



Australian Government



Indonesian Government

Australia–Indonesia Workshop on Human Health, Including Infectious Diseases

Jakarta

14–15 April 2008

programand**abstracts**



**Program Australia – Indonesia
Workshop on Human Health – Including Infectious Diseases
Jakarta, 14-15 April 2008**

Item no.	Time (approx)	Topic	Speakers	Notes
Monday, 14 April 2008				
	08.30 – 09.00	Registration		Venue: Main Commission Room BPPT Building II, 3 rd Floor, Jl. MH. Thamrin No. 8, Jakarta 10340.
OPENING CEREMONY				
	09.00 – 09.05	Welcoming remark	Dr. Teguh Rahardjo , The State Ministry of Research and Technology (RISTEK)	
	09.05 – 09.10	Remark from Australian Convenor	Prof. John S MacKenzie , Australian Biosecurity CRC, Curtin University of Technology,	
	09.10 – 09.15	Remark from Indonesian Convenor	Prof. Sangkot Marzuki , Eijkman Institute for Molecular Biology	
	09.15 – 09.20	Remark from Australian Ambassador	H.E. Mr. Bill Farmer , the Australian Ambassador for Indonesia	
	09.20 – 09.25	Opening speech	H.E. Mr. Kusmayanto Kadiman , the Indonesian Minister for Research and Technology	
	09.25 – 09.45	COFFEE BREAK		

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SESSION I: EMERGING INFECTIOUS DISEASE (EID) AND BIOSECURITY				
				Moderator
	09.45 – 10.05	RISTEK's role in Biosecurity and EID Control	Prof. Amin Soebandrio, RISTEK	Prof. Umar Anggara Jenie, Indonesian Institute of Sciences (LIPI)
	10.05 – 10.25	Biosecurity Networks and collaboration – a global approach	Dr. Stephen Prowse, CEO, Australian Biosecurity CRC for Emerging Infectious Disease	
	10.25 – 10.45	Emerging infectious disease and biosecurity	Dr. Triono Soendoro, National Institute for Health Research and Development	
	10.45 – 11.05	Genetically modified micro-organism: Biological weapons and the security of science	Prof. Ian A Ramshaw, The John Curtin School of Medical Research	
	11.05 – 11.25	Discussion		
				Moderator
	11.25 – 11.45	Infectious disease emergence from wildlife a 'One Health' perspective	Dr. Hume Field, Department of Primary Industries and Fisheries Queensland	Prof. John S Mackenzie, Australian Convenor, Biosecurity CRC, Curtin University of Technology,
	11.45 – 12.05	Emerging virus discovery – the value of molecular biological techniques	Dr. Linfa Wang, Australian Animal Health Laboratory, CSIRO Livestock Industries	
	12.05 – 12.25	Cases of zoonoses in Indonesian	Dr. Indrawati Sendow, Balitvet, Bogor	
	12.25 – 12.45	Discussion		
	12.45 – 13.30	LUNCHEON		

Item no.	Time (approx)	Topic	Speakers	Notes
SESSION II: OTHER HEALTH ISSUES				
				Moderator
	13.30 – 13.50	Smoking and Tobacco Control in Indonesia – is enough being done?	Dr. Rachel Huxley , the University of Sydney	Prof. Anne Kelso , WHO Collaborating Centre for Reference and Research on Influenza
	13.50 – 14.10	Impact of tobacco smoking on growth and development of children with asthma risk	Prof. Peter D. Sly , University of WA	
	14.10 – 14.30	Discussion		
SESSION III: HEPATITIS VIRUS				
				Moderator
	14.30 – 14.50	Genetic Diversity of Hepatitis viruses	Dr. David Handoyo Muljono , Eijkman Institute for Molecular Biology (EIMB) Jakarta	Dr. Rifatul Widjhati, M. Sc , the Agency for the Assessment and Application of Technology (BPPT)
	14.50 – 15.10	Hepatitis viruses: Application of genotyping	Dr. David Scott Bowden, Victorian Infectious Diseases Reference Laboratory	
	15.10 – 15.30	Discussion		

Item no.	Time (approx)	Topic	Speakers	Notes
Tuesday, 15 April 2008				
SESSION IV: HUMAN AVIAN INFLUENZA				
				Moderator
	09.00 – 09.20	Human Avian Influenza in Indonesia	Dr. Endang R. Sedyaningih , National Institute for Health Research and Development (NIHRD)	Prof. John S MacKenzie , Australian Biosecurity CRC, Curtin University of Technology,
	09.20 – 09.40	Human influenza: A global challenge	Prof. Anne Kelso , WHO Collaborating Centre for Reference and Research on Influenza	
	09.40 – 10.00	Clinical research in human avian influenza	Dr. Sardikin Giriputro , Sulianti Suroso Hospital	
	10.00 – 10.20	Discussion		
SESSION V: H5N1 IN POULTRY				
	10.20 – 10.40	H5N1 in Indonesian Poultry	Dr. Darminto , Head of Balitvet, Bogor	Dr. Roy A Sparringa , RISTEK
	10.40 – 11.00	H5N1 in poultry – Bali and Nusa Tenggara perspectives	Dr. IGK Ngurah Mahardika , Udayana University	
	11.00 – 11.20	Meeting the challenge of zoonotic H5N1 Avian Influenza: Veterinary Science	Dr. Peter Daniels , Australian Animal Health Laboratory	
	11.20 – 11.40	Australia's Commitment to Emerging Infectious Diseases in the Asia-Pacific Region	Dr. Lynleigh Evans , AusAid, Australian Embassy	
	11.40 – 12.00	Discussion		
	12.00 – 13.00	LUNCHEON		

Item no.	Time (approx)	Topic	Speakers	Notes
SESSION VI: VECTOR-BORNE DISEASES				
	13.00 – 13.20	Arboviral diseases of South – East Asia and australia	Prof. John S MacKenzie , Australian Biosecurity CRC, Curtin University of Technology,	Professor Sangkot Marzuki Eijkman Institute for Molecular Biology (EIMB) Jakarta
	13.20 – 13.40	Dengue case in Indonesia	Prof. Sutaryo , University of Gadjah Mada (UGM)	
	13.40 – 14.00	Emerging infectious diseases in our region	Prof. Bart Currie , Charles Darwin University, Northern Territory Clinical School, Flinders University	
	14.00 – 14.20	Drug Resistance in Malaria, Indonesian case	Dr. Syafruddin , EIMB	
	14.20 – 14.40	Malaria case in West Papua	Dr. Emiliana Tjitra , NIHRD	
	14.40 – 15.00	Malaria case in Central Java, case of Dr. Kariadi Hospital	Dr. M. Hussen Gasem CENTRID, Dr. Kariadi Hospital	
	15.00 – 15.20	Harnessing biotechnology to prevent enteroviral encephalitis	Dr. Peter McMinn , the University of Sydney	
	15.20 – 15.40	Discussion		
	15.40 – 15.50	Coffee Break		
	15.50 – 17.00	Bilateral talks for future concrete proposal	Both delegations	Prof. John S MacKenzie , Australian Convenor, Biosecurity CRC, Curtin University of Technology, Professor Sangkot Marzuki , Indonesian Convenor, EIMB

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australian **speakers**



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Professor John S Mackenzie (Australian Convenor)

Professor of Tropical Infectious Diseases
Australian Biosecurity CRC

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Abstract: Arboviral diseases of South-East Asia and Australasia

A number of arthropod-borne viruses causing disease in humans are endemic or epidemic in South-East Asia and Australasia. Some of these are well established and well-known, such as Japanese encephalitis virus and dengue viruses, although the burden of disease is sometimes poorly understood. Some other viruses are not so well known, such as Chikungunya and Zika viruses, but they may still be responsible for epidemics of human disease, often with high morbidity and high attack rates, or in some instances, as sporadic cases of disease which may be difficult to diagnose. In addition, there are a number of other viruses which are known to occur in the region, sometimes in specific areas, but there may be little or no knowledge of their role in human disease or their actual incidence except for occasional isolations from mosquitoes, such as West Nile and Sepik viruses. Finally, there may be other as yet unknown arthropod-borne viruses which may be pathogenic but which remain to be discovered.

This presentation will describe the ecology, properties, disease associations, and known geographic range of some of these viruses, and discuss their potential importance as human pathogens.

Biography

Professor of Tropical Infectious Diseases at Curtin University, and inaugural holder of a Premier's Fellowship. He is also currently Deputy CEO of the Perth Node of the Australian Biosecurity CRC, and Honorary Professor of the University of Queensland. He was previously Professor of Microbiology at the University of Queensland, 1995-2004. Elected honours include Secretary-General of the International Union of Microbiological Societies (IUMS) from 1999-2005, Fellow of the American Academy of Microbiology, Past President of the Australian Society for Microbiology, and Past President of the Asian-Pacific Society for Medical Virology. He was the recipient of the D I Ivanovsky Medal of the Russian Academy of Sciences (1995), Distinguished Service Award of Australian Society for Microbiology (1999) and the Excellence in Virology Award by the Asian-Pacific Society for Medical Virology (2000). In 2002, he was appointed as Officer in the Order of Australia for services to public health research and to education. In 2005, he was the inaugural recipient of the Academy of Science Malaysia's Mahathir Science Award for Excellence in Tropical Research. He serves on a number of international committees with the United Nations, World Health Organization (WHO) and other Non-Government Organizations. In 2003 he led the WHO team into China to investigate the emergence of SARS, and while working at WHO in Geneva in the latter part of 2003, convened the SARS Research Advisory Committee. In 2005, he was a member of the WHO tsunami relief team in Banda Aceh. He is a member of the steering committee of the Global Outbreak Alert and Response Network of WHO, a member of the Technical Advisory Group of the WHO Asia-Pacific Strategy for Emerging Diseases, and a consultant for laboratory issues to the new International Health Regulations. He recently served as a member of the Group of Specialised Experts of the Office of Disarmament Affairs of the United Nations to update the technical guidelines and procedures for investigating the alleged use of chemical and biological weapons. His recent research interests have been in mosquito-borne virus diseases and emerging zoonotic viruses, and he has published over 275 major papers and research chapters on these and other research topics concerned with humans and animal diseases.



Dr Scott Bowden

Head of Molecular Microbiology

Victorian Infectious Diseases Reference Laboratory
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Abstract: Hepatitis Viruses: Applications of Genotyping

Traditional typing approaches have been used to characterize viruses but more recently technology has allowed genotyping where regions of viral genes can be sequenced to determine homology. This information can be used to classify viruses into provisional genotypes, some of which may have clinical relevance. For example, hepatitis C virus can be divided into six genotypes and the response to interferon-based therapy differs among the genotypes. More detailed molecular analysis can also detect clinically important mutations. New antiviral agents have become available for patients with chronic hepatitis B virus infection. Unfortunately, long-term monotherapy is associated with the development of resistance. Sequence analysis of resistant virus not only reveals the location of the mutation but can also give an indication of the potential mechanism of drug resistance. Additionally, viral sequences can give insights into the evolution and epidemiology of infectious diseases.

Biography

Scott Bowden is the Head of the Molecular Microbiology Laboratory and the Deputy Head of the Division of Research and Molecular Development at the Victorian Infectious Diseases Reference Laboratory. He has honorary Senior Lecturer status in the Department of Microbiology at Monash University and the Department of Applied Biology at RMIT University. He has published over 100 papers in the international literature as well as several book chapters and is an expert on applications of molecular technology to the diagnosis of the hepatitis viruses.



Professor Bart Currie

Head, Tropical and Emerging Infectious Diseases Division

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Abstract: Emerging Infectious Diseases Issues in our Region

In the Asia Pacific region malaria, arboviruses and rickettsial infections all continue to cause substantial morbidity and mortality. Diseases from environmental bacteria are also important, such as leptospirosis and melioidosis, which is caused by *Burkholderia pseudomallei*. Knowledge of the distribution and epidemiology of some of these infections remains limited because of the non-specific nature of the disease presentation and difficulties with laboratory diagnosis. Understanding the range of organisms likely to cause disease in a specific location allows targeted syndromic empirical therapy, while also directing tests to confirm the diagnosis in those locations where resources include access to laboratory testing. Regional initiatives are required to identify the local spectrum and relative importance of organisms responsible for patients presenting with "febrile illness". Various laboratory tools are required for comprehensive studies; serology can be supplemented by antigen detection and nucleic acid amplification tests (NAT) such as PCR. New technologies and tests for newly identified viruses and bacteria are uncovering the diversity of pathogens present across our region. There is much in common between Indonesia and northern Australia and Wallace's line is no barrier to many pathogens, as attested to by the expansion of Japanese encephalitis virus across the region. Improved technology and decreasing costs of "point of care testing" will result in penetration of this capability to not only urban clinics but also remote locations where laboratory facilities are not available. Malaria antigen detection is probably the most widespread example of use of this technology for infectious diseases. An issue that has arisen with rapid diagnostics is cross-reactions, which are seen especially with IgM serology testing. These sometimes result in false +ve diagnoses for diseases such as dengue, leptospirosis and melioidosis. Therefore direct pathogen detection by antigen detection or NAT often has advantages over serology and future initiatives will hopefully address this concern.

Biography

Bart Currie is an Infectious Diseases Physician at Royal Darwin Hospital and Professor in Medicine at the Northern Territory Clinical School, Flinders University. He is also Head of the Tropical and Emerging Infectious Diseases Division of the Menzies School of Health Research at Charles Darwin University. Areas of interest include clinical and epidemiological aspects of tropical and emerging infections, development of treatment guidelines and clinical toxinology.



Dr Peter Daniels

Assistant Director

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Abstract: Meeting the Challenge of Zoonotic H5N1 Avian Influenza: Veterinary Science

The H5 Avian Influenza crisis is driving the need for rapid scientific developments globally. The challenges are many and varied. The primary need is to control transmission of the virus in poultry populations, thereby reducing the risk of human infection. Surveillance, diagnosis and response capabilities are all critical. Since 2003 Australian collaboration with Indonesia has been directed to all these three areas. With AusAid support the Australian Animal Health Laboratory has been working with the Indonesian national veterinary laboratories to introduce the most modern diagnostic technology, real time PCR, supporting this and other aspects of diagnostics with quality assurance. There has also been collaboration in veterinary epidemiology enhancing surveillance and outbreak investigation skills and development of a web-based information management system. Becoming more critical is the ability to molecularly characterize AI viruses to monitor the evolution of variant antigenic strains that may necessitate new vaccines. Underpinning all of the above has been the need to enhance biosafety and biosecurity for both field and laboratory activities.

Biography

Dr Peter Daniels is the Assistant Director and Leader of the Diagnosis, Surveillance and Response Group at the Australian Animal Health Laboratory (AAHL) in Geelong, Victoria. Dr Daniels joined CSIRO in 1993 as an epidemiologist and became Diagnosis and Epidemiology Project Leader in 1997. He led the Diagnostic Sciences Program from 2002-04, playing a significant role in restructuring to focus AAHL's diagnostic capability. Prior to joining CSIRO, Dr Daniels worked for 10 years in Indonesia at the National Research Institute for Veterinary Science in Bogor. Dr Daniels completed a Masters of Science with a major in diagnostic histopathology, and his Doctorate from James Cook University in Townsville, North Queensland, Australia. His postgraduate research focussed on squamous cell carcinoma of sheep as a model of human neoplastic disease. Dr Daniels is currently overseeing AAHL's assistance to Southeast Asian laboratories in combating avian influenza. He also coordinates the delivery of AAHL's routine and emergency diagnostic services and contributions to a national surveillance strategy through international reference laboratory activities.

He maintains an interest in: emerging infectious diseases, vector-borne diseases, the epidemiology, monitoring and control of infectious animal diseases, strategies for outbreak investigations of emerging animal diseases which can be transmitted to humans (zoonoses), including biosecurity and biosafety precautions.

Dr Daniels is a member of the Australian College of Veterinary Scientists (Epidemiology chapter) (MACVS). He is also a Fellow of the Australasian College of Tropical Medicine (FACTM), and a Graduate member of the Australian Institute of Company Directors (GAICD).

He sits on: the National Arbovirus Monitoring Program (NAMP), the National Arbovirus and Malaria Advisory Committee (NAMAC), the NATA Veterinary Testing Accreditation Advisory Committee Testing (VTAAC), the Sub Committee of Animal Health Laboratory Standards (SCAHLs).



Dr Lynleigh Evans

Emerging Infectious Diseases Co-ordinator

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Abstract: Australia's Commitment to Emerging Infectious Diseases in the Asia-Pacific Region

Australia was one of the first countries to respond to Avian Influenza in the region and, since 2003, it has committed over A\$150 million to assist countries in Asia and the Pacific. The presentation begins with an overview of Australia's Emerging Infectious Diseases program in the region. It then focuses in more detail on the Indonesian bilateral program and on some new directions being taken by AusAID in South and West Sulawesi. The presentation will conclude with a short discussion on some of the constraints faced by the Government of Indonesia and the international community in the country.

Biography

Dr Lynleigh Evans was appointed to the position of "Emerging Infectious Diseases Coordinator" with AusAID, Jakarta in July 2007. In this role, she is responsible for developing strategy, coordinating with the Government of Indonesia and other donors and managing the Australian Avian Influenza Program in Indonesia (currently worth over A\$30 million). Prior to this, she spent 18 months working as the Senior Medical Adviser for Pandemic Preparedness Planning with International SOS in Singapore and Indonesia.

Dr Evans combines her technical expertise in Medicine and Public Health with extensive experience in health management and planning both in Australia and overseas. Previous positions include Executive General Manager – Health Services at one of Australia's largest Health Insurance Companies in Australia; Executive Director of a University Tertiary Referral Hospital in Sydney and Team Leader and Project Director of a comprehensive Health Sector Reform Program in Tonga.

Lynleigh's experience is supported by a medical degree, a Ph.D. in Physiology and an MBA - all from the University of Sydney.



Dr Hume Field

Principal Veterinary Epidemiologist (Emerging Diseases)

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Abstract: Infectious disease emergence from wildlife - a 'One Health' perspective.

Nearly 75% of all emerging infectious diseases that impact or threaten human health are zoonotic. The majority have spilled from wildlife reservoirs, either directly to humans or via domestic animals.

Infectious disease emergence from wildlife can be regarded as primarily an ecological process. However, the epidemiologic investigation of disease emergence and outbreak requires a comprehensive trans-disciplinary approach that includes an understanding of the ecology of the wildlife species, and an understanding of human behaviors that increase risk of exposure. Aspects of the emergence of Nipah virus in Malaysia and more recently Bangladesh provides a useful illustration.

Emerging infectious diseases from wildlife populations will continue to threaten public health. Mitigating and managing the risk requires an appreciation of the connectedness between human, livestock and wildlife health, and of the factors and processes that disrupt the balance.

Biography

Dr Hume Field is an internationally recognized authority on emerging infectious diseases associated with wildlife. He is a veterinary epidemiologist with particular experience in the design and implementation of wildlife surveillance programs and in investigations of disease emergence from wildlife. He played a key role in the identification of fruit bats as the natural reservoir of Hendra virus, and conducted the initial investigations of the ecology of Hendra virus and Australian bat lyssavirus in Australian bats. He was a member of the international taskforce investigating the 1999 Nipah virus outbreak in Malaysia, and a member of two WHO missions investigating the origins of the SARS outbreak in 2003. His current research focus includes risk factors for henipavirus spillover, and investigations of SARS-like coronaviruses in bats. He is currently employed by the Department of Primary Industries and Fisheries in Brisbane, Australia.



Dr Rachel Huxley

Director, Nutrition and Lifestyle Division

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Abstract: Smoking and tobacco control in Indonesia - is enough being done?

Despite the enormous efforts to curb the smoking pandemic, smoking remains the second leading cause of death and disability (after high blood pressure), accounting for 12% of all deaths worldwide. Paradoxically, most of these deaths occur among populations within the West that now have some of the lowest smoking rates, whereas the burden of smoking-related illness in Asia (where up to 50% of men smoke) remains disproportionately low. This reflects the often long latency period between smoking and onset of illness, but over the coming decades this global pattern of morbidity and mortality is likely to reverse if current smoking trends in Asian countries persist. A low level of awareness as to the harm associated with the habit and a lack of population-wide smoking cessation strategies are two of the main reasons explaining the continuing popularity of smoking in Asian countries, including Indonesia.

Biography

Dr Rachel Huxley is Director of the Nutrition and Lifestyle Division, The George Institute for International Health and holds a Conjoint Senior Lectureship in the Faculty of Medicine, University of Sydney. She was awarded a Masters in Physiological Sciences in 1999, and her Doctorate in Epidemiology and Public Health Medicine in 2001, both from the University of Oxford.

Dr Huxley's research interests specifically focus on the aetiology and burden of chronic disease in the Asia-Pacific Region, with a particular focus on the role of major lifestyle determinants of disease including obesity, diabetes and tobacco. She is responsible for both the Obesity in Asia Collaboration and the Asia Pacific Cohort Studies Collaboration, which combined involve more than 750,000 individuals from 60 studies.

Dr Huxley also supervises doctoral candidates and contributes regularly to the Masters in International Public Health, University of Sydney and has developed a number of epidemiological workshops designed to provide health professionals with an insight into the area of epidemiology and biostatistics.

Dr Huxley is regularly invited to present at international meetings and has published widely (> 50 papers) in the field of cardiovascular epidemiology in several high-impact journals including The Lancet, JAMA and the British Medical Journal.



Anne Kelso

Director

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Abstract: Human influenza – a global challenge

The influenza virus can cause disease in humans ranging from mild respiratory illness to severe seasonal outbreaks and devastating global pandemics. The continuing evolution of seasonal viruses and the emergence of novel viruses from their natural avian hosts present major challenges for scientists, clinicians, public health physicians and governments that have not yet been overcome by vaccines and antiviral drugs. The World Health Organisation oversees a remarkable worldwide alliance of national laboratories that monitor the epidemiology and changing characteristics of influenza viruses infecting humans and support a range of activities to prevent and control disease. These activities are enhanced by research on influenza virus replication, transmission, evolution and immunity, leading to a deeper understanding of the host-virus relationship and development of new approaches to control through vaccine and drug design. This presentation will review the contribution of the WHO Collaborating Centre for Reference and Research on Influenza in Melbourne to this international effort in influenza surveillance and research.

Biography

Anne Kelso joined the WHO Collaborating Centre for Reference and Research on Influenza in Melbourne as Director in February 2007. Following PhD studies, she undertook research on cell-mediated immunity at the Swiss Institute for Experimental Cancer Research in Lausanne, the Walter and Eliza Hall Institute of Medical Research in Melbourne and the Queensland Institute of Medical Research in Brisbane. From 2000 until 2006, she was also Director/CEO of the Australian Government-funded Cooperative Research Centre for Vaccine Technology, a joint venture of eight academic and industry partners that developed new prototype vaccines and vaccine delivery. Professor Kelso has previously served as President of the Australasian Society for Immunology and as Secretary-General of the International Union of Immunological Societies and is currently member of a number of boards and advisory groups, including several committees advising the Australian Government on issues related to influenza and pandemic preparedness. She was appointed Officer of the Order of Australia in 2007.



Professor Peter McMinn

Bosch Chair of Infectious Diseases

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Abstract: Harnessing biotechnology to prevent enteroviral encephalitis

A large body of research on the mechanism of replication of poliovirus (PV), the prototype enterovirus, has provided a clear picture on the role of RNA secondary structural elements in the control of viral protein translation and RNA replication. Mutagenesis of RNA secondary structures not only alter downstream translation or replication functions, but also attenuate neurovirulence in animal models. These experiments point the way toward construction of genetically defined, live attenuated vaccines against poliomyelitis and also against emerging neurotropic enterovirus infections, in particular Human Enterovirus 71 (HEV71). HEV71 is a highly neurotropic enterovirus that has increased in prevalence in the Asia-Pacific region over the past ten years, resulting in large epidemics of hand, foot and mouth disease and brainstem encephalitis in young children. HEV71-associated brainstem encephalitis is typically rapid in onset and associated with a high mortality (40-50%). Intensive surveillance and public health interventions have failed to prevent HEV71 epidemics, indicating that a vaccine will be necessary to control HEV71. Experience with the related PV indicates that a live attenuated vaccine is likely to provide the most cost effective means of preventing HEV71 transmission. Knowledge gained from PV research can now be applied to this problem. A large body of evidence suggests that targeted mutagenesis within translation and replication control elements can attenuate virulence without altering the amino acid composition of the immunogenic structural proteins, avoiding interference with protective immune responses. We have identified the major translation and replication control elements in the HEV71 genome and are constructing attenuated HEV71 vaccine candidates by targeted mutagenesis within these structures.

Biography

Professor Peter McMinn was appointed to the Bosch Chair of Infectious Diseases at the University of Sydney in 2007. After graduating in medicine from the University of Sydney (1982), Peter undertook postgraduate training as a clinical microbiologist at the Institute for Medical and Veterinary Science in Adelaide. Throughout his career, Peter has maintained a strong research and clinical interest in viral encephalitis, which continues with his appointment at the University of Sydney. He has developed extensive research and teaching collaborations in Southeast Asia and has spent long periods in Malaysia, Indonesia and Vietnam training local microbiologists in viral diagnosis and research.



Dr Stephen Prowse

CEO

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Abstract: Biosecurity networks and collaborations – a global approach

Emerging diseases are of global concern and require an international approach. New information management technologies and approaches open up new collaborative possibilities. Contemporary approaches to disease research, including diagnosis and surveillance, result in the generation and collection of large amounts of information. The linkage of this information to spatial, climatic and ecological data adds a further level of complexity. A major challenge at national and international levels is to develop processes to effectively share disease information and undertake useful analysis. This is required to ensure that the best available information gets to the right people in a timely manner to assist them in making the best evidenced based decisions in disease control.

Biography

Professor Stephen Prowse is the CEO of the Australian Biosecurity Cooperative Research Centre for Emerging Infectious Disease (AB-CRC) and an Adjunct Professor in the Faculty of Biological and Chemical Sciences at the University of Queensland. The objective of the AB-CRC is to build capabilities to detect, monitor, assess and predict emerging infectious disease threats which impact on national and regional biosecurity (www.abcrc.org.au). Professor Prowse has a background in disease research in humans and livestock with a focus on pathogenesis, and the development of vaccines and diagnostics. Prior to his current appointment he was the Manager for Strategy and Evaluation in the CSIRO Division of Livestock Industries, where he had responsibility for leading the development and implementation of scientific strategy, and for the evaluation of the Programs and projects. In 2001, Professor Prowse was Acting Director of the CSIRO Australian Animal Health Laboratory, Australia's primary emergency animal disease diagnosis laboratory. Professor Prowse is the author of over 100 publications in refereed journals, books, industry journals and on-line. Professor Prowse is a reviewer for various journals and funding organizations and has served on Government and industry advisory and policy committees.



Professor Ian Ramshaw

Director

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Abstract: Genetically modified microorganisms: Biological weapons and the security of science

Developments in biotechnology should and usually do serve only to benefit humanity. However, new technologies from life sciences could be put to hostile use. Genuine experimental research for peaceful purposes also could generate information that has application for offensive biological weapons (the dual-use dilemma). This highlights the powerful position held by scientists with access to pathogens and knowledge of what makes them dangerous. During our studies, developing vaccines for such diseases as HIV and TB, we made the remarkable discovery that the expression of a cytokine gene, interleukin-4, could greatly augment the pathogenicity of recombinant viruses. This publication had a significant impact in the area of biosecurity and is often cited as the major publication that demonstrates the potential misuse of genetic technology. I will discuss the experiments leading to this discovery, the impact on security considerations and the need for a global governance scheme to manage the security risks inherent in such research while minimising scientific opportunity costs.

Biography

Professor Ian Ramshaw is the Director of the National Centre for Biosecurity at The Australian National University <http://biosecurity.anu.edu.au/> He is also the Group Leader of the Vaccine Immunology Group at The John Curtin School of Medical Research. He completed his PhD at the ANU in 1973 and developed a research career in immunology and the development of vaccines for infectious diseases such as HIV. He developed the prime boost immunization strategy and cytokine coexpression, both of which have been in clinical trial for HIV-1 preventive and immunotherapeutic vaccines. He has also been studying the effect of co-expressing cytokine genes on the pathogenicity of viruses and published the seminal paper showing increased virulence of poxviruses expressing the gene for IL-4. This was the first example of a genetically manipulated organism showing increased virulence which brought to the fore the potential concerns of bioterrorism.



Professor Peter David Sly

Head of Division

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Abstract: Impact of tobacco smoking on growth and development of children and asthma risk.

Exposure to tobacco smoke represents the single most damaging preventable environmental exposure for children. *In utero* exposure from active maternal smoking or passive environmental exposure has multiple adverse effects on the developing fetus, including: low birth weight, congenital malformations, decreased lung growth, delayed immune system maturation and an increase risk of postnatal respiratory infections and sudden infant death syndrome. Postnatal exposure to environmental tobacco smoke increases mortality from respiratory infections, impairs lung growth and increases respiratory symptoms and the risk of asthma. Environmental tobacco smoke can be linked to both the initiation and triggering of asthma in children and is associated with persistent asthma in teenagers. Children need to be protected from the harmful effects of tobacco smoke.

Biography

Professor Peter Sly completed his medical training and MD at the University of Melbourne, Australia. Professor Sly's research interests include mechanisms for the development of asthma, measurement of lung function in infants and small children, small animal models of asthma and other respiratory diseases, cystic fibrosis and vaccine preventable diseases.

His current appointments are:

- *Head, Division of Clinical Sciences, Telethon Institute for Child Health Research*
- *Director, WHO Collaborating Centre for Research on Children's Environmental Health*
- *Senior Principle Research Fellow, National Health & Medical Research Council*
- *Professor, School of Paediatrics and Child Health, University of Western Australia*
- *Adjunct Professor, School of Public Health, Division of Health Sciences, Curtin University of Technology*
- *Respiratory Physician, Princess Margaret Hospital for Children*

Professor Sly was awarded a DSc in Clinical Respiratory Physiology and Immunology from the University of Western Australia in 2002. He is a member of the Royal Australasian College of Physicians.



Linfa Wang

Senior Principal Research Scientist

CSIRO

Australian Animal Health Laboratory

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Abstract: Emerging virus discovery – the value of molecular biological techniques

The impact of emerging infectious diseases on economy and society is best illustrated by the emergence of SARS in 2002-2003. Not only more than 800 people lost their lives, the lives of many more people were affected by one way or another. The extent of the SARS outbreak was, to a large degree, due to the delay in identifying the exact cause of the cryptic disease known as severe acute respiratory diseases. It is generally accepted that if the virus was identified in the first month of the outbreak, the consequence would be very different.

To better prepare ourselves to combat future disease outbreaks caused by unknown agents, it is essential to improve our capability for rapid agent discovery and identification. Although conventional techniques such as cell culture and electron microscopy will continue to play a role, it is generally believed that major breakthrough will come from novel molecular techniques.

Biography

Dr Linfa (Lin-Fa) Wang is currently a Senior Principal Research Scientist and CEO Science Leader at the Australian Animal Health Laboratory (AAHL), and a project leader in the Australian Biosecurity Cooperative Research Centre (AB-CRC) for Emerging Infectious Disease. Dr Wang is internationally well known for his work in emerging zoonotic viruses. He is a member of the WHO SARS Scientific Research Advisory Committee, and played a key role in identification of bats as the natural host of SARS-like viruses. His research group also played a major role in the molecular analysis of Hendra and Nipah viruses, which led to the establishment of a new genus Henipavirus by the International Committee on Virus Taxonomy. Dr Wang completed his science degree in 1982 at the East China Normal University, Shanghai, followed by a PhD in Biochemistry (Molecular Biology) from the University of California, Davis, USA in 1986, where he went on to become a Postdoctoral Research Fellow with the Department of Biochemistry. Dr Wang has more than 160 scientific publications, including papers in Science, Nature Review of Microbiology, PNAS, etc. He is currently serving on five editorial boards for publications in the areas of virology, biotechnology and immunotechnology.

program and abstracts

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Australia–Indonesia
Workshop on Human Health,
Including Infectious Diseases

Jakarta

14–15 April 2008

I G Ngurah Mahardika

Dr, Pediatrician

Faculty of Veterinary Medicine,
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Abstract: Avian Influenza H5N1 Virus in poultry and other animal in Bali and Nusa Tenggara in 2005 - 2006

Serological, virological, and molecular surveys of highly pathogenic avian influenza (HPAI) virus of subtype H5N1 have been conducted in Bali and Nusa Tenggara, in 2005-2006.

Sera and fecal or throat swabs of unvaccinated animals were collected from 992 households in 2005 and 996 households in 2006 which were selected using stratified random sampling procedure. Anti H5 antibody in pre-treated sera was detected using a standard Haemagglutination Inhibition (HI) test using a national standard virus H5N1 provided by BALITVET Bogor. AI virus in fecal or throat swabs was propagated in SPF chicken embryo of 9 days old and confirmed using HI test and Reverse-Transcription-Polymerase Chain Reaction (RT-PCR) using standard primer sets for M, H5 and N1. Haemagglutinin gene fragment of 12 isolates was sequenced and analyzed using Mega version 3.1. software.

Some findings are (1) the prevalence of anti H5 antibody and H5N1 virus in domestic water fowl (duck, goose, and muscovy duck) is higher than in village chicken in Bali and West Nusatenggara; (2) Neither anti H5 antibody nor H5N1 virus could be detected in samples from East Nusa Tenggara; (3) anti H5 antibody and H5N1 virus were detected from pigs, dogs, and cats in Bali that were located in villages with recent history of AI outbreak in fowl (1-3 months before sampling); (4) risk factors that significantly increase the prevalence of positive animal in household are stall floor, water source, and mixed pig and fowl raising; (5) HA gene fragment of 12 AI H5N1 viruses from Bali shows a genetic variability and forms three groups in typical Indonesian cluster H5N1 which is not different with the viruses that are circulating in Java island as previously reported; (6) All analyzed viruses from Bali possess Receptor Binding Site (RBS) of G221-Q222-S223-G224; and (7) The most of them exhibit a HA-cleavage site 'RERRRKKR' typical of HPAI, while three of them, i.e. isolated from chicken, duck, and dog, show a cleavage site variant of 'RESRRKKR' which is known to be a sequence motif found in the most isolates from human cases in Indonesia.

Professor Sangkot Marzuki

Senior Research Scientist on viral diseases

Eijkman Institute for Molecular Biology
Jl. Diponegoro 69, Jakarta 10430, Indonesia

Biography

Professor Sangkot Marzuki is the Director of the Eijkman Institute for Molecular Biology in Jakarta. He graduated as a medical doctor from the University of Indonesia in 1968, and obtained his M.Sc. in 1971 from Mahidol University in Bangkok, Ph.D. in 1975 from Monash University in Melbourne, and awarded a higher doctorate (D.Sc.) from the same university in 1998.

He was a medical faculty member at the Department of Biochemistry, Monash University Melbourne for 17 years, before moving to Indonesia in 1992 at the invitation of the Indonesian Minister for Research and Technology to rebuild the Eijkman Institute. His research interest has been in the area of the biogenesis of energy transducing membranes, and human genetic disorders associated with this process, as well as in human genome diversity.

Professor Marzuki holds honorary appointments as a Professor of Medicine at Monash University, Melbourne, Professor of Medical Sciences at the University of Indonesia in Jakarta, and Adjunct Professor of Molecular and Cellular Biology at the University of Queensland. He was elected to the Indonesian Academy of Sciences in 1997, and is currently the Vice-President of the Academy, as well as a member of the National Research Council (Indonesia) and the Higher Education Council (Indonesia), and a Vice-President of the International Molecular Biology Network for Asia and the Pacific Rim (A-IMBN). He has received many awards including the ASEAN Achievement Award for Science (1992), Kodijat Award from the Indonesian Medical Association (1994), Outstanding Science Alumnus Award from Mahidol University, Thailand (1999), Eijkman Medal from Utrecht University, the Netherlands (2001), the Habibie Award (2003), ASEAN Outstanding Scientist Award (2005), Outstanding Alumni Award from Mahidol University, Thailand (2006), Doctor Honoris Causa from Utrecht University, The Netherlands (2006), and Hamengkubowono IX Awards from Gadjah Mada University, Indonesia (2006), and Achmad Bakrie Award, Indonesia (2007).



David Handojo Muljono

Head, Hepatitis and Emerging Diseases Unit, Eijkman Institute
National Working Group for Hepatitis (Ministry of Health)

Biography

Education:

- *Medical Doctor, 1981, Airlangga University, Surabaya, Indonesia*
- *Specialist in Internal Medicine, 1993, Airlangga University, Surabaya*
- *Training Programs in Monoclonal antibody (Sydney), Medical Emergency (Perth), Hepatitis (Sydney & Tokyo)*
- *PhD program: Jichi Medical School, Tochigi -Tokyo, Japan*

Professional Membership:

- *Indonesian Medical Association*
- *PAPDI (Indonesian Association of Internal Medicine)*
- *PPHI (Ina-ASL, Indonesian Association for the Study of the Liver)*
- *EASL (European Association for the Study of the Liver)*
- *APASL (Asia-Pacific Association for the Study of the Liver)*

Experience (Past positions):

- *Health Centre in Bima, Sumbawa Island*
- *Health Regency Office (Mataram City)*
- *Nusa Tenggara Hepatitis Center, Mataram, Lombok*
- *Task Force for WHO Immunization Project for Hepatitis B, Lombok*
- *Researcher, Tropical Disease Center, Medical Faculty, Airlangga University*

Sardikin Giri Putro

Biography

1. Instansi: *RS.Penyakit Infeksi Prof.Dr.Sulianti Saroso*
2. Nama Lengkap: *Dr.Sardikin Giriputro.Sp.P.(K).MARS*
3. NIP: *140097943*
4. Pangkat /Gol: *Pembina /IV c*
5. Tempat/Tgl lahir: *Solo, 24 Maret 1951*
6. Jenis Kelamin: *Laki-laki*
7. Agama: *Islam*
8. Jabatan: *Direktur*
9. Pendidikan formal: - *Tahun 1975 lulus FKUI. Tahun 1990 lulus dokter Spesialis Paru FKUI. Tahun 2002 lulus MARS FKUI.*
10. Pendidikan Jabatan: *Spama*
11. Kursus-Kursus: *1983, Tuberculosis control Programme, Tokyo. 1987, Oncologi course, Tokyo. 1990, Respiratory Medicine, Australia. 1993, Workshop Diagnosis HIV, Philippine 1994, Post Graduate Program, UI*
12. Pengalaman Kerja: *1977 – 1981 Dinas Kesehatan DKI. 1981 – 1984 Ka.Sie.Pemberantasan Penyakit TBC RS.Persahabatan 1984 – 1990 Pendidikan dokter Paru, RS.Persahabatan. 1990 – 1991 Ka.UPF Paru RSUD Syahrani, Samarinda. 1992 – 1994 Staf Pulmonologi FKUI/RS.Persahabatan. 1995 – 2000 Wakil Direktur Pelayanan RSPI.Prof. Dr.Sulianti Saroso 2000 – 2007 Wakil Direktur Umum & Keuangan RSPI. Prof.Dr.Sulianti Saroso. 2007 – sekarang Direktur RSPI. Prof.Dr.Sulianti Saroso.*
13. Alamat Kantor: *Jl. Baru Sunter Permai Raya Jakarta – Utara Kode Pos : 14340, Telp. 021 – 6506559/ ext 2543 Fax . 021 – 6401411*
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Indrawati Sendow

Senior Research Scientist on viral diseases

Indonesian Research Center for Veterinary Science (Bbalitvet)

Virology Department

PO BOX 151 Bogor

Abstract: Emerging zoonosis, nipah and Japanese encephalitis virus infections in Indonesia

Many emerging diseases including Nipah and Japanese encephalitis (JE) occur in the Asian countries. As zoonosis diseases, Nipah and Japanese encephalitis (JE) have an economic impact and are of public health concern. Subsequent to the outbreak of Nipah virus in peninsular Malaysia in 1998-1999, surveillance by Indonesian veterinary authorities for Nipah in pigs in border country to Malaysia was conducted, especially in North Sumatera, Riau and West Kalimantan, using ELISA. The results indicated that antibodies against Nipah virus were absent in the surveyed pig populations. Further serological studies in different areas of Indonesia were also conducted and gave the same negative results in pigs. Subsequently, fruit bat sera were collected from bats sellers in different areas in Java, Sumatera and Kalimantan and tested against ELISA. The results indicated that 22% *Pt. vampyrus* had antibodies against Nipah virus. JE surveillance in pigs was also conducted in different areas in Indonesian pigs and the results showed that the prevalence of JE reactors in the surveyed pig populations varied from 2 % to 94%. Serological studies in other species indicated that cattle also had a high prevalence of reactor against JE infection. In bats, antibodies against JE and flavivirus group viruses was also detected in 12 % of sera tested. Insect collection near pig farms indicated that *Cx. tritaeniorhynchus*, *Cx. bitaeniorhynchus* and *Cx. fuscocephalus* were present. In conclusion, no evidence of Nipah virus infection in pigs in Indonesia, in contrast to the moderate seroprevalence detected in fruit bats. JE is endemic serologically in the surveyed pig population, and evidence of infection was also detected in bats. Further work is needed to establish the role of bats in the ecology of JEV

Biography

Education: *MSc : James Cook University, Townsville, Australia (1990) DVM : Faculty of Veterinary Medicine, Bogor Agriculture University, Bogor-Indonesia (1982).*

Work Experience: *To conducting research work on epidemiology, viral isolation from animals and vectors, identify isolates, pathogenesis, establishing sentinel herds and longitudinal vector study in the field, setting up serological testing against several viruses including bluetongue, Bovine ephemeral fever, Epizootic haemorrhagic disease of deer, Palyam group viruses, Akabane, Japanese encephalitis, Egg drop syndrome, Porcine respiratory and reproductive syndrome, Transmissible gastroenteritis viruses, Canine Parvovirus, Para influenza type 3 and Nipah virus. Principle investigator on all of those projects. Under sponsored: FAO/IAEA, US-NAMRU II, ATA219/NARCS and AQIS- Australia, Indonesian Gov. funding, Dept. of Primary Industry - Brisbane Australia, Dept of Health -Indonesia and Australian Animal Health Laboratory- Australia.*

- *To make research collaboration with other institution Nationally and Internationally.*
- *To train technicians and Junior scientist for those work in the field and laboratory.*
- *To be a supervisor for undergrade and post grade students from Bogor Agriculture University and Pancasila University (Jakarta).*
- *To contribute Bbalitvet in improving biosafety and biosecurity aspects. Joint as Biosafety Team.*
- *At present, involved in establishing the BSL3 laboratory.*

Professional affiliations: *Member of Indonesian Veterinary Association, Member of Indonesian Society for Microbiology Member of ABSA.*



Prof. Sutaryo

Dr, Pediatrician

Child Health Department
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Abstract: Dengue cases in Indonesia

A series of dengue outbreak have occurred in Indonesia since 1968. The first outbreak occurred in Jakarta and Surabaya. Several years later, dengue outbreak has spread throughout all provinces in Indonesia. From 1999 to 2006, the number of dengue cases has been found increase. In 2005 to 2006, as much as 95,279 and 106,394 of dengue cases in Indonesia were reported.

Before the year 2000, transmission of the dengue 3 serotype followed by the dengue 2 serotype was reported and after which the dengue 4 serotype appeared more frequent. The dengue 3 serotype resulted in severe clinical manifestation forms.

Clinician makes diagnosis based on WHO criteria (1999). Serological tests do not exist in most instances in rural area. In district hospital, laboratory diagnosis of dengue virus infection by dot blot assay for the detection of anti-dengue antibodies, dengue-specific IgM and IgG. In central laboratory like in Research Center for Biotechnology GMU, molecular diagnosis systems using reverse transcriptase-polymerase chain reaction (RT-PCR) has been applied to dengue diagnosis and to determine the serotype.

Monitoring cases in the hospital based on serial examination of hematocrit, plasma protein, and thrombocyte. All clinical findings and laboratory findings draw in dengue hemorrhagic fever (DHF) monitoring sheet. Treatment of dengue based on fluid management. If the patients suffered of disseminated intravascular coagulation should be treated with thrombocyte concentrate and fresh frozen plasma.

Dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS), which are the two main severe clinical manifestations of dengue, continue to be major causes of human morbidity and mortality. To reduce the case mortality rate its needs much experience is required to arbitrate the management of such severe cases.

Biography

Prof. Dr. dr. Sutaryo, Sp.A(K) is a pediatrician and also a hematology and oncology consultant who concerns much on public health, especially, endemic diseases. Start writing to several newspapers on health problems since 1970, when he was a college's student. He jumped up to observe more on Dengue Hemorrhagic Fever in 1970, when the disease came to Yogyakarta, Indonesia. Owing to Dengue Hemorrhagic Fever, he gained PhD degree in Gadjah Mada University, Yogyakarta in 1991. He also got several trainings in Amsterdam; Kobe, Japan; Canada; and Harvard University, Boston. His other major interest is leukemia. As a lecturer in Faculty of Medicine, Gadjah Mada University, a researcher and a doctor, he has been dedicating his life to both Dengue Hemorrhagic Fever and also Leukemia. He has been pointed as Head of Rescue Team to several natural disasters which occurred in Indonesia, like tsunami in Aceh (2004-2006), Merapi eruption (2006-present), and earthquake in Yogyakarta (2006-present). He is registered as active member in national and international professional organizations, such as, The Indonesian Society of Tropical Medicine and Infectious Disease, The Indonesian Pediatrician Association, and The International Society of Pediatrics Oncology (SIOP). Besides, he has been attending many seminars or workshops, both as keynote speaker and also as participant. Until present, his publications numbered more than 30s and some of which have been published online in national and international journals.



Dr. Syafruddin

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Abstract: Drug resistance in Malaria: Indonesian case

Malaria remains a public health problem across a wide geographic regions of Indonesia, causing approximately 30 million clinical cases and several thousands deaths annually. The majority of the cases occur in eastern part of Indonesia and the main causative agents of the disease are *Plasmodium falciparum* and *P. vivax* but in certain cases *P. malariae* and *P. ovale* infections were also reported. Since the first report of *P. falciparum* resistance to chloroquine (CQ), the first-line antimalarial, in the mid of 1970s in East Kalimantan and West Papua Provinces, resistance to this drug has rapidly spread throughout the archipelago. Treatment failures associated with CQ have also been reported in *P. vivax* and *P. malariae* infections in 1996 and 2003 respectively. Treatment failure associated with the use of Sulphadoxine-Pyrimethamine (SP) was first reported in the early 1980s in West Papua and then sporadically reported in certain foci in different islands of Indonesia. Since the year of 2004, the Ministry of Health adopted the policy to use artemisinin-based combination therapy (ACT) as the first line antimalarial for *P. falciparum* infection.

The Eijkman Institute for Molecular Biology has taken an initiative to conduct a molecular epidemiologic survey evaluate the antimalarial drug resistance situation in Indonesia since 1998, to complement the on-going antimalarial drug resistance monitoring by analyzing parasite isolates collected from various malaria endemic areas. The survey employed molecular tools that specifically detected allelic forms of the *pfcr1* and *pfmdr1* genes, and *pfdhfr* and *pfdhps* genes that were associated with CQ and SP resistance, respectively. Our results revealed that the *pfcr1* 76-Thr and *pfmdr1* 86-Tyr alleles have been fixed in many of isolates examined. Analysis of *dhfr* gene revealed three mutant alleles 16Val, 59Arg and 108Asn/Thr. The *dhfr* 108Asn mutations appeared either as a single mutation or paired with 59-Arg in the frequency of 20-90% among the isolates examined. Mutant alleles of the *dhps* gene appeared in much less frequency, mostly of the 437G and 540K alleles. Analysis of the *P. vivax* isolates did not find any mutations in the *pvcg10* and *pvmr1* genes, but found several isolates that carried mutant alleles of the *pvdhfr* gene. The findings strongly indicate resistance to chloroquine in *P. falciparum* isolates and a growing resistance status to sulfadoxine-pyrimethamine combination in both *P. falciparum* and *P. vivax*.

In conclusion, molecular evidence indicates that the antimalarial drug resistance in Indonesia poses a continuing challenge to the malaria control programme and highlights the need to the proper antimalarial deployment.

Biography

Qualifications M.D. March 1985: Hasanuddin University, Faculty of Medicine, Makassar. Indonesia, Ph.D. March 1992: Toyama Medical and Pharmaceutical University. Japan

Employment History 1985-present: Senior Lecturer, Department of Parasitology, Faculty of Medicine. Hasanuddin University. 1993-present: Senior Research Fellow at the Eijkman Institute for Molecular Biology. Jakarta – Indonesia. 1999-2004: Secretary and Member of the Eijkman Institute Research Ethics Committee

Overseas post-doctoral Research activities: 1994 International research cooperation fellowship by the Japan Foundation at Toyama Medical and Pharmaceutical University. Research title: Subcellular localization of the extra chromosomal DNAs of the malaria parasite; In situ hybridization approach at the ultra structural level.

1997 Cellular immunology of Filariasis, Department of Parasitology, Leiden University, The Netherlands

2000 Molecular biology of drug resistance in malaria parasite, The Walter and Eliza Hall Institute, Melbourne, Australia

2004 Cytoplasmic genetics in the malaria parasite: atovaquone-resistant *Plasmodium berghei* as a model, Jichi University, Japan

Current Research Interests:

- Molecular biology of the energy transducing membrane of the malarial parasite.

The study is aimed to elucidate the cellular function of the two extra chromosomal

DNAs in the malarial parasite.

- Molecular mechanisms underlying *Plasmodium* resistance to antimalarial drugs, particularly mitochondrial inhibitors.

- Molecular Taxonomy of the parasite based on the mitochondrial DNA sequence.

Publications (in international peer-reviewed scientific periodicals):

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2. Syafruddin, Arakawa R, Kamimura K and Kawamoto F. 1990. Histopathological study on the effects of an insect growth regulator (S-31183) on the larvae of the mosquito, *Aedes aegypti*. *Jpn J Sani. Zool*.
3. Syafruddin, Arakawa R, Kamimura K and Kawamoto F. 1991: Penetration of the mosquito midgut wall by the ookinetes of *Plasmodium yoelii nigeriensis*. *Parasitol Res*. 77: 230-236
4. Matsuoka H, Yamamoto S, Shinzei Y, Ando K, Arakawa R, Kamimura K, Syafruddin, Kawamoto F, Ishii A. 1992. Cyclical transmission of *Plasmodium berghei* (Coccidiida: Plamodiidae) by *Anopheles omorii* (Dipter: Culicidae). *J Med Entomol*, 29: 343-345.
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8. Kawamoto F, Fujioka H, Murakami R, Syafruddin, Hagiwara H, Ishikawa T, Hidaka H. 1993. The roles of Ca²⁺/calmodulin- and cGMP-dependent pathways in gametogenesis of a rodent malaria parasite, *Plasmodium berghei*. *Eur J Cell Biol*, 60:101-107.
9. Mangali A, Sasabone P, Syafruddin, Abadi K, Hasegawa H, Toma T, Kamimura K, Hasan M, Miyagi I, Mogi M. 1994. Prevalence of intestinal helminthic infections in Kao District, North Halmahera, Indonesia. *South East Asian J Trop Med Public Health*, 25:737-744
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11. Hasegawa H and Syafruddin. 1994. *Odilia mallomyos sp.n.* (Nematoda: Heligmonellidae) from *Mallomyos rothschildi weylandi* (Rodentia: Muridae) of Irian Jaya, Indonesia. *J Helminthol. Soc. Wash.*, 61:208-214

12. Hasegawa H and Syafruddin. 1994. *Cyclodotostomum purvisi* (syn. *Ancistronema coronatum*) (Nematoda: Strongyloidea: Chabertiidae) from rats of Kalimantan and Sulawesi, Indonesia. *J Parasitol*, 80:657-660
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22. Syafruddin D, Asih PBS, Siregar JE, and Tjitra E. 2003. Molecular Basis of Antimalarial Drug Resistance in Indonesia. *Adv Exp Med Biol*, 531:103-115.
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Book: Chapter in a multi-authored book: Eijkman Institute lecture series

1. "Mitochondria sebagai target obat."

2. Book chapter in *Malaria (in Indonesian)*, Editor: Dr Paul Harijanto: Molecular basis of the parasite resistance to antimalarial drugs, 2007. Scientific/Academic activities

- Teaching and supervision of B.Sc, M.Sc and Ph.D. students at the Faculty of Medicines Hasanuddin University, University of Indonesia, University of Airlangga, Surabaya, University of Padjadjaran, and Faculty of Natural Sciences, Bandung Institute of Technology, Bogor Institute of Agriculture, Post-graduate Diploma Course (Eijkman-University of Queensland, Australia).

Present students: Ph.Ds: 2 in the University of Indonesia (co-supervisor) 2 in the University of Airlangga (co-supervisor) 1 in the Bandung Institute of technology (co-supervisor)

- Panel member of the National Competitive Research Grant (RUT), International Competitive Research Grant (RUTI) and Incentive Research Scheme on Applied research in Medical Technology and Medicine, organized by The Ministry of Research and Technology (2006-present)

- Reviewer of the *Am. J of Trop Med Hyg*, since 2004

- Executive Committee member of the Poverty-Related Infectious Diseases- Oriented Research (PRIOR), a research funding scheme organized by the University of Nijmegen, The Netherland (2005-present)

- Member of the National Institute of Health Research and Development (NIHRD= Badan Litbangkes RI) Research ethics committee (Since 2007). Communication to Learned Societies (Within the last 3 years)

- Invited speaker at the US-Japan Sciences meeting, Kyoto, Japan, 2004, Antimalarial drug resistance in Indonesia: Population dynamics

- Poster presenter at the Molecular approach to Malaria meeting, Lorne Australia

- Invited Lecturer at Toyama medical and Pharmaceutical University, 2004, Molecular basis of antimalarial drug resistance

- Invited speaker at the International Symposium on Genetic Engineering and Biotechnology, Karachi, Pakistan

- *Invited speaker at the PRIOR General assembly meeting, Nijmegen, The Netherlands, 2005*
- *Invited speakers at the International Malaria meeting, Jakarta Antimicrobial Up-date 2005-2007*

Current Research Grants

- *WHO-APW (Establishment of Malaria surveillance for an evidence based malaria control program in Tsunami affected areas of Indonesia (2005-2006), Principal Investigators*
- *International Research collaboration on Malaria in West Sumba District (PRIOR research grant, The Netherlands (2005-present), Principal Investigator*
- *Monbusho international joint research on molecular epidemiology of intestinal protozoan in Indonesia (Collaborative work with Dr. M. Tokoro, Kanazawa University, Kanazawa, Japan), Principal Investigator.*
- *The Government of Indonesia through The Ministry of Research and Technology, Principal Investigator*
- *The Ministry of Education Competitive Research Grant (HIBAH for postgraduate teaching) Through University of Airlangga, Surabaya, (2005-present), Coinvestigator.*
- *SPIN postdoctoral programme for Dr. FN Coutrier (2007-2009), awardees and Supervisor*
- *SPIN postdoctoral programme for Dr. R. Noviyanti (2008-2010), awardees and Supervisor*
- *Assessing the burden of malaria (2007-2009) UNICEF, Principal Investigator*
- *Malaria transmission consortium program (2008) GATES-UNICEF, Principal investigator*
- *Severe Vivax Malaria in Papua, Oxford University-Li Ka Shing Foundation (2007-2010) Jakarta, 2 April 2008 Syafruddin*

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Abstract: Malaria case in Papua

(National Institute of Health Research and Development, Ministry of Health, Jakarta, Indonesia)

Malaria is the commonest disease in Papua. Although the number of population in Papua is about one percent of a total population of Indonesia, the highest number of malaria cases is always reported from Papua. Since artemisinin combination therapy has been introduced, malaria case definition is determined based on blood examination microscopy and/or rapid diagnostic test irrespective of clinical symptoms. In addition, the current approach for malaria treatment should be with a radical treatment. Consequently, the malaria case may with asexual and/or or asexual parasites. Malaria case could be infected with one or more than one parasite species. All four species are found in Papua, however. Plasmodium falciparum and P.vivax are the common malaria cases. Moreover, multiple drug resistance has emerged to both species.

Most of reported malaria cases are from facility based included Health Centers and Hospitals. The community based data was mostly from the study which covered only limited areas. A total of malaria cases with asexual parasitaemia was 16% and of which 68% were asymptomatic cases. The pyrogenic thresholds of P. falciparum and P.vivax cases were 1,500 and 386 asexual parasites/ul respectively. There were over 1,000 malaria cases per week accounting for 14.5% (38,889 / 268,004) of all outpatient consultations, and 30% (8,937/29,979) of hospital admissions with 23% of bed occupancy. P. vivax accounted for 26% of those admitted to hospital. Severe malaria was in 23% (2,026/8,937) of malaria cases, and of those 26% (523/2,361) had P.vivax. There was mostly with severe anaemia (Hb<5g/dl). Malaria accounted 16% (179/1124) of all cause inpatient deaths with case fatality rates of 2.2%, 1.6%, and 2.2% in P.falciparum, P.vivax and mixed infection of P.falciparum and P.vivax. Malaria in pregnant women admitted to district hospital was 23% (693/3,015), 53% cases associated with fever, and >50% with P.falciparum. Malaria caused reduction of birth weight 198 g in P.falciparum and 119 g in P.vivax. Malaria also associated with premature delivery (OR=2.4) and stillbirth (OR=2.3).

In summary, malaria in Papua was associated with considerable morbidity and mortality particularly in risk population.

Biography

Education: Medical Doctor, University of Atmajaya, Jakarta, Indonesia, 1981.

Diploma of Tropical Medicine and Hygiene, Mahidol University, Bangkok, Thailand, 1984.

Master of Science in Clinical Tropical Medicine, Mahidol University, Bangkok, Thailand, 1985.

|Philosophy of Doctor, Menzies School of Health Research – Northern Territory, University, Darwin, Australia, 2001.

Professional experiences: Researcher (1986 to present),

Staff of Health Regional Office, East Nusa Tenggara Province, Indonesia (1985-1986).

Head of Lewolaga Health Center, Wulanggitang subdistrict, East

Flores district, East Nusa Tenggara Province, Indonesia (1981-1984).

Research area: Vector borne diseases, mainly malaria and focus on clinical and epidemiology studies.



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