"This document is addressed to national health and regulatory authorities in dengue-endemic countries interested in using vaccines to control the disease. It is also written for vaccine developers and research scientists interested in the development and fi eld evaluation of such vaccines. The guidelines, which were developed with contributions and

comments from many individuals from a variety of countries and institutions (see Annex 1), are designed to help identify the basic technical information required to design dengue vaccine fi eld trials. The purposes of the fi eld trials are fi rstly, to obtain suffi cient data on vaccine safety and effi cacy to support vaccine licensure, and secondly, to establish that, in post-licensure fi eld

studies, the vaccine proves to be safe and provides long-term protection."--Page 1.

Protecting Our Forces Oxford University Press

For over 70 years, dengue fever has challenged health systems in every region of the World. It has evolved from a benign febrile illness from the tropics to a major concern in urban settlements, overwhelming health infrastructure with large outbreaks, as it continues to teach us important lessons with its complexities. This book intends to review the latest updates on dengue fever, the tools available for its study and control, and promising technologies currently in the pipeline. With this work, the editors wish to provide students with an updated reference text on the basics of this disease as well as researchers and academics, with a useful document to understand the current outlook and the perspectives for the future.

Dengue Disease BoD – Books on Demand

Vaccinology, the concept of a science ranging from the study of immunology to the development and distribution of vaccines, was a word invented by Jonas Salk. This book covers the history of the methodological progress in

vaccine development and to the social and ethical issues raised by vaccination. Chapters include "Jenner and the Vaccination against Smallpox," "Viral Vaccines," and "Ethical and Social Aspects of vaccines." Contributing authors include pioneers in the field, such as Samuel L. Katz and Hilary Koprowski. This history of vaccines is relatively short and many of its protagonists are still alive. This book was written by some of the chief actors in the drama whose subject matter is the conquest of epidemic disease.

The Travel and Tropical Medicine Manual E-Book Elsevier Health Sciences THE ESSENTIAL WORK IN TRAVEL MEDICINE -- NOW COMPLETELY UPDATED FOR 2018 As unprecedented numbers of travelers cross international borders each day, the need for up-to-date, practical information about the health challenges posed by travel has never been greater. For both international travelers and the health professionals who care for them, the CDC Yellow Book 2018: Health Information for International Travel is the definitive guide to staying safe and healthy anywhere in the world. The

fully revised and updated 2018 edition codifies the U.S. government's most current health guidelines and information for international travelers, including pretravel vaccine recommendations, destination-specific health advice, and easy-to-reference maps, tables, and charts. The 2018 Yellow Book also addresses the needs of specific types of travelers, with dedicated sections on: · Precautions for pregnant travelers, immunocompromised travelers, and travelers with disabilities · Special considerations for newly arrived adoptees, immigrants, and refugees · Practical tips for last-minute or resource-limited travelers · Advice for air crews, humanitarian workers, missionaries, and others who provide care and support overseas Authored by a team of the world's most esteemed travel medicine experts, the Yellow Book is an essential resource for travelers -- and the clinicians overseeing their care -- at home and abroad.

Vaccines

Frontiers Media SA

Focusing on universal public health issues, this book explores what can be done and what the future holds. It introduces students and practitioners to behavior -

change theories and applications. It details experiences of successful programs for the prevention and control of the world's biggest killers: malnutrition; respiratory infections; diarrhea; HIV//AIDS; and health problems arising from tobacco consumption and lack of access to family planning. The book explores health communication and social marketing strategies, learning theory, media advocacy, and community development. These behavior-change strategies are presented in terms of how the theory relates specifically to a particular health or disease issue. **Recent Advances in Precision Vaccine Discovery & Development** World Bank Publications "The presence, or absence, of neglected tropical diseases (NTDs) can be seen as a proxy for poverty and for the success of interventions aimed at reducing poverty. Today, coverage of the public-health interventions recommended by the World Health Organization (WHO) against NTDs may be interpreted as a proxy for universal health coverage and shared prosperity - in short, a proxy for coverage against neglect. As the world's focus shifts

from development to sustainable development, from poverty eradication to shared prosperity, and from disease-specific goals to universal health coverage, control of NTDs will assume an important role towards the target of achieving universal health coverage, including individual financial risk protection. Success in overcoming NTDs is a "litmus test" for universal health coverage against NTDs in endemic countries. The first WHO report on NTDs (2010) set the scene by presenting the evidence for how these interventions had produced results. The second report (2013) assessed the progress made in deploying them and detailed the obstacles to their implementation. This third report analyses for the first time the investments needed to achieve the scale up of implementation required to achieve the targets of the WHO Roadmap on NTDs and universal coverage against NTDs. INVESTING TO OVERCOME THE GLOBAL IMPACT OF NEGLECTED TROPICAL DISEASES presents an investment strategy for NTDs and analyses the specific investment case for prevention, control, elimination

and eradication of 12 of the 17 NTDs. Such an analysis is justified following the adoption by the Sixty-sixth World Health Assembly in 2013 of resolution WHA6612 on neglected tropical diseases, which called for sufficient and predictable funding to achieve the Roadmap's targets and sustain control efforts. The report cautions, however, that it is wise investment and not investment alone that will yield success. The report registers progress and challenges and signals those that lie ahead. Climate change is expected to increase the spread of several vector-borne NTDs, notably dengue, transmission of which is directly influenced by temperature, rainfall, relative humidity and climate variability primarily through their effects on the vector. Investments in vector-borne diseases will avoid the potentially catastrophic expenditures associated with their control. The presence of NTDs will thereby signal an early warning system for climate-sensitive diseases. The ultimate goal is to deliver enhanced and equitable interventions to the most marginalized populations in the context of a changing public-health

and investment landscape to ensure that all peoples affected by NTDs have an opportunity to lead healthier and wealthier lives."--Publisher's description.

Dengue Vaccine Development Oxford University Press, USA

Infectious diseases continue to pose a substantial threat to the operational capacity of military forces. Protecting Our Forces reviews the process by which the U.S. military acquires vaccines to protect its warfighters from natural infectious disease threats. The committee found that poorly aligned acquisition processes and an inadequate commitment of financial resources within the Department of Defense vaccine acquisition process â€" rather than uncleared scientific or technological hurdles â€" contribute to the unavailability of some vaccines that could protect military personnel and, implicitly, the welfare and security of the nation. Protecting Our Forces outlines ways in which DoD might strengthen its acquisition process and improve vaccine availability. Recommendations, which include combining all DoD vaccine acquisition responsibilities under a single DoD authority,

cover four broad aspects of the acquisition process: (1) organization, authority, and responsibility; (2) program and budget; (3)manufacturing; (4) and the regulatory status of special-use vaccines.

Patent Information, Freedom to Operate and "Global Access": A Case Study of Dengue Vaccines Under Development

Elsevier Health Sciences

Why do diseases of poverty afflict more people in wealthy countries than in the developing world? In 2011, Dr. Peter J. Hotez relocated to Houston to launch Baylor's National School of Tropical Medicine. He was shocked to discover that a number of neglected diseases often associated with developing countries were widespread in impoverished Texas communities. Despite the United States' economic prowess and first-world status, an estimated 12 million Americans living at the poverty level currently suffer from at least one neglected tropical disease, or NTD. Hotez concluded that the world's neglected diseases—which include tuberculosis, hookworm infection, lymphatic filariasis, Chagas disease, and leishmaniasis—are born first and

foremost of extreme poverty. In this book, Hotez describes a new global paradigm known as “blue marble health,” through which he asserts that poor people living in wealthy countries account for most of the world’s poverty-related illness. He explores the current state of neglected diseases in such disparate countries as Mexico, South Korea, Argentina, Australia, the United States, Japan, and Nigeria. By crafting public policy and relying on global partnerships to control or eliminate some of the world’s worst poverty-related illnesses, Hotez believes, it is possible to eliminate life-threatening disease while at the same time creating unprecedented opportunities for science and diplomacy. Clear, compassionate, and timely, Blue Marble Health is a must-read for leaders in global health, tropical medicine, and international development, along with anyone committed to helping the millions of people who are caught in the desperate cycle of poverty and disease.

Scientific group on development of recombinant DNA Japanese encephalitis and dengue vaccines BoD – Books on Demand

Common diseases cost the developing world an enormous amount in terms of human life, health, and productivity, as well as lost economic potential. New and effective vaccines could not only improve the quality of life for millions of residents in developing countries, they could also contribute substantially to further economic development. Using data from the World Health Organization and other international agencies, this book analyzes disease burdens, pathogen descriptions, geographic distribution of diseases, probable vaccine target populations, alternative control measures and treatments, and future prospects for vaccine development. New Vaccine Development provides valuable insight into immunological and international health policy priorities. Stuck Academic Press Dengue is the most important mosquito-transmitted viral disease in humans. Half of the world population is at risk of infection, mostly in tropical and sub-tropical areas. The World Health Organization (WHO) estimates that 50 to 100 million infections occur yearly, with 50,000 to 100,000 deaths related

to dengue, mainly in children. Recent estimates show higher numbers, up to three times more, with 390 million estimated dengue infections per year, among which 96 million apparent infections (Bhatt et al. 2013). Initially localized to South-East Asia, dengue virus (DENV) started its spread in Latin America in the 80's. Little is known about DENV spread in Africa, but multiple seroprevalence surveys over several years are now clearly showing endemic areas in East and West Africa (Brady et al. 2013). Finally, due to global warming and intense traveling there is a risk of global spread towards more temperate regions, and both US Key islands (FL) and southern Europe recently faced DENV outbreaks. There are currently no specific treatments or vaccines available. Even though several dengue vaccines are in the pipeline, clear correlates of protection are still lacking. The recent failure of the live-attenuated Sanofi vaccine Phase 2b trial (Sabchareon et al. 2013) and the lack of correlation between clinical protection and in vitro neutralization assays, clearly underlines the necessity to better understand the role of the

different components of the immune system in protection against dengue virus infection and the requirement for the development of additional and/or improved predictive assays. The aim of this research topic is to provide novel data, opinions and literature reviews on the best immune correlates of protection and recent advances in the immune response to DENV infection that can allow rapid progress of dengue vaccines. Authors can choose to submit original research papers, reviews or opinions on pre-clinical or clinical observations that will help unify the field, with perspectives from epidemiology, virology, immunology and vaccine developers. This research topic will discuss different aspects of the protective immune response to DENV that can influence vaccine development. It will include a review of epidemiological data generated in the field, which will address spatio-temporal diversity of DENV epidemics, the importance of cross-reactive protection and of the time-interval between infections as a predictor of disease. It will further include a review of the role of both the

innate and adaptive immunity in DENV infection control, and discuss the usefulness of new improved animal models in dissecting the role of each immunological compartment, which will help define new correlate of immune protection. New data concerning the DENV structure and anti-dengue antibody structure will address the necessity of improved neutralization assays. The ultimate test to prove vaccine efficacy and study immune correlates of protection in humans before large trials will open up the discussion on human DENV challenges using controlled attenuated viral strains. Finally, the role of vaccines, administered in flavi-immune populations, in the modification of future epidemics will also be approached and will include novel studies on mosquitoes infection thresholds.

New Vaccine Development

SAGE Publications

Vaccines is a well-written book on the subject of providing crucial information to students and researchers in the field of vaccinology. The introductory chapter, contributed by the editor (Dr. Vijay Kumar) of the book, provides the brief introduction to the history of the

development of current forms of vaccine, which is difficult to find easily in one place. In addition, other chapters of the book are written by experts in the field. For example, the second chapter looks at the emerging role of developing countries in the innovation and production of vaccines. Other chapters provide information regarding different types of vaccines, development of vaccines for zoonotic viral infections, and regulatory affairs for genetically modified organism vaccines.

Plotkin's Vaccines

Springer Science & Business Media

Emerging and Reemerging Viral Pathogens: Applied Virology Approaches Related to Human, Animal and Environmental Pathogens, Volume Two presents new research information on viruses and their impact on the scientific community. It provides a reference book on certain viruses in humans, animals and vegetal, along with a comprehensive discussion on interspecies interactions. The book then looks at the drug, vaccine and bioinformatical strategies that can be used against these viruses, giving the reader a clear understanding of transmission. The book's

end goal is to create awareness that the appearance of newly transmissible pathogens is a global risk that requires shared/adoptable policies for prevention and control. Covers most emerging viral disease in humans, animals and plants Provides the most advanced tools and techniques in molecular virology and the modeling of viruses Creates awareness that the appearance of new transmissible pathogens is a global risk Highlights the need to adopt shared policies for the prevention and control of infectious diseases *New Vaccine Development* Karger Medical and Scientific Publishers PART 1 -- Dengue virus infection is an emerging infectious disease with an increasing prevalence of global scale, especially in the tropical countries. Several socioeconomic and environmental factors are responsible for the surging of dengue outbreaks in the 21st century. The easy access to transportation and global urbanization contribute most significantly to the prevalence of dengue infection in the late 20th century. The poor environmental conditions in many countries make the control of mosquito vector a

difficult or even impossible task and the dengue outbreaks therefore become an uncontrollable issue in these countries. In central/southern America and southeastern Asia, dengue outbreaks up to a scale of beyond hundred thousands cases occurred annually. The control measures depend largely on improving the proper management of patients with dengue hemorrhagic fever/ dengue shock syndrome (DHF/DSS). The past decades have witnessed the improvement of mortality of DHF/DSS from around 10% to the current 0.1% in these DHF/DSS cases. However, the development of dengue vaccine turned out to be unsuccessful using the live attenuated viruses due to the incomplete immune response to the tetravalent vaccine and the high morbidity associated with vaccination. The story behind the failure of vaccine development reflects our lack of understanding regarding the complex immunopathogenesis of virus-host interaction in dengue virus infection. In the past years, the scientific field started to understand the importance of basic researches in

the development of anti-virus compounds and vaccine development in dengue virus infection. Under the combined efforts of Pediatric Dengue Vaccine Initiative (PDVI) led by Professor Scott Halstead, and the establishment of Novartis Institute for Tropical Diseases in Singapore, a significant improvement in our understanding of the virology, virus-host interaction, and immune response in dengue infection have been achieved. In Taiwan, the dengue research is actively sponsored by National Health Research Institutes starting from 2000. Since then, several progresses such as the epitpoe mapping for the antibody dependent enhancement and the development of autoantibodies against endothelial cells and platelets have been achieved. Significant progresses have also been made in diagnostic technology and molecular epidemiology of dengue infections. The urgent demand in dengue research is to develop a good animal model to study the pathogenesis and also for the development of anti-viral compounds and dengue vaccine. Based on the

results obtained from the researches in the past decade, scientific knowledge on basic and clinical fields of dengue infection accumulated and a special book to summarize these knowledge becomes necessary. Under the coordination of Professor Lei HY in the National Cheng Kung University Medical School, scientists in Taiwan and in Asian regions contribute their expertise in each chapter to publish a book to address the specific issues in each field of dengue virus infection. These knowledge will not only provide scientific data in each specific topic but also offer the direction for future studies. Hopefully, we can reach some breakthrough in the coming years to develop strategy for anti-viral compounds and vaccine development. PART 2 -- Dengue fever and Dengue hemorrhagic fever is an important tropical infectious disease, afflicting millions of people every year. It is also alarmingly spreading northward to North America. The virus has been studied for many years and its molecular structure is thoroughly known. It is a flavivirus and consists of 4 serotypes (and genotypes). It

is spread through mosquito as a vector. Repeated infections with viruses of different genotypes result in severe hemorrhagic fever. Despite such wealth of knowledge, Dengue fever and Dengue virus remain a scientific and medial challenge. First of all, the mechanism of Dengue hemorrhagic fever remains elusive. Is it a viral load problem? Or, is it due to genetic makeup of certain hemorrhagic virus strains? Or, as suggested by several articles in this book, is it an autoimmune disease? Convincing scientific evidence presented in this book showed a pathogenic role for the auto-antibodies against some viral proteins. Also, cytokine storms may trigger the pathology. This hypothesis was a major contribution from Dengue researchers in Taiwan previously and is elaborated by several chapters in this book. The understanding of Dengue pathogenesis has been hampered by lack of animal models for hemorrhagic fever. An animal model is described in this book. Second, the diagnosis of Dengue fever remains slow and time-consuming. It used to rely mainly on serological tests. This book outlined molecular detection and biochip

detection methods, which may facilitate Dengue diagnosis. Third, treatment for Dengue hemorrhagic fever remains mainly symptomatic. There are still no effective antivirals available for Dengue. This book did not address this issue but outlined the strategies for managing Dengue hemorrhagic fever. Finally, the most important issue concerns vaccines. Several clinical trials for Dengue vaccines are currently ongoing. The most challenging issue in Dengue vaccine development is whether the vaccine can produce broad enough immunity to ensure that all the potential virus strains of different genotypes are covered by the antibodies induced. Only the complete coverage can prevent viral superinfection , which may cause hemorrhagic fever. A summary chapter by the editor Dr. Huan-Yao Lei elegantly discusses the challenges and opportunities for Dengue vaccine development. Taiwan has been a stronghold for Dengue research. All the authors in this book are from various institutions in Taiwan. This collection of articles provides excellent glimpses into the quality of research in this regard in this country and also

represents the state of arts in Dengue virus research. Besides the topics discussed above, this book also addresses virology of Dengue virus, including virus entry, apoptosis, autophagy, production of interferon and immune responses. It is rare that there is such a concentration of Dengue researchers in a small country like Taiwan. It is even rarer that these scientists together will contribute to a book like this. As a fellow virologist, I am proud to write a preface for this book. PART 3 -- The global prevalence of dengue has grown dramatically and is now endemic in more than 100 countries. There are at least 50 million cases of dengue infection and several hundred thousand cases of dengue hemorrhagic fever (DHF) per year. Dengue disease is an important health problem in tropical or sub-tropical areas and the DHF is the leading cause of hospitalization for children in Southeastern Asia. So far, there is no effective dengue vaccine, although several candidate vaccines are currently being evaluated. Serious dengue disease involves life-threatening complications such as vascular

leakage and hemorrhagic diathesis. In endemic areas such as southeastern Asia or Latin America, most of the DHF/DSS are children while some are infants. However, in non-endemic areas like Taiwan, the majority of the DHF/DSS cases are adults and the infected elders tend to have high mortality. Taiwan s dengue outbreaks also have a unique type of transmission: starting from imported cases from abroad, spreading out locally, and ending in the winter. This pattern repeats every year. The dengue disease pattern in Taiwan represents a new type of epidemiology which is different from that in the endemic area of Southeast Asia. In this book, a comprehensiv e review from dengue epidemiology, diagnosis, clinical, dengue genome, cellular response post dengue virus infection, animal model, dengue-induced autoimmunity, antibody-dependent enhancement, immunopatho genesis, patient management, to dengue vaccine development is covered. All chapters are contributed by Taiwanese dengue researchers. Based on the Dengue Research Team in Department of Microbiology and Immunology,

National Cheng Kung University Medical College, we have established a vigorous research network linking various laboratories in National Taiwan University Medical College, Academia Sinica, Center for Disease Control, and National Defense Medical Center with the financial support for dengue program project by National Health Research Institute. We also collaborate with dengue investigators from Canada, Thailand, and Vietnam. Through intensive communicatio n, research ideas are generated, fine-tuned and executed by members from different laboratories within an interactive and cooperative atmosphere. Using approaches aimed at the patient, virus, animal, cellular, and molecular levels, an intensive study of dengue pathogenesis by this highly-integrated research network is helping to develop new understanding and strategies to cope with dengue disease. In particularly, acute dengue virus infection can induce autoimmunity due to molecular mimicry between dengue NS-1, prM and platelet, endothelial cells. A new autoantibody-associated

immunopatho genesis is proposed and offers new insights into the molecular mechanisms underlying DHF/DSS, and will have impact on the future design of safe and protective dengue vaccines.