Mahidol University
Faculty of Tropical Medicine

TropMed

Annual Review 2013

Mahidol University
Faculty of Tropical Medicine

Annual Review 2013

CONTENTS

Consultants: Yaowalark Sukthana, Jitra Waikagul, Jetsumon Prachumsri **Editor:** Paul Adams **Coordinator & Management:** Pornpimon Adams **Writers:** Lorna Hon, Gary Hutton **Editorial Staff:** Ailada Angatchariya, Pitchapa Vutikes, Warissara Chaiyaphan, Sumeth Suebtrakul, Sivaporn Samung, Wijak Anowannaphan **Graphic Design:** Ronnachai Rarerng, Phaibul Vasanakomut **Photographers:** Prakit Kitsupee, Patiwat Sa-angchai, Tawan Wattanakul, Yudthana Samung

PRODUCED BY: Publications Unit, Office of Research Services
Faculty of Tropical Medicine, Mahidol University, 420/6 Rajvithi Road, Bangkok 10400, Thailand
Tel.: 66 (0) 2-354-9100-4, 66 (0) 2-306-9100-9; **Fax:** 66 (0) 2-354-9139; **Web:** www.tm.mahidol.ac.th

An interview **with the Dean**

Yaowalark Sukthana
Assoc. Prof. Dr.

The last year has seen substantial change in the Faculty of Tropical Medicine, not just in terms of the research, education, and healthcare and non-health academic services we provide, but also in terms of the administrative organization of the Faculty itself.

With a new executive team coming in during September 2012, our objective in the presentation of this year's Annual Review is to reflect upon all the accomplishments of the previous 9 months, while also highlighting some of the things the new team has set about implementing during the first 3 months of its term.

The aim of the new executive is to build on the Faculty's many previous successes, and to continue seeking out opportunities for development and for shared learning among our centers and units. The vision, to be 'One of the World's Leaders in Tropical Medicine', is tied inextricably to the Faculty's ongoing commitment to improving the quality of life of people in Thailand and South-East Asia; hence, why members of the TropMed family remain so focused.

I wish to take the opportunity to express my personal appreciation to colleagues, staff, and our students, for the many and varied highlights of the past 12 months. Since its inception in 1960, the Faculty has gone from strength to strength, inspired and supported by its links to the community as well as its global research partners.

We remain committed to the policy of the 5Ps – People, Product, Policy, Participation and Planet. United action reflecting these themes will allow us to build on our already outstanding international reputation, strengthen our local and international profile, and enable us to deliver continuing improvements to those at risk of, and those affected by, tropical diseases.

Over the last year, we have augmented our training and collaborating centers as part of our non-health academic services, thereby increasing capacity for consultation and knowledge management. We aim to continue to provide more customer-oriented services and fully establish our leading edge brand as a global research institute. Our ambition, while maintaining world-class standards in basic and translational research, and whilst expanding existing programs and developing new ones, continues to be to increase our cultural diversity and to

"We remain committed to producing research of world-class quality"

acquire further international accreditation as part of our development and drive for long-term growth.

The past year has seen us establish various cross-disciplinary collaborations in the spirit of the wider 'One Health approach'. The international scientific research community has observed that, while lifestyle diseases such as diabetes mellitus and hypertension continue to proliferate, other zoonotic diseases like leptospirosis, helminthiases and toxoplasmosis are impacting human populations at an increasingly alarming rate; similarly, many emerging and re-emerging tropical diseases are being transmitted by human-animal-environmental interactions. So, we have begun the process of drawing together the collective efforts of multiple disciplines, for the purposes of better understanding the One Health triangle of people, animals and the environment. Combining the efforts of doctors, veterinarians, researchers, environmental officers and public health officials in an organized way, locally and nationally, affords us greater leverage in addressing and managing these threats.

Over the last 12 months, the Faculty of Tropical Medicine has encountered various challenges and made a number of significant advancements, many of which will be highlighted in this Annual Review. However, major challenges lie ahead. The implementation of key performance indicators that will enable us to measure future progress is critical. Benchmarking for continuous improvement with other key research institutes is also part of this progression. Research, education, healthcare and non-health academic services are all key facets and products of the Faculty's strategy, to reinforce its position as a transnational hub and global reference center; not unlike an airport, with researchers arriving 24/7 from across the world to gain access to hi-tech facilities and consult internationally-recognized specialists regarding every issue of tropical medicine health concern.

Looking to the next 12 months and beyond, as Dean of the Faculty of Tropical Medicine, I wish to reiterate my own open-door policy, and reaffirm my commitment and drive towards accountability and transparency across the very broad spectrum of the Faculty's activities. We will continue to cultivate sustainability and an altogether more ecologically green workplace; reducing, reusing, recycling, and repairing resources as much as we can. In doing so, we will advance and consolidate Mahidol University's #1 position in Thailand (36th globally) on environmental performance in the GreenMetric Ranking of World Universities.

In the promotion of integrative policies and encouraging participation, I wish to emphasize the pivotal component of my own vision. It is that the Faculty continues to nurture its most valuable resource, its people, as we explore, extend, and build upon our links in ASEAN as a unified regional community, as well as the international community at large. By continuing to invest in human capital, nurturing and developing potential, and by furthering employee engagement, it is my hope that we can fully realize all our shared goals; maximizing innovation and strengthening our public service commitments to ensure that the Faculty, in 2013, has the capacity to surpass the admirable achievements of 2012.

An interview **with the former Dean**

Pratap Singhasivanon
Assoc. Prof. Dr.

TRANSITION IN 2012

Assoc. Prof. Pratap Singhasivanon, former Dean of the Faculty of Tropical Medicine, feels that "diseases that occur in one area can rapidly affect other areas; therefore, global health is not just the responsibility of governments anymore; it's now the responsibility of the global community." Such has been the focus of the Faculty's activities over the past year, culminating the past four-year period in office for Dr. Pratap and his team at the Faculty of Tropical Medicine.

With the advancements of modern life, climatic and huge socio-economic changes, tropical-disease transmission has also evolved rapidly and is no longer confined to the Tropics. The past several years have witnessed a redirection of focus and strategies from becoming leaders in highly specific fields of research. It has become progressively clear that only through sharing resources, both human and material, with a trans-disciplinary approach, where different disciplines work together, will health issues be more effectively addressed.

Establishment of the 'One Health' Centre in Thailand has been a great development for Mahidol University. Being part of the One Health University Network provides collaborative opportunities at an international level. By synergistically applying the expertise of multiple disciplines we can attain optimal health when responding to zoonotic disease-related issues. Our past has focused on the "developmental" side of research, but our future will be geared more towards the "discovery" nature of diseases. In collaboration with Thailand's Ministry of Public Health, our research findings can be implemented at the national or regional level, and integrated into global health policy development.

Our Vaccine Trial Centre has made significant findings in research in malaria and dengue, and continues to be a world pioneer for conducting vaccine trials. Publications issuing from our studies have reached one of the highest levels nationally, helping us to secure more

"We cannot just speak about these issues, we must lead by example!"

funding and promote opportunities for international collaboration.

A Fever Clinic was established to further research into dangerous pathogens, and with the establishment of the Asian Centre of Excellence for Tropical Diseases, we are increasing the visibility of the Faculty through national and international networks. Over 400 million Baht of Government funding has been secured for new equipment, and construction of the new laboratory should be completed within the next two years. This facility will be one of the largest and best equipped in Thailand that focuses specifically on the study of pathogens.

The Travel Clinic, established during this past term, has shown much progress in travel-medicine research. Over 1,000 foreign travelers have been treated each year, providing the basis for a new residency program in Traveler Medicine. The Hospital continues its progress towards becoming one of the best service providers after receiving Hospital Accreditation Levels 1 and 2, with Level 3 assessment being completed in 2013.

Dr. Pratap voiced his concern about the national, regional and global challenges ahead--such as high levels of competition, economic downturn, and increasing urbanization. It will be necessary to become more active in aggressively seeking funding sources for research, and it is imperative that staff be motivated and understand the challenges ahead. It is a collective responsibility of a trans-disciplinary approach, and as he aptly notes, "We cannot just talk about these issues, we must lead by example!"

Executive Summary

Former Executive Team

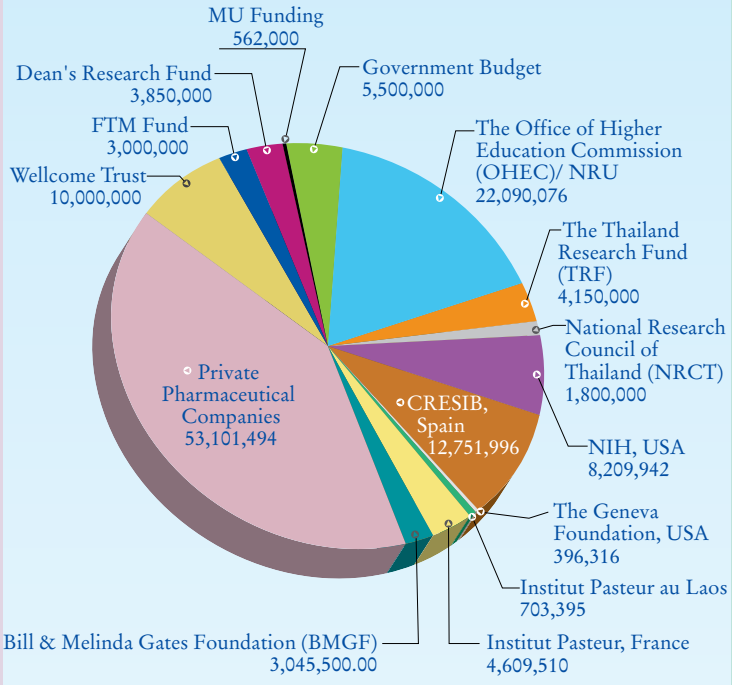
Current Executive Team

RESEARCH

Asst. Prof. Dr. Pongrama Ramasoota
Deputy Dean for Research

Dr. Jetsumon Prachumsri
Deputy Dean for Research

Research Funding Received in 2012

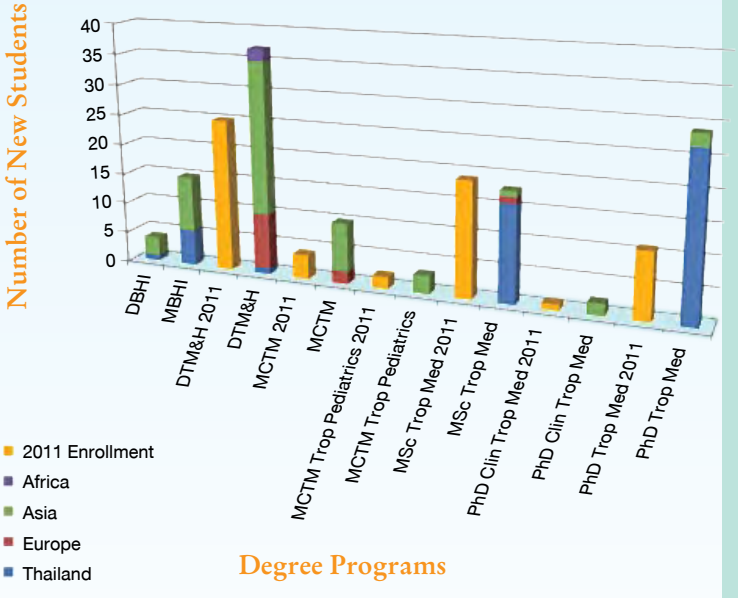


EDUCATION

Assoc. Prof. Dr.
Waranya Wongwit
Deputy Dean for Education

Prof. Dr.
Sasithon Pukrittayakamee
Deputy Dean for Education

New Student Enrollments, 2012 vs 2011



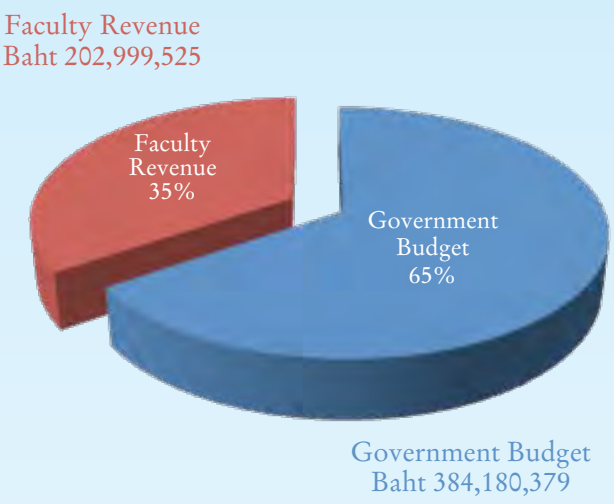
Asst. Prof. Dr.
Chotechuang Panasoponkul
Deputy Dean for Student Affairs

Asst. Prof. Kasinee Buchachart
Assistant to the Dean for Student Affairs and Special Activity & Secretary of the Faculty

FINANCE

Income of the Faculty in 2012
587,179,904 Baht

Assoc. Prof. Dr.
Porntip Petmitr
Deputy Dean for Finance & Assets Management

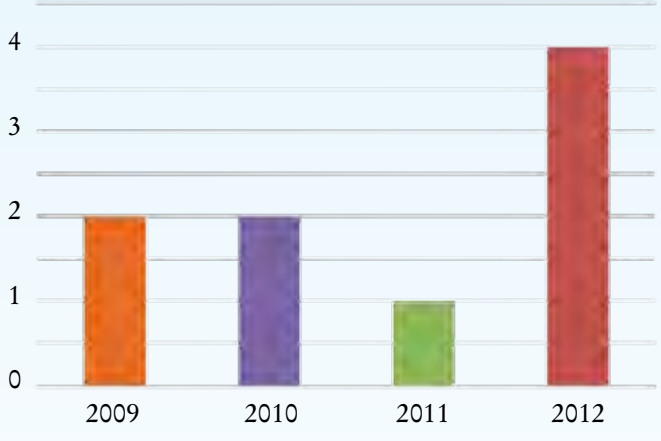


Assoc. Prof.
Supatra Thongrungkiat
Deputy Dean for Finance & Assets

COLLABORATIONS

New Collaborations per Year

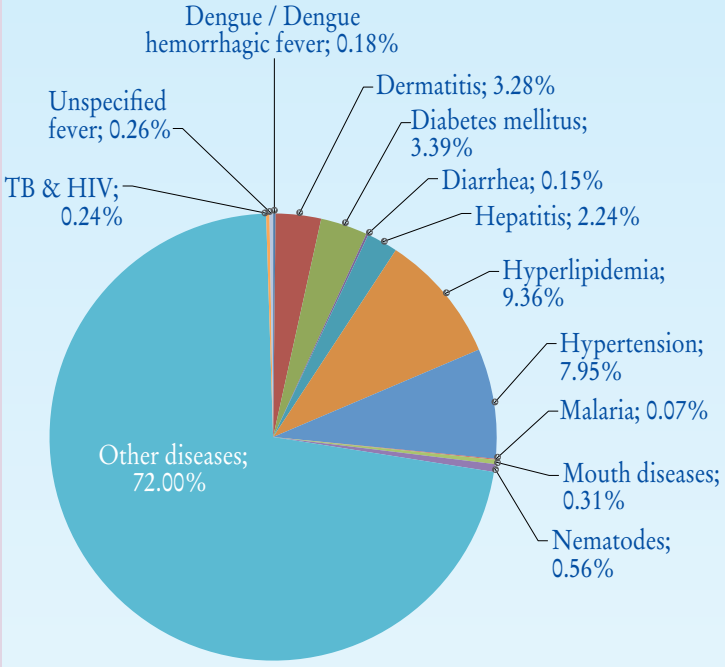
Prof. Dr.
Sasithon Pukrittayakamee
Deputy Dean for International Cooperation & Networking



Assoc. Prof. Dr.
Emsri Pongponratn
Deputy Dean for International Affairs

HEALTH SERVICES

Out-patient Treatment in the Hospital in 2012



Asst. Prof. Dr.
Udomsak Silachamroon
Director of Hospital for Tropical Diseases

Asst. Prof. Dr.
Udomsak Silachamroon
Director of Hospital for Tropical Diseases

INFRASTRUCTURE

To become a Green University, we

- Improve landscape
- Increase green space
- Use alternative energy sources
- Practice eco-friendly methods

Mr. Chanathep Pojjaroen-anant
Deputy Dean for Physical System & Campus

Mr. Amorn Lekkla
Assistant to the Dean for Premises & Environment

HUMAN RESOURCES

Faculty of Tropical Medicine Personnel, 2012

Asst. Prof. Kasinee Buchachart
Deputy Dean for Strategy & Faculty Secretary

Prof. Dr. Polrat Wilairatana
Deputy Dean for Value Creation

Asst. Prof. Dr. Noppadon Tangpukdee
Assistant to the Dean for Resource Management

QUALITY DEVELOPMENT & POLICY

The new Rajanagarintra Building housing the Hospital for Tropical Diseases is scheduled to open in April 2013

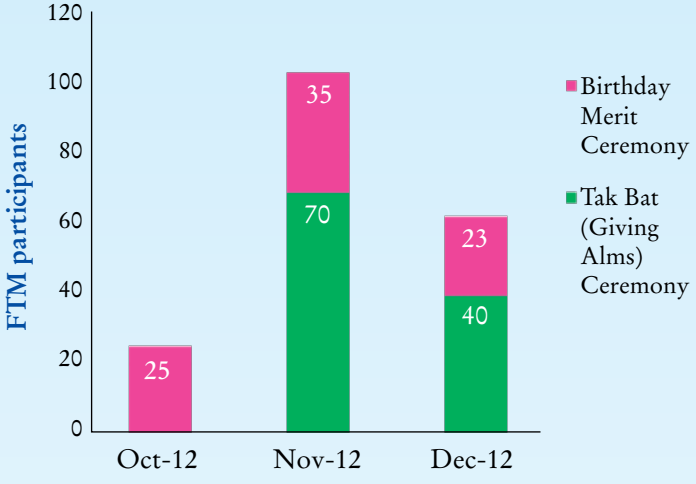
Dr. Saranya Kaewprasert
Deputy Dean for Quality Development & Special Activities

Prof. Dr. Rungsunn Tungtrongchitr
Deputy Dean for Central Management

WELFARE & CULTURE

Assoc. Prof. Dr.
Wichit Rojekittikhun
Deputy Dean for Staff Welfare & Culture

Spiritual and Religious Ceremonies in 2012 (Oct-Dec)



Ms. Rachatawan
Chiabchalard
Assistant to the Dean for Corporate Relations

JOINT INTERNATIONAL TROPICAL MEDICINE MEETING 2012

The Joint International Tropical Medicine Meeting (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7) were held 12-14 December, 2012. The theme of the conference was "Emergence of Tropical Diseases: Trans-disciplinary Strategies". The attendees had the opportunity to participate in 41 symposia, and assess 150 oral presentations and 97 poster presentations. The three keynote speakers were: Prof. John Deen, Professor in Epidemiology at the College of Veterinary Medicine, University of Minnesota, who spoke on "Emergence of Tropical Diseases: Trans-disciplinary Strategies"; Dr. Jai P. Narain, Senior Advisor to the Government of India on Epidemiology and EIS (Epidemic Intelligence Service), who spoke on "Emerging Tropical Diseases: South-East Asian Perspectives", and Prof. Arjen M. Dondorp, Deputy Director, Mahidol-Oxford Research Unit, who addressed the topic "Trans-disciplinary Strategies to Counter the Threat of Emerging Artemisinin-Resistant Falciparum Malaria" in the Closing Session.

The Joint International Tropical Medicine Meeting (JITMM), which is held annually, attracts leading scientists, physicians, clinicians, researchers, educators, policy-makers, public health personnel, and many others interested in tropical medicine and tropical diseases, from every corner of the globe. This event has previously included participants from over 30 different countries. Sessions cover recent updates on, and currently debated issues in, communicable and non-communicable diseases prevalent in the Tropics, the impact of the global economic recession on population health in the tropics, ways to manage tropical health using a multi-disciplinary approach, as well as travel medicine and the impact of travel on the transmission of dangerous communicable diseases. JITMM also provides a wonderful opportunity for upcoming new and young researchers to present their work to a large, sophisticated and knowledgeable audience in an international forum.

Assoc. Prof. Dr. Jitra Waikagul
Deputy Dean
Chair, Meeting Management Committee JITMM 2012

The Vision

To be One of the World's Leaders in Tropical Medicine

Department of **Clinical Tropical Medicine**

Prof. Dr. Punnee Pitisuttithum
Head of the Department

Prof. Dr. Punnee Pitisuttithum, Head of the Department of Clinical Tropical Medicine, continues the mission of providing excellence in research, training and services in both clinical and practical matters in Tropical Medicine. Her long-term goal is to strengthen and enhance the capacity of the staff by establishing a new generation of researchers, ones that are ready to embrace the trans-disciplinary approach at an international level. The research projects being undertaken by herself and her team are tremendously varied, mainly focusing on research and development of infectious disease vaccines, thus allowing an extensive knowledge base of current matters and a long-term view for potential applications of vaccine use.

"Every person is very important. It's like being part of a jigsaw puzzle, if one piece is missing then it's not a whole picture anymore"

Prof. Dr. Punnee currently oversees a variety of projects especially those diseases prevalent in Thailand and Asia, such as Avian Influenza, HIV/AIDS, Human Papillomavirus (HPV) infection, cervical cancer and shigellosis infection. Research projects usually run between 3-5 years, so setting short-term targets are essential when gauging the progress of drug trials and vaccine development.

One of Prof. Dr. Punnee's aims is to become more active in doing research studies which will have a direct impact to the community. In response to a government-launched integrated program specifically for the elderly, the university has provided funding for an influenza vaccine project. The goals are to address knowledge, attitude and acceptability of the influenza uptake barrier, and determine a suitable dose and method of administration of inactivated influenza vaccine. Activities also include educating the elderly to enhance acceptability among that age group as they are prone to develop complications from influenza.

In conjunction with the Faculty of Social Sciences and Humanities, Mahidol University, the Ministry of Public Health and Centers for Disease Control and Prevention, the Department plans to launch a community project plan at Nakhon Phanom. The assessment of knowledge, attitude and practices of a community towards influenza disease and vaccine will enhance the uptake of influenza vaccine with greater efficiency in medical practices and will provide more beneficial health outcomes.

It is also hoped that once the medical services are fully operational in the new Hospital building on campus, that greater access to the number of patients will allow a transition towards being able to provide more services in treatment and care.

Dr. Watcharapong Piyaphanee leads the Travel Medicine Research Unit, which is part of the Department and involves all activities of travel medicine including providing services, education and conducting research. With millions of travelers visiting Thailand each year, travel health has become increasingly important.

Dr. Watcharapong Piyaphanee

The Travel Clinic was established as part of the Unit's services, and is located at OPD2 in the Hospital for Tropical Diseases at Mahidol University. Although most patients are foreign travelers, services are available to anyone that requires treatment prior to, during, or post traveling.

Research studies related to travel medicine are also conducted and reports are published every year. Last year, a major project was completed and is titled "Risk of potentially rabid animal exposure among foreign Travelers in Southeast Asia". It is the largest study ever done to determine the risk of possible exposure to rabid animal among travelers, and was published in PLOS NTD in September 2012.

The academic program offered at FTM is one that is intensive and comprehensive but inevitably priceless. Student selection is rigorous as the intention is to produce the best and brightest minds that will be ready to combat the new age of tropical medicine. The level of Excellence is maintained due to the belief that students need to be well-rounded and should be encouraged to perform research in addition to providing services which complement each other. It is Dr. Punnee's belief that even if students choose to go into a different field, they should have at the very least, a basic understanding of clinical methodology. There is more financial aid available now than ever before, so the opportunity is waiting to be seized.

There is also a mentoring system where newer staff members are paired with senior researchers on projects and field trips for knowledge sharing and developmental training. This ensures attention focus on an individual basis, and also allows the mentor to customize the method of teaching for maximum effectiveness.

Research survey at the airport by the Travel Medicine Research Unit

Prof. Punnee credits the long-term success of her department to her staff and the ability to remain flexible with constant change. With the emergence and re-emergence of diseases, collaborations with other organizations, and training and re-training for knowledge management of current issues, she emphasizes the necessity of teamwork, "Every person is very important. It's like being part of a jigsaw puzzle, if one piece is missing then it's not a whole picture anymore".

Department of Clinical Tropical Medicine
8th Floor, Anekprasong Building
Tel.: 66 (0) 2-354-9100-4, 66 (0) 2-306-9100-9 **ext.** 1423, 1428,
Website: http://www.tm.mahidol.ac.th/clinic/

Department of **Helminthology**

Assoc. Prof. Dr. Chalit Komalamisra
Head of the Department

"Everybody is equally important – from the janitor to the lecturer"

Assoc. Prof. Chalit Komalamisra heads the Department of Helminthology, where the mission is teaching, training, research and services in the field of tropical diseases caused by medically important helminthes. The Department carries out research activities in the basic and applied sciences in the following six areas: biology ecology and diversity of helminths, taxonomy and population genetics, epidemiology and community health, immunodiagnostics, molecular helminthology, and drug trials.

Dr. Chalit has a long history with Mahidol University which spans over 30 years of experience in Helminthology, and is proud of the accomplishments of his department and researchers. He himself is heading a Government-funded project researching *Angiostrongylus cantonensis* in freshwater snails, collected from 25 different localities of Thailand, to study the prevalence and parasitic burden, biochemical components, antigenicity and population genetics.

Dr. Urusa Thaenkham

Dr. Urusa Thaenkham's main research is molecular diagnosis and study of epidemiology operation genetics in helminthes parasites. She has been awarded the Young Scientists Fund in order to conduct research in the development of effective methods of detecting infective states of trematodes (liver flukes). The aim of the project is to distinguish infective states and qualitative number of parasites in fish. Consuming uncooked fish can contaminate humans and this has become a serious problem in Thailand. The goal is to eventually provide community services, in conjunction with the Hospital or Ministry of Health, to educate the public about the dangers of ingesting raw fish.

Dr. Urusa recently published her study of "Population structure of *Angiostrongylus cantonensis* (nematoda: *Metastrongylidae*) in Thailand based on PCR-RAPD markers". The study examined the genetic differentiation and population structure of parasites from eight geographical areas of Thailand. In the study of "Genetic differentiation of *Strongyloides stercoralis* from two different climate zones revealed by 18S ribosomal DNA sequence comparison", Dr. Urusa explored genetic variations of *S. stercoralis* from different climate zones and compared them with those from Japan.

Asst. Prof. Dr. Dorn Watthanakulpanich has been involved in a number of projects focusing on the development of diagnostic tests for toxocariasis and their treatment with alternative drugs. As a medical doctor treating patients with many kinds of parasitic infections, he has become aware of more reports of drug resistance in benzimidazole-treated groups. One of his goals is to find an alternative treatment with ivermectin, which has been used as a zoonotic drug and been found to be effective in treatment of some parasitic diseases such as filariasis.

Dr. Dorn Watthanakulpanich

Dr. Dorn is Principal Investigator on four projects:

1. Application of recombinant proteins for the diagnosis of human toxocariasis
2. Separation of *Toxocara* excretory-secretory antigens as a diagnostic antigens for human toxocariasis
3. Ivermectin for the treatment of enterobiasis in immigrant schoolchildren in Samutsakhorn, Province, Thailand
4. Prevalence and clinical aspects of human *Trichostrongylus colubriformis* infection in Lao PDR

One of the projects is funded by the Ministry of Science and Technology, and the remainder through the Faculty of Tropical Medicine.

Dr. Poom Adisakwattana focuses his research on understanding the immunity properties of parasitic helminths. By studying immunoregulation and immunomodulation strategies, a better understanding of immune evasion responses can be gained, which can then be applied towards the development of vaccines and anthelminthic drugs. In addition, identification and characterization of active biomolecules that parasitic helminths use to inhibit host inflammation, may be useful for developing alternative therapies of unrelated immune diseases such as allergies and colitis.

Dr. Poom Adisakwattana

Over the past year, Dr. Poom headed a project to study *Trichinella* spp. and has made significant findings. It was determined that infection with non-encapsulated *Trichinella* spp. (*T. papuae*) decreased clinical manifestations of colitis in mice. In addition, when characterizing the functions of secreted proteins from *Trichinella* spp. in host-parasite relationships, one secreted protein was found that could inhibit neutrophil functions which might be the one mechanism that parasites use for evading host immune responses. The project was supported by the Faculty of Tropical Medicine and DAAD Scholarship.

A recent change in the Department's academic curriculum is the formation of a core set of courses that are now mandatory for all students entering the program. In the past, courses were geared towards those with a medical background with an emphasis on clinical practice instead of conducting research. With this new change of course content, first semester students will gain basic knowledge of research in caustic agents, causes of tropical diseases, and prevention methodology. With new collaborations, exchange programs are becoming more readily available thereby allowing students to gain more beneficial field experience.

Recent collaborations with several universities in Japan, USA, Taiwan and France have increased the Department's reputable status as a desirable location to conduct research in Southeast Asia; Asahikawa Medical University (Japan) has established a joint collaboration of immunology diagnosis of helminths in food-borne diseases transmitted by consuming pork and beef, Niigata University (Japan) has set up a research project to study community health in Lao PDR focusing on fish and food-borne diseases, and Osaka University (Japan) has a project studying drug-resistance bacteria in the Southeast Asian community.

Academic collaboration has been established between University of Wisconsin (USA) and the academic staff under the sponsorship of the Thailand Research Fund (TRF). And the teaching staff has been appointed a visiting professorship to Taipei Medical University (Taiwan). The CERoPath project, in collaboration with France, is one in which research is conducted on rodent-borne diseases in humans in Cambodia, Lao PDR and Thailand.

The immunodiagnostic unit has been established since 1987 and, to date has provided helminthic infection-testing services on more than 30,000 sera samples from over 35 countries. In addition, the United States Centers for Disease Control and Prevention (CDC) has noted this Department as a recommended site for offering immunodiagnostic services, especially Gnathostomiasis and Angiostrongyliasis.

Community services are also given much importance under Dr. Chalit's guidance. To name just a few of the services provided: immunodiagnosis for helminthic infections, parasite exams for food and vegetable products, providing teaching materials and sharing specimens, and producing KATO-KATZ KITS for conducting quantitative stool examinations in the field. In addition, two medical doctors from the Department conduct routine rounds at outpatient wards twice a week, every week.

Dr. Chalit values his team and maintains a "family culture" within the group. He states, "Everybody is equally important – from the janitor to the lecturer."

Department of Helminthology
2nd Floor, Anekprasong Building
Tel.: 66 (0) 2-306-9180 or 81
Website: http://www.tm.mahidol.ac.th/helminth/

Department of **Medical Entomology**

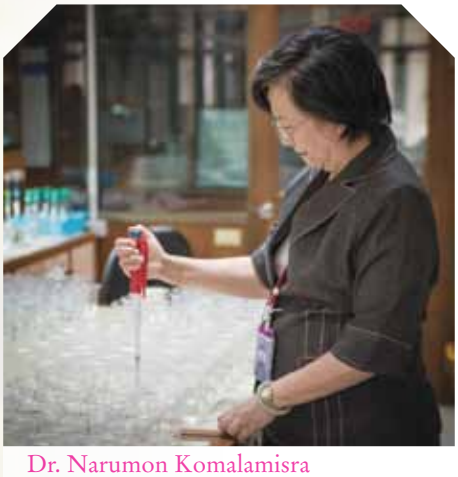
"The opportunity to serve people… remains one of the Department of Medical Entomology's most important interests"

Assoc. Prof. Dr. Chamnarn Apiwathnasorn
Head of the Department

The Department of Medical Entomology is one of the original departments of the Faculty of Tropical Medicine. The wide-ranging interests of its members encompass basic and applied research relevant to epidemiological entomology, and include vector-parasite relationships, vector control via chemical insecticide and plant-product repellent, the effects of climate change on vector species, as well as disaster response relating to insect vector infestations. Its experts actively seek to apply research outcomes for public use, specifically for the benefit of individuals and wider society.

Departmental staffs have conducted numerous important academic, research and service-orientated activities, which have gained national as well as international recognition. They are keenly involved in public service and community education, and provide in-depth training on medically significant insects and arthropods. Led by **Dr. Chamnarn Apiwathnasorn**, the Department investigates epidemiological outbreaks of vector-borne diseases, with a special emphasis on tackling mosquito-borne illness, and uses basic and applied knowledge to resolve entomological problems in collaboration with the Department of Disease Control, Ministry of Health, with established Universities, and with other global institutions and specialist centers.

Dr. Chamnarn himself has been involved for a number of years in monitoring the breeding habitats of the main malaria vector in Thailand, *Anopheles dirus* sl., where he discovered alternative, 'extreme' breeding places in rock pools and caves – a shift believed to be due to temperature-related changes in the environment. Breeding locations are important because changes in behavior can impact life cycles or alter routes of transmission, which can in turn lead to disease (re)emergence.



Dr. Narumon Komalamisra

Dr. Chamnarn has also been at the forefront of investigations into populations of the leishmaniasis vector, the sandfly. While not endemic to Thailand, there have been autochthonous instances of the disease, suggesting it may emerge at some point. Further studies are already planned to rule out the existence of species which bite humans, and to better understand the risks around leishmaniasis emergence.

Departmental research includes population genetics, molecular studies, surveys of mosquito breeding sites, as well as ongoing examinations into the relationship between climate change and vector status. Indeed, climate change remains a key theme, and current research activities include a study illustrating how insecticide efficacy is negatively correlated with temperature. Important research looking at the transovarial transmission of the dengue virus in *Aedes aegypti* larvae also showed potential as the basis of an early warning system for outbreaks of dengue.

One of the key figures in the Department, **Dr. Narumon Komalamisra**, has been examining the effects of temperature on mosquito susceptibility to pyiethroid-based insecticides, as

part of the Faculty's ongoing contribution to investigating climate change impact. In Thailand, controlling vector-borne diseases using insecticide-based strategies has proved extremely problematic in the past, not least because insecticides themselves have been used improperly; imitation sprays have been sold and distributed and sometimes excessive measures have been taken unnecessarily, which has only served to aid in insecticide resistance. Climate change-induced higher temperatures are already known to shorten the life cycle of some mosquito species. This causes an increase in the speed of development of subsequent generations, which, in turn, is thought to be the root cause of an increase in the rate of transmission of vector-borne diseases like dengue. Dr. Narumon's work on the effect of temperature on existing vaccines and on insecticide susceptibility of dengue vectors continues, as do her investigations into the impact of climate change on both public use of insecticide and the development of insect vectors.

There are also more basic science studies within the Department of Medical Entomology, which involve extracting oils from herbs and testing their efficacy as insect repellent. Work on a mosquito-repellent formulation of Qing Hao and May Chang, a volatile oils mixture with an average protection time longer than 5 hours, recently obtained a petty patent. The aim is to push low-cost and simple production of this repellent into communities experiencing high-risk malaria and dengue transmission. Studying the insecticidal activities of different species of Thai herbal extracts has provided a number of promising oil extracts which display mosquito repellency effects, and the Department is also looking at ways these may be used for controlling mosquito vectors in future.

Dr. Rutcharin Potiwat

The last year has been a significant one for **Dr. Rutcharin Potiwat**, who collaborated on 4 projects during 2012; for 3 of these, she was Principal Investigator. These projects were supported by grants from the Faculty of Tropical Medicine, Mahidol University, MOCID and the Thailand Research Fund, respectively: 'Molecular identification of endosymbiotic bacteria from bat bugs (*Leptocimex inordinatus*)'; 'Detection of viral disease and molecular distinction of natural bat bug species from the cave'; '*In vitro* biological interaction of Dengue and Chikungunya viruses' co-infection'; and 'Ant hypersensitivity in Thailand: species identification and development of appropriate allergens for skin testing'. In this last project, Dr. Rutcharin focused on the isolation of toxic proteins for the purposes of developing skin testing kits and new solutions from fire ants; this involved collaborations with physicians from Rama Hospital, Siriraj Hospital, and Queen Sirikit National Institute of Child Health.

Dr. Rutcharin is also researching Next Generation Sequencing (NGS), and other novel technologies for sequencing cDNA and RNA. These new technologies allow for the sequencing of a whole genome in just a few days, compared with previous methods which frequently involved various time-consuming stages as well as the use of dangerous radiation.

The Department of Medical Entomology's researchers continue to work towards contributing a 'DNA barcode' database of all medically significant insect vectors in Thailand. The Deputy Head of the Department, **Dr. Jiraporn Ruangsittichai**, is at the forefront of employing molecular methods in the identification of insect species, in contrast to most of the rest of the team who are classical taxonomists by trade and continue to use morphology. Dr. Jiraporn's innovative work on DNA barcodes in collaboration with the Biodiversity Institute of Ontario employs sequences of DNA for cytochrome oxidase subunit I for

the identification of particular insect species. Dr. Jiraporn: "The advantage it offers is when multiple species have morphological similarities or are distributed in different breeding sites. The database we are working on will be open to public access, so scientists and educators can use the DNA barcode as a reference point for detection of previously unidentified species. This will help us to develop further control measures for use in local communities."

The Department runs the Insect Vector Rearing Laboratory, where colonies of a range of strains of mosquito vector species are maintained in the insectarium. Development of standard protocols for rearing vector species is still under way, while the provision of high quality specimens – both for future research purposes and for new training activities – is a key part of the Laboratory's contribution moving forward.

The Department offers vector control services upon request, not just in testing the efficacy of insecticides and repellants. It functions as a reference center for all mosquito vectors in Thailand, providing specimens for educational and research purposes, and helping insect species identification. Academic consultations, especially on mosquito-borne diseases and their control measures are provided to public health officials and local researchers, as well as to other international institutes and hospitals.

The Department's ongoing research work includes partnerships with a number of foreign institutes. Links between Thailand and France, in particular, have grown in strength. Dr. Rutcharin: "The Department remains strong because of its collaborative links. In the last year, I have benefited from the support of Assoc. Prof. Dr. Padet Siriyasatien at Chulalongkorn University, the Mahidol-Osaka Center for Infectious Diseases, AITbiotech Pte Ltd. in Singapore, and from France, Prof. Xavier de Lamballerie at UVE, Université Aix-Marseille II, l'Institut de Recherche pour le Développement, and the Ecole des Hautes Études en Santé Publique."

Dr. Ronald Enrique Morales Vargas is another key contributor to the Department's success. His work over the last 18 months has been significant. 'Morphometric characterization of *Aedes albopictus*' was carried out with the support of Dr. Jean Pierre Dujardin (IRD, France), who is a Visiting Professor in the Department; the study also received support from the PHC-SIAM program, which is another Franco-Thai collaboration. Here, Dr. Ronald has been entering a relatively new area of mosquito research: geometric morphometrics. Using this innovative approach, Dr. Ronald has been meticulously analyzing different shapes and sizes of mosquito wing, which are genetically dependent and which have been influenced/modified by environment. This method represents a more cost-effective alternative to the molecular approach, as part of the process of helping us show adaptation and the evolutionary processes of different species.

Dr. Ronald Enrique Morales Vargas

Dr. Raweewan Srisawat

Lab Technicians

Dr. Ronald's project on 'Post-flood vector control' stretches back to 2011, but continues to provide information about mosquito fauna in flooded areas. Supported by the Japan Platform, (a Japanese organization incorporating several NGOs) and supervised by the Kyoto-Japan based NGO, Nippon International Cooperation for Community Development (NICCO), the project's main focus was to control mosquito infestations in flooded areas during the disaster of 2011.

Ms. Kaewmala Palakul

Mr. Yudthana Samung

The project consisted of two parts: (1) the Department of Medical Entomology contributed in the mitigation of mosquito bites suffered by affected persons, via mass production of mosquito repellents produced by its experts from plant extracts; (2) the Department was responsible for research and assessment prior to the operation of pest control, and subsequent evaluation after control in affected areas. Asked how he became involved in the project, and further underlining the international links the Department enjoys, Dr. Ronald responded: "The opportunity to serve people, especially my countrymen here in Thailand, remains one of the Department's most important interests."

'Surveillance of the pathogen causative agents of 'fever of unknown origin' in Nakhon Pathom' was carried out in collaboration with Dr. Okabayashi from MOCID. This project focused on identification of causative agents of fevers of unknown origin in Nakhon Pathom Province, and is part of the service Dr. Ronald provides as a member of the 'Surveillance Rapid Respond Team' of the Epidemiology Section of the Provincial Health Office of Nakhon Pathom. With the support of Dr. Okabayashi, Dr. Ronald's efforts involved ascertaining pathogens infecting arthropods like mosquitos and ticks that were infesting patients' houses. Dr. Ronald also assists with the identification of pathogens in blood samples collected by the local hospital where patients are receiving treatment; this is carried out upon request from the Head of the Provincial Health Office.

In the months ahead, the Department's investigators will continue their operational research activities for controlling bacteria in the community, and for checking for maximum effectiveness of potential vaccine solutions. The work of Dr. Chamnarn's dedicated team will remain service-orientated, both for private industry and wider society, in terms of the training it offers to local people and in the advice it is able to give on raw materials. The work of the Department's specialists has brought consolidation of existing links, and future efforts will be to seek our new partners and to develop further, mutually beneficial associations on the international stage.

Department of Medical Entomology
4th Floor, Anekprasong Building
Tel.: 66 (0) 2-306-9100-4 or 9 **ext.** 1571-79, 2109, 9176-77
Website: http://www.tm.mahidol.ac.th/entomology/

Department of
Microbiology & Immunology

"One of the Department's highlights is the patent of 'Antimicrobial Peptides of the Cecropin Family and Therapeutic Uses Thereof'"

Asst. Prof. Dr.
Yuvadee Mahakunkijcharoen
Head of the Department

Asst. Prof. Dr. Yuvadee Mahakunkijcharoen, Head of the Department of Microbiology and Immunology, explains the multidisciplinary approach of research interests of the Department, namely the fields of microbiology, immunology and molecular biology. The scope of study is rather unique in the sense where the research comes full circle, where the effects of the response to the organism in a host are studied and vice versa, the mechanism of the organism in pathogenesis of the host.

The staff members of the Department are engaged in a number of basic and applied research involving both bacterial and viral infections. Malaria, enteric bacterial infections, melioidosis, leptospirosis, TB, brucellosis, HIV/AIDS, influenza and dengue virus infections are some of the major topics of focus. Dr. Yuvadee stresses that the goal of all projects is to generate high impact factor by improving human health through developing diagnostic tools and assisting in vaccine development.

Dr. Yuvadee continues her research in the different species of *Aeromonas* bacteria (water-borne bacteria found as environmental and food contaminants) and has been successful in producing monoclonal antibodies (MAbs) against seven species of *Aeromonas*. These MAbs were applied to be diagnostic tools for detecting *Aeromonas* contaminated in clinical and environmental samples. The search continues for MAbs that can block the hemolysis activity of the organism causing septicemia. The project is supported by the Faculty of Tropical Medicine Research Funding, Mahidol University. Dr. Yuvadee also conducts research on immunity against murine malaria (*Plasmodium yoelii*) in collaboration with the Faculty of Public Health, Mahidol University. The project aims to determine the efficacy of many vaccine regimens and elucidate immune mechanism induced by the vaccine candidates.

Prof. Dr. Srisin Khusmith has focused her research mainly on malaria to gain a better understanding of the complex interaction among parasites and human host in clinical and field settings, as well as other infectious diseases such as tuberculosis and HIV/TB. Taking the lead in two malaria projects, Prof. Srisin has extended the scope from basic research to development, aiming for better understanding of the immune responses to malaria and how the disease develops, and vaccine development.

In collaboration with the WHO Collaborating Center on Clinical Management of Severe Malaria and Hospital for Tropical Diseases, Ministry of Public Health and Pasteur Institute in Paris, France, a 5-year study is being conducted to understand the host immune response profiles and molecular patterns of recrudescence *falciparum* malaria and relapse *vivax* malaria. This project, under the Ministry of Public Health, is supported by the Global Fund. Another 3-year project is the study

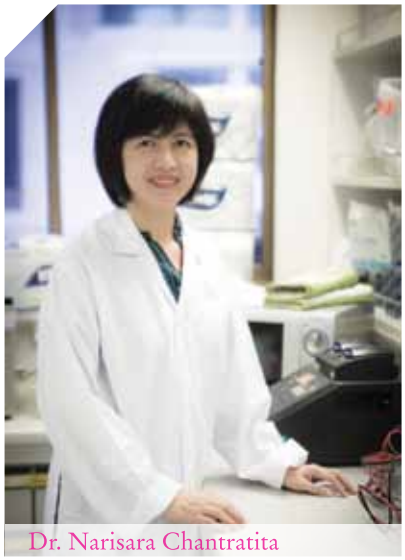

Prof. Dr. Srisin Khusmith

of the genes related to the immune system by focusing on Th1 and Th2 cytokine and cytokine receptor gene polymorphisms in relation to functional changes in severe and mild malaria. The project is supported by the Office of the Higher Education Commission and Mahidol University under the National Research Universities Initiative.

In addition to malaria, Prof. Srisin focuses on three other projects involving the influence of gene polymorphisms on anti-retroviral therapy, and the immunological and molecular biological aspects of tuberculosis and HIV/TB co-infections. Collaborations with an impressive variety of Japanese and Thai research institutes, Ministry of Public Health and various hospitals have culminated in the completion of a combination of numerous papers that have been published in peer-review journals, and presentations that have been made in international and national meetings. Results of the studies will possibly be useful for personalized therapy due to their impact on antiretroviral adherence to drug resistance and treatment failure of HIV/TB co-infection management. Or, can provide better management of retreatment tuberculosis after failure and default treatment, and the indications of the potential functions in host immune response, which might serve as biomarkers of clinical disease before and after therapy.

Asst. Prof. Dr. Narisara Chantratita is Principal Investigator on an ongoing 5-year project that is funded by the Wellcome Trust of Great Britain. The project is titled, "Associations between genetic polymorphisms, innate immune responses and outcomes from sepsis in Thai patients with melioidosis and *S. aureus* infection". Results have identified several hypermorphic polymorphisms associated with elevated innate immune cytokine and chemokine responses, and also demonstrated that polymorphisms are associated with increased susceptibility to death in Thai inpatients.

Another project headed by Dr. Narisara is titled, "Genomic approaches to metabolite exploitation from *Xenorhabdus*, *Photorhabdus*" and is funded by the European Commission Seventh Framework Program. This collaborative project was completed in 2012, and involved specialists from the United Kingdom, Germany, Vietnam, and Thailand. The study reveals the genetic diversity of *Xenorhabdus* and *Photorhabdus* spp. and describes new associations between entomopathogenic nematodes (EPN) and their bacterial s ymbionts in Thailand. Bacteria that is already known to cause human infection was discovered for the very first time in Thailand by Dr. Narisara and her team, and the potential impact of these findings are the development of new antibiotics and novel pharmaceutical products.


Dr. Narisara Chantratita

One of the Department's highlights is the patent of "Antimicrobial Peptides of the Cecropin Family and

Therapeutic Uses Thereof," through the work of **Asst. Prof. Dr. Natthanej Luplertlop**, a co-inventor on the project. With collaboration of the Institut De Recherche Pour Le Developpement, France, the invention relates to an antimicrobial peptide which will be used specifically for treating bacterial, viral and/or parasitic infections.

Asst. Prof. Dr. Pornsawan Leaungwutiwong and her students have been working on six projects over the past year:

1. The role of macrophages in the pathogenesis of dengue hemorrhagic fever
2. T cell regulation of endothelial cell biology
3. Determination of dengue severity by antibody and molecular detection in clinical specimens
4. Surveillance of the genome evolution of seasonal influenza virus and novel influenza A H1N1 virus
5. Production of neutralizing human monoclonal antibodies in Thai HIV-infected individuals using hybridoma techniques
6. Assessing the risk of transmission of viral diseases in flood waters from the 2011 Thai Flood

The team published two journal articles titled "Seroprevalence of latent cytomegalovirus infection among elderly Thais" and "Development of human monoclonal antibody specific to dengue virus." Their collaborations include the Institute for International Research Collaboration on Dengue with the University of Munster, Germany, Research Institute for Microbial Diseases, Osaka University, Japan, Alfresa Pharma Corporation, Japan, and University of Hawaii, USA.

Asst. Prof. Dr. Nitaya Indrawattana conducts research involving the molecular diversity of food-borne pathogens such as *Listeria monocytogenes*, *Staphylococcus aureus*, and *Escherichia coli*. Dr. Nitaya is also developing the human single chain variable fragment (ScFv) antibody for neutralizing bacterial toxins, such as tetanus toxin and staphylococcus enterotoxin A, which may then be used for further therapeutic purposes.

Dr. Jintana Patarapotikul focuses on malaria and dengue infections, specifically on how the host and environmental factors contribute to the severity of clinical symptoms. By collaborating with the University of Tsukuba and Osaka University, both in Japan, research on malaria involves searching for cytokine genes such as *TNF*-β, *TREM1* (Triggering receptor expressed on

myeloid cells 1) as well as Toll like receptor (TLRs), KIR (Killer immunoglobulin-like receptors) and HLA (Human leukocyte antigen) gene that were associated with fatal cerebral malaria.

The project for dengue involves studying the cytokine gene, *TNF*-α, *IL-1*β and its antagonist *IL-1RA*, and how the host genetics are associated with susceptibility to dengue shock syndrome, which is the most severe symptom leading to death. This project involves collaboration with the National Institute of Health, Department of Medical Sciences, Ministry of Public Health, Thailand.

Dr. Muthita Vanaporn's work focuses on the virulence mechanism of intracellular pathogenic bacterium, *Burkholderia pseudomallei,* by molecular approach. With collaboration from the University of Exeter, UK, the target virulence gene was deleted from the wild type chromosome, and the phenotype related to virulence was determined by various techniques such as oxidative stress response and intracellular survival in mouse macrophage cell line.

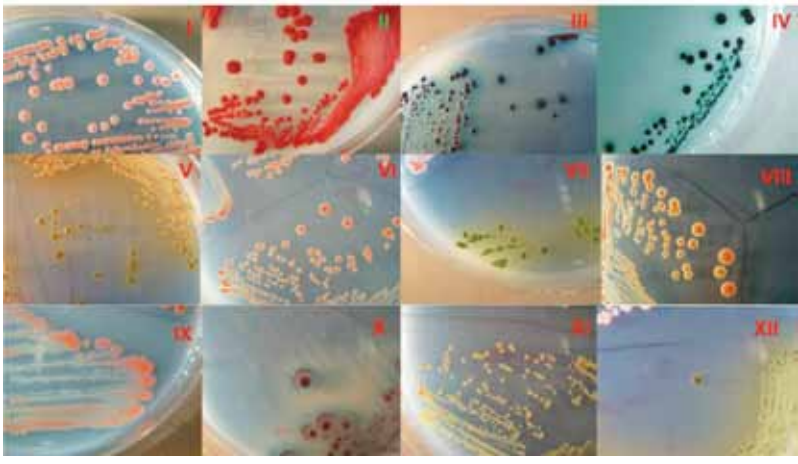
Dr. Pornpan Pumirat's area of research is in zoonotic bacteria such as *Burkholderia pseudomallei*,

with particular emphasis on the molecular basis of bacterial virulence and pathogenesis. Her interests also include the surveillance of zoonotic bacteria and its antimicrobial resistance in wildlife and domestic animals.

Dr. Nathamon Kosoltanapiwat currently works on three projects:

1. Surveillance of enteric viruses in wildlife and domestic animals: A presence of enteric viruses such as enteroviruses and hepatitis viruses in stool samples from wildlife and domestic animals is detected by molecular method. This project is in collaboration with the Faculty of Veterinary Science, Mahidol University and is supported by the Faculty of Tropical Medicine Grant.
2. The use of immunoproteomics for studying MHC class I-restricted epitopes of enterovirus71: Mass spectrometry is used for analyzing peptides of enterovirus 71 that are presented by MHC class I molecules. The work is supported by the Dean's Fund of the Faculty of Tropical Medicine, Mahidol University.
3. Serological study of influenza antibody in Thais against the 2009 influenza viruses isolated during the 2009 influenza pandemic: Archival sera collected during the time of 2009 influenza pandemic are tested by hemagglutination inhibition assay to measure their immunoreactivity against various strains of influenza viruses isolated from different time points during the pandemic. This work is being conducted in collaboration with the Faculty of Medicine Siriraj Hospital, Mahidol University.

In 2012, the Department organized two training courses for professionals in the health, education and medical industries. The three-day sessions covered lectures and workshops in Bacteriology and Viral Diagnosis. Feedback from the participants was extremely positive and the success of the courses even resulted in requests for individual training sessions and lectures. It



Burkholderia pseudomallei

is hoped that these services will continue to be provided to the community, where participants from all over the country can attend for the beneficial sharing of knowledge.

Diagnostic services that the Department provides to the scientific community include detection of diverse microorganisms; influenza viruses, enteric viruses, contaminated aerobic bacteria and fungi in herbal medicine, and antibody against Leptospira. Microbiological teaching materials can also be provided such as gram staining reagents, acid fast staining reagents, and bacteria slides for staining.

Dr. Yuvadee not only values but is also a strong believer in having a team that works in harmony and is self-motivated. Her motto is to allow each member of her team to be independent and follow their choice of expertise. Group projects are discussed by all members involved, so that their inclusion generates total cooperation and satisfaction. In conclusion, she advocates that her main importance is to provide as much support as needed to help facilitate in making their work a success.

Department of Microbiology & Immunology
9th Floor, Chamlong Harinasuta Building
Tel.: 66 (0) 2-306-9172 or 73, 66 (0) 2-354-9100 **ext.**1592-9, 1671-73
Website: http://www.tm.mahidol.ac.th/micro-immuno/

Department of
Molecular Tropical Medicine & Genetics

"We remain committed to… multidisciplinary research opportunities, networking and collaborations, as the Department heads towards ASEAN in 2015"

Prof. Dr. Songsak Petmitr
Head of the Department

Within the scientific community, there is increasing awareness that tropical disease research is relying more and more on advances at the molecular level. The Department of Molecular Tropical Medicine & Genetics was established in October 2010 from the previous TropMed Molecular Biology Network group to fulfill the Faculty's needs in this regard.

Whilst it only came into being recently, the Department has been carrying out work in the field for a number of years. Led by **Prof. Dr. Songsak Petmitr**, the Department facilitates the exchange of molecular biological information about tropical diseases, and provides training, short courses and services to the Faculty's staff and to the wider public. On top of bioinformatics, its key research goals focus on protein studies of tropical medicine and on molecular diagnoses, while the expertise of its members covers proteomics, genomics, immunotherapy and enzymology.

Prof. Dr. Songsak's own research is involved in the determination of a molecular marker for breast cancer and cholangiocarcinoma (or bile duct cancer), and developments in this regard over the last 12 months proved one of the year's major highlights. Underlining the potential impact of Prof. Songsak's work, cholangiocarcinoma, caused by the liver fluke *Opisthorchis viverrini*, has the highest prevalence in northeastern Thailand, while breast cancer has an incidence rate in Thai women on a par with levels measured internationally. Prof. Songsak's steadfast efforts involve the production of a biomarker which can be used for prognostic prediction of cholangiocarcinoma and breast cancer in Thai patients.

The Department organized two successful workshops, 'Molecular Typing' on 3-4 April 2012, and 'Pathogen Genomics & Omics Analysis' on 23-24 August 2012. These workshops were attended by staff from a number of different departments within the Faculty.

Interdisciplinary cooperation is a big part of the Department's modus operandi. This includes numerous important collaborations, such as the one by **Dr. Onrapak Reamthong** with the Department of Chemistry, Faculty of Science, Chulalongkorn University, for the project, 'The qualification and quantification of mefloquine-sensitive and mefloquine-resistant *P. falciparum* using mass spectrometry'.

Also, **Dr. Charin Thawornkuno's** project, 'The protein profile of cholangiocarcinoma cell line treated with isoflavone derivative', involves significant contributors. Dr. Charin's team is exploring the therapeutic potential of natural compounds like soy extract isoflavones for cancers such as cholangiocarcinoma. These isoflavones have already been shown to reduce incidence of breast and prostate cancers, and Dr. Charin is working to see if

these and other more active compounds prove beneficial in treatment.

Prof. Dr. Songsak himself has worked on numerous important projects with a wide variety of different institutions, including: the Royal Thai Army Institute of Pathology at Phramongkutklao Medical Center; the Liver Fluke and Cholangiocarcinoma Research Center at the Faculty of Medicine, Khon Kaen University; the Faculty of Science at Rungsit University; the Faculty of Science and Technology at Suan Dusit Rajabhat University; and the National Cancer Institute of Thailand for the research project, 'Molecular diagnosis of human cancer'.

The high points of the Department in 2012 include progress in the molecular diagnoses of 'acute febrile illnesses' like leptospirosis and Scrub typhus – whose similar clinical presentations in the past have often prevented accurate diagnoses – as well as in other molecular studies of drug resistance in human malaria, including *P. falciparum*, *P. vivax*, *P. ovalea* and *P. malariae*. Prof. Songsak: "The most notable research achievement of our Department in 2012 was the molecular study of human malaria, including drug resistance in P. falciparum and P. vivax in our country and in the Greater Mekong Sub-region. This important work was carried out by Assist. Prof. Mallika Imwong."

Asst. Prof. Dr. Mallika's work involved examining the genetic basis for drug resistance in *P. falciparum*, using samples from the Thai-Cambodian border, a region where artemisinin resistance is emerging, and samples from Rwanda, where antifolate resistance is already prevalent. Dr. Mallika was able to identify 4 genetic mutations and link them to antifolate resistance using the latter samples. Dr. Mallika was also part of the team that reported the discovery of two subspecies of *P. ovale*, having helped develop a PCR-based diagnostic technique for differentiating between different species using rRNA and cytochrome b genes.

Asst. Prof. Dr. Mallika's research relied on strong collaborative relationships with several international institutes, simultaneously broadening the scope of the work done within the Department and raising its profile on the global stage. These institutes included: the Centre for Tropical Medicine at the Nuffield Department of Clinical Medicine, John Radcliffe Hospital, Oxford University, UK; the Wellcome Trust Sanger Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge, UK; Muséum National d'Histoire Naturelle in France; the Department of Genetics at the Southwest Foundation for Biomedical Research, Texas, USA; the Center for Vaccine Development at the University of Maryland School of Medicine, Baltimore, USA; Nanyang Technological University, School of Biological Sciences in Singapore; the Calcutta School of Tropical Medicine in India; the Wellcome Trust Clinical Research Unit in Laos PDR; as well as various Malaria Control and Reference Centers (MRCs) in Afghanistan.

One of the emerging researchers in the Department, highlighted by his efforts over the last 12 months, is **Dr. Supachai Topanurak**, a specialist in proteomics. Dr. Supachai: "Proteomics is the large-scale study of proteins. Studying their structure and function is key to accelerating tropical disease research." Many proteins are subjected to a wide variety of chemical modifications after translation from mRNA; these post-translational modifications are critical to the protein's function. Dr. Supachai's work in the diagnosis of tropical diseases thus requires good indicators, and proteomics – together with mass spectrometry, for its ability to analyze proteins not just qualitatively but also quantitatively – represents an


Dr. Supachai Topanurak

attractive tool in the process of biomarker discovery. Dr. Supachai: "Applying proteomic techniques provides greater elucidation of the biological activities of the organism, especially in terms of tropical disease pathogens."

During a busy 2012, Dr. Supachai served as PI on the project, 'Optimization of protein sample preparation techniques for proteomic study of Plasmodium vivax in liver stage'. This work is supported by a Faculty Resources Grant, and is scheduled to conclude later in 2013.

Dr. Supachai is also supported by a National Science & Technology Development Agency (NSTDA), Thailand grant for his work as PI on the project, 'Discovery of lipid acquisition machinery of plasmodium in liver stage with host-parasite interactome technology for new anti-malarial targeting'. This too will conclude in 2013.

He worked as co-investigator in 2012 on the project, 'Exploring and development of transmission blocking vaccine target in Anopheles dirus for blocking Plasmodium vivax transmission'. This was supported by a Dean's Research Fund grant.

Dr. Supachai also received funding from the Dean's Research Fund for his work as PI on the 'Discovery of essential host factors for the development of Plasmodium falciparum and Plasmodium vivax in liver stage'. This two-year project started at the beginning of 2012 and will go through to 2014.

Last year was significant for another of the Department's experts, **Dr. Naowarat Tanomsing**. Her scientific researches focus on malaria, where she is currently Principal Investigator on two projects. Beginning in June 2011, her 'Molecular study of *dhps* and *crt* genes in *P. malariae* and *P. ovale*', is supported by a New Researcher Grant and is due for completion in June 2013. This research involves utilizing background information on *P. vivax* and *P. falciparum* to examine how these species react to different drug treatments. Meanwhile, research is also being conducted to determine resistance and sensitivity in *P. malariae* and *P. ovale*. The challenge for Dr. Naowarat is not only finding subjects infected with both these strains, but also finding subjects suffering mixed infection by the pre-dominant species. By using drugs to treat the parasites and determining specific targets in the metabolic pathway, the mechanism of resistance by point mutation within the genes can be applied to isolate and characterize features and properties of *P. malariae* and *P. ovale*.


Dr. Naowarat Thanomsing

Dr. Naowarat's second project, 'Molecular characterization of antigenic surface protein genes of *P. malariae*', is supported by the Dean's Research Fund. It runs from November 2012 to November 2015. Dr. Naowarat's work here involves the invasion process and the actual response of parasites to humans. By investigating the biology of antigenic genes of all four strains, researchers are able to better understand each of the different variables, combine them, and develop a fuller understanding of malaria. The aim ultimately is for improvements in vaccine development.


Dr. Usa Boonyuen

Dr. Usa Boonyuen also experienced a busy year, and is currently Principle Investigator on two projects. The first, 'The study of biotransformation of oseltamivir analogue by Carboxylesterase I (CES1)', is supported by the Faculty and runs from June 2011 to March 2013. *In vivo* studies have shown that mutations in CES1 alter the catalytic activity of the enzyme, lowering the ability to transform

the oseltamivir pro-drug into its active form. The aim of Dr. Usa's research is to study the effect of mutations on the enzymatic activity of human CES1 *in vitro*.

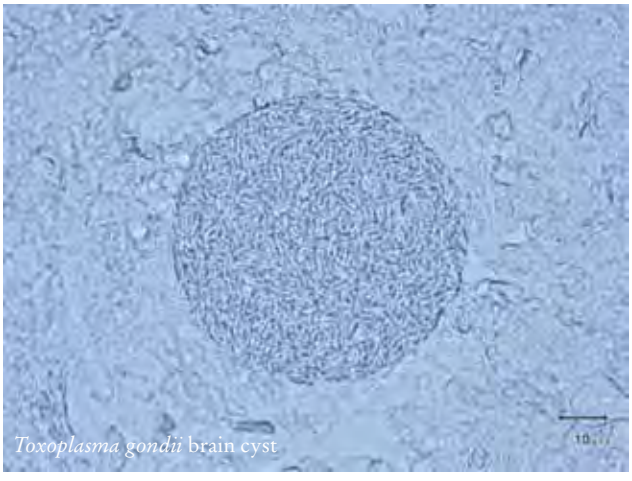
The second project, 'Effect of additional mutation (Mahidol) in G6PD Viangchan', is supported by the Dean's Research Fund, and runs from August 2012 to July 2013. Over 150 G6PD variants have been identified at DNA level. Most of them were single point mutation, although multiple mutations were also found with lower frequencies. While G6PD Mahidol and G6PD Viangchan were common variants in the Thai population, detailed kinetic study of the double mutant (Mahidol + Viangchan) has not been described. The goal of Dr. Usa's research here, therefore, has been to investigate the effect of additional mutation on enzymatic activity of human G6PD. The information obtained from this research will be useful in describing and understanding the severity of G6PD variants.

On top of the departmental success the Faculty's molecular team has enjoyed, individual performance was rewarded in 2012 when Assist. Prof. Mallika's name was put forward for Associate Professor status, while **Dr. Piengchan Sonthayanon** was officially promoted to the position of Assistant Professor.

Looking forward, the Department's mission will continue to be to provide international-standard academic curriculum training in graduate education, both through holistic integrative knowledge and MAHIDOL-based learning. Prof. Songsak stresses that its mission under his leadership will always involve basic, molecular and innovative research – not only into Tropical diseases, but for high priority outbreaks in Thailand, as it seeks to embolden its already strong links to the local community. The function of Prof. Songsak's forward-thinking team, however, continues to be the provision of academic services, i.e. seminars, workshops, training courses and counseling related to molecular biology technology for university staff, students and public investigators. Prof. Songsak, in closing: "We remain committed to the provision of academic graduate study, multidisciplinary research opportunities, networking, and collaborations as the Department heads towards ASEAN in 2015. The coming months provide innumerable opportunities to broaden the scope of our research, to pass on the knowledge we've gained, and to build bridges with other leading research institutes in Asia and the rest of the world."

Department of Molecular Tropical Medicine & Genetics
5th Floor, Chamlong Harinasuta Building
Tel.: 66 (0) 2-306-9138
Website: http://www.tm.mahidol.ac.th/molecular/

Department of **Protozoology**



Toxoplasma gondii brain cyst

Assoc. Prof. Dr. Pornthip Petmitr
Head of the Department

Assoc. Prof. Dr. Porntip Petmitr is Head of the Department of Protozoology, which is one of the few departments created when the Faculty of Tropical Medicine was formed in 1960. Dr. Porntip's background in medical technology, biochemistry, and protozoology provides her with an understanding of a variety of subjects, including drug-sensitivity testing, cloning, expression and purification of *Plasmodium falciparum* enzymes, and cultivation of asexual stage and gametocytes of *P. falciparum*. This knowledge base ensures that the department's responsibilities are met in providing teaching, training, research, and services in the field of medical protozoa.

One of the main highlights of the Department in the past year has been the success of setting up the axenic culture of three types of important human *Entamoeba* (*E. histolytica, E. dispar* and *E. moshkovskii*) in the laboratory. The project was funded by the Faculty of Tropical Medicine in a joint collaboration with the National Institute of Infectious Diseases (NIID), Japan. Dr. Porntip states, "By determining if the strains are pathogenic or non-pathogenic, and learning the process of how to culture these strains, not only can we complete further studies but we have also become the only supply source of these specimens in Thailand."

"By determining if the strains are pathogenic or non-pathogenic, and learning the process of how to culture these strains, not only can we complete further studies but we have also become the only supply source of these specimens in Thailand"

It is a proud achievement to announce that Mahidol University was one of only nine institutions in Thailand to be awarded a 3-year project grant, supported by the National Research University Grants for the Center for Emerging and Neglected Infectious Diseases (CENID). Dr. Porntip is the Principal Investigator of a malaria research project where the goal is the molecular characterization of three key repairing enzymes in the DNA of *Plasmodium falciparum* and their sensitivity to synthetic compounds. The impact factor is to determine new drug targets against drug resistance in *P. falciparum* through DNA replication and repair.

Dr. Aongart Mahittikorn, a lecturer in the Department, is responsible for several projects in protozoology: "Molecular epidemiology of pathogenic intestinal protozoa in wildlife in Thailand" is funded by the One Health Fund. The aims of the project are to investigate the zoonotic potential of wildlife and domestic animals to humans, using molecular tools. With these tools, the source of infection in both humans and animals can be tracked. "Development on the accurate and cost-effective

Dr. Aongart Mahittikorn

Naegleria LAMP results which can be easily detected with the naked eye.

diagnosis of infectious diseases in Thai patients and further application" is funded by the National Research Council of Thailand, and "Development of a loop-mediated isothermal amplification (LAMP) for rapid identification of *Naegleria fowleri*" is supported by the Faculty of Tropical Medicine Research. These projects will help to develop more rapid, easier, sensitive, specific and cost-effective diagnostic methods using molecular techniques. These improved processes will also be used for diagnosing all types of protozoal diseases, specifically in Thai patients and settings.

The various projects have produced collaborations with the Faculty of Veterinary Science and the Faculty of Medical Technology. Dr. Aongart cites some of the results of the projects, "For the first time in Thailand, we found many new genotypes of intestinal protozoa, and we developed many multiplex real-time PCR techniques for the diagnosis of neurological diseases for Thai immunocompetent and immunocompromised patients."

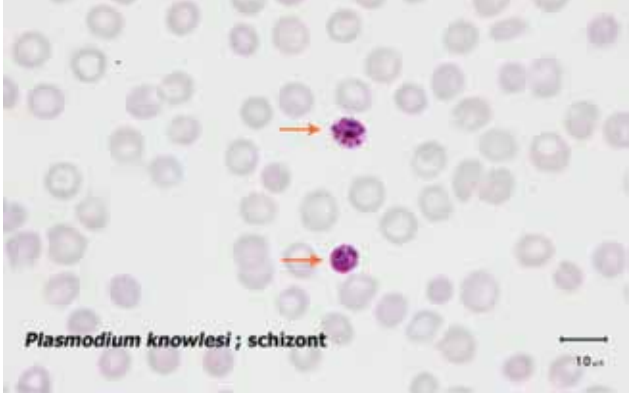
Mr. Pongruj Rattaprasert is Principal Investigator on a project titled "Development of nested PCR and real-time PCR assays for diagnosis of *Plasmodium knowlesi*". The project is funded by the Faculty of Tropical Medicine. The aims of the project are to develop molecular diagnostic tests for new human malaria species and present the new methodology as an alternative diagnosis, which can then be applied to support research in other fields. The results of the nested PCR remain positive and the next step is to develop and design primer and probe sets for real time PCR method. Mr. Pongruj states that *Plasmodium knowlesi* infection was indistinguishable from that found in humans, in particular separation from *Plasmodium malariae* and *Plasmodium vivax*. "The developed technique is a new way to detect malaria, accurately and quickly. It will help in accurate diagnosis and provide specific support for research in other fields," he concludes.

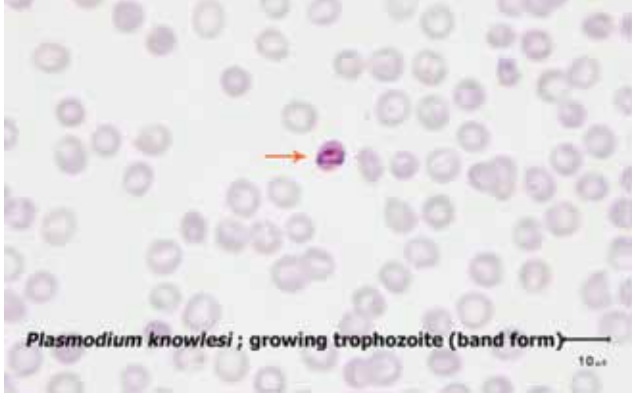
Mr. Pongruj Rattaprasert

Dr. Saengduen Moonsom is leading a project on the comparative proteomic study *of Entamoeba histolytica* and *Entamoeba moshkovskii*, causative agents of human amebiasis. The focus is to search for specific proteins using proteomic approaches and the production of monoclonal antibodies (mAbs). The outcome of the project will be applied towards development of a differential diagnostic test, which is simple, rapid and feasible for remote areas where *Entamoeba* infection is endemic. With collaborations from NIID in Japan and the Genome Institute, National Center for Genetic Engineering and Biotechnology (BIOTEC), axenic cultivation of pure *Entamoeba* cells is now possible in the lab. By establishing this technique, it is now possible to provide genetic material to researchers in the Faculty and elsewhere in the country.

Dr. Saengduen Moonsom

The other focus for Dr. Saengduen is the surveillance of emerging and re-emerging zoonotic diseases in wildlife and domestic animals in Thailand. There is an interconnection between parasitic protozoa and other factors such as domestic-wild animals and the ecosystem, and so in some conditions these animals may transmit disease to humans. By conducting an epidemiological survey of protozoal infections and their





strains/genotypes in domestic and wild animals, we will gain a better understanding of the prevalence and host range of different species, which may be useful in the future design of risk management and surveillance of zoonotic diseases.

Dr. Porntip is a strong supporter of students who want to further their education, and not only encourages them but also supports them to become better educators. It is her belief that by helping students excel in their area of expertise, the Department in turn gains additional skill and knowledge. As part of their education, students are encouraged to pursue collaborations, and also to participate in (by leading) training sessions that are held twice a year. This allows them to perform research and also allows them to teach what they have learned through personal experience. The workshops have been offered for over 10 years, and participants from all over the country attend the two- or three-day sessions, where discussions cover topics such as the importance of diagnosis, parasite detection methods, special staining, and molecular techniques.

The topics of discussion during the workshops are also examples of the types of services that the Department can provide to the medical and scientific community. Doctors can request diagnosis of protozoal diseases using dye test or by special staining techniques, and identification and confirmation of amebiasis or trichomoniasis by nuclear staining. In addition, the Department provides molecular diagnosis for the differential detection of all human malaria and *Entamoeba* parasites by PCR and multiplex real-time PCR. Protozoal specimens can also be provided when other institutes request them for their own research or teaching courses.

With the growing concern about zoonotic disease outbreaks and emerging protozoan organisms, the One Health approach has become an issue on which to focus. Collaborations are vital and Dr. Porntip explains a rather unique but effective process within the relatively small community of protozoology. Because the group of experts is small compared to other disciplines, they are more close-knit as a group and as such are more aware of what each person's area of expertise covers. This allows each researcher to claim an area as their own expertise so that there is no overlap of research efforts, which can waste time and resources. There is better information and knowledge exchange, and a more personal, open-access relationship for sharing responsibilities. Dr. Porntip quotes, "It is constructive competition, a win-win scenario for everyone!" – a truly trans-disciplinary approach!

Department of Protozoology
3rd Floor, Anekprasong Building
Tel.: 66 (0) 2-354-9100-4, 66 (0) 2-306-9100-9 **ext.** 1830-3
Website: http://www.tm.mahidol.ac.th/protozoology/

Department of
Social & Environmental Medicine

Assoc. Prof. Dr. Wijitr Fungladda
Head of the Department

The Department of Social and Environmental Medicine, formerly the Department of Tropical Medicine, was established in 1960; its formal name was changed in 1994. Its members are specialists in environmental epidemiology, environmental toxicology, environmental biotechnology, malacology, social medicine, as well as environmental engineering.

"Our success depends on us being able to answer the questions we are faced with in the laboratory. Establishing correlations in the lab generates information we can then use for public health education and policy"

In terms of its overall contribution to the Faculty's output, the Department provides a number of different academic services, and offers various kinds of laboratory investigation, such as circumoval precipitin tests (COPT) for blood fluke infections, as well as rapid detection of MDR-TB from clinical and environmental samples using advanced molecular techniques. Its research activities cover a wide range of field and laboratory investigations.

The last year has seen the Department's work expanding to meet growing community needs. Much of the focus is on development projects, on generating Environmental & Health Impact Assessments (EHIAs), and the effects of climate change and industry on local communities. As part of the modern focus on the processes of informed decision-making, EHIA reports try to predict the effects of new developments so as to help generate sustainability, so that negative impacts can be lessened and positive impacts broadened out. Indeed, expectations of modern development projects have changed mainly due to their size and scale; EHIA professionals are increasingly expected to make key decisions based not only on scientific evidence, but also according to what is moral, ethical, and of course legal. With these changes in the academic services landscape in mind, the Department set up the Center for Health Impact Assessment Study; this offers training courses on EHIAs and aids various projects of industrial development in the country. Projects can vary from power plants to building dams, to work in the petrochemical industry.

Through its Center for Health Impact Assessment Study, the Department organized the training course, 'Environmental & Health Impact Assessments'. This was held from 6th-10th August 2012, and welcomed 32 participants from both the public and private sectors.

The Department of Social and Environmental Medicine has worked on a total of 9 EHIA projects since 2011. This includes the Map Ta Phut Industrial Estate development project in Rayong Province. Also a power plant scheme in Krabi Province, where a health impact assessment report, physical check-ups and surveillance were all requested to assess likely environmental and health impacts.


Dr. Prapin Tharnpoophasiam

The Department has carried out studies on the impact of heavy metals on health and the environment as well. But as **Dr. Prapin Tharnpoophasiam**, one of the key instructors in the Department, points out, there can be obstacles: "Communities do not always understand the purpose of our work, or our role in attempting to carry out independent inquiries." Dr. Prapin's efforts have faced protests and obstructions, as members of the public remain skeptical and sometimes suspicious about the role scientists play in carrying out reports of this kind. "Our researchers are often caught in the middle of heated discussions between various parties with different interests."

The Department set up the Southeast Asian Center for Medical Malacology to provide malacology training courses and support proliferation of knowledge in this area. It includes the internationally-renown Mollusk Museum, which contains an array of shell specimens from various medically important snail intermediate hosts; the museum is recognized as possessing one of the finest collections in Asia.

'A Formal Course on Medical Malacology for Southeast Asian Countries' was held from 9th-18th July 2012 as well. Planned by the Southeast Asian Center for Medical Malacology, this formal course was delivered by various members of the Faculty, was attended by 18 participants from 6 countries in the region, and was co-organized by the esteemed Prof. John B. Burch (Editor of Publications; Curator *Emeritus* of Mollusks, Museum of Zoology; Professor *Emeritus* of Ecology & Evolutionary Biology, Dept. of Ecology & Evolutionary Biology, College of Literature, Science & the Arts; Professor *Emeritus* of Natural Resources & Environment, School of Natural Resources & Environment, University of Michigan, USA). The purpose of the course was to strengthen knowledge of those who deal with snail-mediated human parasitic diseases in Southeast Asian countries.

The Department of Social and Environmental Medicine's malacologists also collaborated with specialists from Khon Kaen University, to carry out an international Environmental Health Impact Assessment report on a huge hydroelectric dam, called the Nam Theun-2 Hydroelectric Dam Project, in Lao PDR. The purpose of the Department's work in this SEAMEO Trop Med-sponsored venture was to investigate its effects on indigenous, medically-important snail populations and to assess the risk of parasite infection outbreaks. The project was commissioned by the Lao PDR Government, as well as the Pasteur Institute in France.

Collaborations play a large role in the Department's work, and the last 12 months have seen tremendous growth and success. Two key staff members of the Department, **Asst. Prof. Dr. Pongrama Ramasoota** and **Dr. Pannamthip Pitaksajjakul**, enjoy a long-lasting association with Osaka University in Japan. Dr. Pongrama is Director of the highly specialized Center of Excellence for Antibody Research (please refer to CEAR for more details).

Asst. Prof. Dr. Voranuch Wangsuphachart, one of the Department's lead figures and a member of the


Dr. Varanuch Wangsuphachart

Faculty of Tropical Medicine Senate, is an expert in water sanitation and social and environmental health impacts, and was involved in two major studies on public policy last year of Integrated Water Resources Management (IWRM) of the Mekong River in the Greater Mekong Subregion (GMS). Since 2008, Dr. Voranuch has been a member of the 'Thai National Working Group Committee' for the Mekong Water Dialogues for IWRM with Laos PDR, Cambodia and Vietnam. To further emphasize the extent of the Department's global research links, this initiative is coordinated by the International Union for the Conservation of Nature – Asia Program (IUCN), which is sponsored by the Ministry of Foreign Affairs, Finland. The work began with countries of the Mekong Subregion to improve participatory water governance, and members seek to facilitate transparent and inclusive decision-making through public policy, community outreach, and mainstream participation. Management of water resources in the Mekong Region remains a priority, and key issues specifically are improving livelihood security, human and ecosystem health, water quality, and wetlands conservation in the Lower Mekong Subregion.

Community Water Dialogues (CWDs) seeks to establish a platform for local stakeholders to contribute to flood and water management in Thailand, and directly addresses the Thai Government's Master Plan for Flood and Water Management. Dr. Voranuch was actively involved in several field trips and meetings organized throughout 2012, involving national and international participants in Bangkok, Ranong, Loei and Chiang Rai provinces. Dr. Voranuch became involved with the CWD project because of her passion and commitment to water sanitation for local people. Part of the major achievable impact of her work last year was to empower communities to have influence over flood and water management in their local areas. Her research into the effects of climate change, as well as her work on risk prediction modeling on the dynamics of fecal bio-pathogens in the Mekong River, is ongoing.

Dr. Voranuch also collaborated with the French research agencies, CIRAD, the GREASE Network, as well as AIT. Efforts were made by Working Group members from ASEAN to develop a research proposal on transdisciplinary modeling and simulation at the interface of social, epidemiological and ecological sciences. A complete framework, including a set of methods and tools to develop and conduct an interdisciplinary research project of a complex system in a geographical area of the Greater Mekong Subregion Basin, where societal issues can be placed in a One Health context, were defined. This major achievement has been translated into a Concept Note and a research proposal, which were formally submitted to funding agencies in February and March 2013, respectively. In the longer term, Working Group members have agreed to write a proposal to submit to the European Union in time for the 2014-20 program.

Community involvement and teaching are both core parts of the Department of Social and Environmental Medicine's strategy. The approach involves studying different theories and looking at how they apply in the real world – not just at the community level, but on a national policy basis. As Dr. Wijitr Fungladda, Head of the Department, points out: "We go to the community for our information, to assess projects which affect people not just in Thailand, but across Southeast Asia. We are then able to use the information we gain from these projects to inform our students."

The last year has been a busy one for the Deputy Head of the Department as well, **Dr. Suwalee Worakhunpiset**, who has continued her work on the 'Effect of climate change on gastro-intestinal infectious diseases'. Climate change continues to be of growing concern to environmental experts, and Dr.


Dr. Suwalee Worakhunpiset

infectious gastrointestinal diseases. Confronted with the difficult task of balancing already limited resources, Dr. Suwalee prefers instead to focus on community outreach and on the impact her research will have on society at large. "Our success depends on us being able to answer the questions we are faced with in the laboratory. Establishing correlations in the lab generates information we can then use for public health education and policy."

Suwalee is at the cutting of edge of studies in Asia. Her 3 year project, which began in 2011, is funded by the Commission on Higher Education (National Research University), and focuses on connections between climate change and infectious gastrointestinal diseases. Dr. Suwalee's particular efforts involve a retrospective study of 30 years of data about diseases in Samut Sakhon Province. The project is a collaborative venture with the Faculty of Environment and Resource Studies, Mahidol University. This past year saw Dr. Suwalee enter the laboratory phase of her research, examining the effect of temperature on the virulence of E. coli and other disease pathogens. The intention is to establish a means of predicting how environmental factors (e.g. humidity, temperature, precipitation) impact upon patterns of

Dr. Wijitr cites the volume and quality of research publications produced by his Department as another highlight from last year. Performance agreements within the Faculty of Tropical Medicine fixed a target of 1.5 publications per researcher; investigators from the Department of Social and Environmental Medicine scored 1.66. This is an achievement Dr. Wijitr says underlines the high level of staff working as part of his team. Looking forward, he remains keen to further increase the Department's visibility as it focuses more on research, as well as on the health impacts of climate change.

Department of Social & Environmental Medicine
6th Floor, Chamlong Harinasuta Building
Tel.: 66 (0) 2-354-9100-19 **ext.** 1562-4
Website: http://www.tm.mahidol.ac.th/social-environment/

Department of **Tropical Hygiene**

Prof. Dr. Srivicha Krudsood
Head of the Department

The Department of Tropical Hygiene was an original unit of the Faculty of Tropical Medicine when it was formed in 1960; it was afforded full Department status in 1974. Its research activities have continued to adapt to meet the needs of the wider community, and are comprised now largely of epidemiological studies on public health problems in rural populations. The Department's core functions, however, remain the same today as when it was first formed: to further advances in knowledge-based health sciences and to strengthen links between the Faculty and the local community. The Department's head, **Dr. Srivicha Krudsood**, succeeded Dr. Saranath Lawpoolsri Niyom and previously Dr. Jaranit Kaewkungwal, in 2012, and continues to strive towards achieving these ends.

The Department of Tropical Hygiene is respected domestically and internationally for the range of research it has carried out and the papers it has published, on subjects ranging from geo-spatial epidemiology, clinical trials, community studies, statistical modeling, and disease sequencing.

The Department is a World Health Organization Collaborating Center for the Clinical Management of Malaria, and its researchers serve as consultants to the Thai Ministry of Public Health (MOPH). The Department offers advice to the WHO and to MOPH on the most practical methods of managing cases of severe malaria, as well as on how to optimize standardized treatment regimens. The whole issue of how best to treat malaria has come to the forefront of challenges facing tropical disease researchers as prevalence of resistance to the current drug regimen grows.

"We provide the Ministry of Public Health with our research data and advise which medications and regimens should be introduced into communities in Thailand," says Dr. Srivicha, who has been studying the best techniques for treating the severest forms of the disease for more than 20 years. Her studies are performed amongst the 200-300 patients admitted each year to the Hospital for Tropical Diseases who are suffering with severe malaria. Much of her work involves testing established drugs in novel dosages and combinations, with the aim of discovering an ideal non-artemisinin combination therapy.

"We provide the Ministry of Public Health with our research data and advise which medications and regimens should be introduced into communities in Thailand"

The Department's focus does not rest on malaria alone. The growth of mathematical modeling in medical research is well-documented, and the Department of Tropical Hygiene has been at the forefront of its implementation in using it to evaluate diagnostic tools for dengue fever, and in using it to model transmission methods of leptospirosis.

Dr. Wirichada Pan-ngum completed her project – jointly funded by the Faculty and the Thailand Research Fund – on optimizing diagnostic strategies for dengue control using the modeling approach last year. She continues to look at the best ways of optimizing clinical

Dr. Wirichada Pan-ngum

information using economic and cost-effectiveness analysis, to help in the diagnosis of dengue.

Dr. Wirichada also recently started work on modeling leptospirosis, supported by the Dean's Research Fund, and is focusing her efforts on Thailand. "We are trying to figure out what could have been the main reservoir of leptospirosis. Modeling is used to fill in gaps in knowledge about potential transmission, and it provides information about the best control strategies. Whether the common transmission route in southern and northeastern parts of Thailand is the same, how influential flooding is – such questions currently remain unclear." Dr. Wirichada's team has already begun collecting rodent samples in the high incidence area of Buriram to start identifying different species and their individual characteristics.

Dr. Wirichada has collaborated extensively with the mathematical modeling team at the Mahidol Oxford Tropical Medicine Research Unit (MORU). Working with the Faculty of Public Health and MOPH, she has access to real data and is currently researching how interventions can be implemented in the wider community. Asked what impact she feels her research may have in terms of Thai society, Dr. Wirichada responded: "As long as dengue and leptospirosis remain health issues in the country, our research work can be used as a guide for policy decisions, whether on the large or small scale. We continue to try to gain a better understanding of these diseases and their interaction with the local community."

The Department's community-based research is a notable highlight of the last 12 months. Tremendous advances were made in the epidemiology work of its Geographical Information Systems (GIS) unit, which has been applying GIS technology to the problems posed by different tropical diseases. Together with their partners in the Center of Excellence for Biomedical and Public Health Informatics (BIOPHICS), the Department's specialists have been working on projects using mobile technology to monitor dengue infections. In one, the Department is carrying out web-based surveillance monitoring of school absenteeism. It is conducted with the help of the Bangkok Metropolitan Administration, which has installed electronic devices in 7 primary schools in the Ladkrabang district of Bangkok to track how many children miss school each day. By monitoring emerging patterns and rising absenteeism, researchers can respond swiftly to stave off additional disease transmission by recommending closure of particular educational facilities. Absenteeism can be observed on an almost real-time basis by the different authorities, which includes the health and education departments of the Bangkok Metropolitan Administration.

Dr. Saranath Lawpoolsri Niyom

As the Department's Deputy Head, **Dr. Saranath Lawpoolsri Niyom**, who is also Deputy Director of BIOPHICS, says: "Our aim is to use this project as a type of early warning system to help prevent further transmission. Real-time surveillance monitoring in schools is valuable because a number of infectious diseases that commonly occur in children are transmitted here in the first instance."

The project, whose PI is **Asoc Prof. Dr. Pratap Singhasivanon**, was made possible through a subsidy from the National Research University Initiative, and began in 2011 with a funding grant for 3 years. Under the Center for Emerging and Neglected Infectious Diseases

(CENID), Mahidol University, the system became fully operational in May 2012. The coming months will see further advancements in this exciting area of research. Dr. Saranath: "This year will see investigators move forward to the next phase of the project, in which clinical data will be integrated into the absenteeism system itself."

The Department of Tropical Hygiene enjoys a close collaborative relationship with BIOPHICS, and over the last 18 months has been aiding the development of their new curriculum in biomedical and health informatics. Dr. Wirichada recognizes the successful opening of the graduate Diploma and Master's courses in Biomedical and Health Informatics as one of the standout achievements of last year (please refer to BIOPHICS for more details). These courses have welcomed 19 students from 8 different countries, but they also represent an opportunity for experts from the Department of Tropical Hygiene to impart some of their own specialist knowledge. Dr. Wirichada: "My experience in the modeling of infectious diseases and data management will be useful in teaching one aspect of how to utilize health information."

These two programs were set up with support from the Rockefeller Foundation, who also generously offered a large number of scholarships to applicants on the first intake. Health informatics broadly involves the management and use of information for the purposes of improving health care, and the Department continues to focus on population-based studies, as well as on the delivery of services to the community.

To this end, the Department manages and runs the Rajanagarindra Tropical Disease International Centre (RTIC), a study site for population-based studies. This is located in a malaria-endemic rural community near the Thai-Myanmar border in Suan Phung District, Ratchaburi Province. The Department of Tropical Hygiene has been delivering health services to local residents free of charge for a number of years via the RTIC and its malaria clinic, where it is more readily able to collect samples and recruit volunteers.

Another of the Department's experts, **Asst. Prof. Dr. Direk Limmathurotsakul**, enjoyed significant progress in 2012. His work as Principal Investigator on the project, 'Determining routes of B. pseudomallei infection and development of evidence-based guidelines for the prevention of melioidosis' received funding from both the Wellcome Trust and MORU.

The disease caused by *Burkholderia pseudomallei*, or melioidosis, results in more than 1,000 deaths every year in Thailand; that figure is more than both dengue and tuberculosis. As Dr. Direk, who has been researching this area for nearly 10 years, says: "People are dying from the disease who have never even heard the word 'meliodosis'." As such, melioidosis typifies the notion of a neglected disease.

After completing a large case-control study to find out about its transmission mechanisms in 2011, new evidence emerged suggesting it could be spread through both ingestion and inhalation. Dr. Direk's findings have since confirmed this. His team found ingesting untreated water or inhaling dust clouds both represent significant risk factors for the disease – especially so in those areas where awareness is low and hygiene poor.

Experts from the Department of Tropical Hygiene are tackling the awareness factor head on, using various electronic and social media, including a Facebook page dedicated to melioidosis (with English and Thai language versions), to help inform individuals and society at large. There is also a short film contest as part of the campaign to improve understanding of melioidosis. The development

of the interactive melioidosis website (http://www.melioidosis.info/th), and the Facebook page stand as two of Dr. Direk's most notable personal successes over the last 18 months. His efforts have involved collaborations with both MOPH and the Centers for Disease Control and Prevention.

Dr. Direk's novel approach includes a world map online to show live incidence of melioidosis occurring within the One Health triangle of humans, animals, and the environment where it's been detected in the soil. This stands as a working model for other academic institutions carrying out similar research in the region.

Together with its graduate programs and curricular activities within the Faculty of Tropical Medicine, the Department of Tropical Hygiene over the past 12 months has continued to offer international short training courses on epidemiology and biostatistics, data analysis, geographical information systems, and research studies on molecular and field works. Jointly with BIOPHICS and the Rockefeller Foundation, it successfully organized the training course 'Health Informatics Workshop'. This took place from 31 January 2012 – 2 February 2012, and organizers welcomed 64 participants. In terms of the Department's core teaching syllabus, this still concerns tropical medicine epidemiology, but over time it has grown to include options on zoonotic epidemiology, biomedical, geographical and public health informatics, global health and biostatistics.

As well as training courses, the Department offers laboratory services and academic consultation. It also provides extracurricular academic services to the public as part of its enduring commitment to the local community. Tropical Hygiene staff visit other institutions to give lectures on epidemiology, statistics, research methodologies, as well as clinical management issues about tropical diseases like malaria. So much of the good work, Dr. Saranath believes, is the result of being able to work as a team: "The Department of Tropical Hygiene has a really positive work ethic. All support staffs are skillful and experienced, and our researchers are extremely knowledgeable in each of their specialist fields. These combine to make the Department strong both academically and in terms of the research activities it carries out."

Mr. Irwin F. Chavez

Department of Tropical Hygiene
8th-9th Floor, Khunying Tranakchit Building
Tel.: 66 (0) 2-306-9188-9
Website: http://www.tm.mahidol.ac.th/hygiene/

Department of
Tropical Nutrition & Food Science

Asst. Prof. Dr. Dumrongkiet Arthan
Head of the Department

The Department of Tropical Nutrition and Food Science was established in 1966 as a provider of expert nutritional information and advice. It was set up with the core aims of informing, teaching and training local and international postgraduate students, conducting scientific research, and offering laboratory services concerning nutritional disorders.

Asst. Prof. Dr. Dumrongkiet Arthan has overseen large-scale advances in the Department's research output during his time as Head of Department. His team is comprised of 11 full-time academic staff members, 4 support staffs, and 6 consultants.

Under Asst. Prof. Dr. Dumrongkiet's leadership, the Department's mission has been to expand known frontiers of knowledge in the field of tropical nutrition and food science, and provide regular updates on new and relevant scientific theories, methods, techniques, and research skills across the fields of health, medical sciences and nutrition; modern molecular biology techniques are covered as part of this process.

Academic staffs are responsible for training curriculums on international postgraduate programs, including the Master's and Doctor of Philosophy in Tropical Medicine, and the Diploma in Tropical Medicine & Hygiene (D.T.M. & H.) courses. The Department actively supports its students in applying for scholarship funds, like the Royal Golden Jubilee Ph.D. Program from the Thailand Research Fund, and for awards from the Office of the Higher Education Commission, and from the Faculty of Tropical Medicine.

An important contributing feature of the Department's recent success is that it has been able to establish international collaborative links with a host of renowned centers and institutions. These include: the University of Potsdam and Justus Liebig University in Germany; York University in Canada; Brescia University in Italy, and both Hokkaido University and Hyogo University in Japan. All these linkages offer not only education but also research cooperation encouragement.

The interests and specialisms of the Department's investigators vary, but research activities can be delineated along two clear lines: tropical nutrition and food science. In terms of tropical nutrition, the Department's research covers malnutrition problems in vulnerable groups, obesity, dyslipidemia, coronary heart disease and cancer. The effects of genetic and protein changes on individual nutritional status are also examined. Departmental investigators search for natural therapeutic products which can be applied in medicine and pharmacology, due to their having beneficial chemical properties, like anti-cancer (for cholangiocarcinoma), mosquitocidal (which can be used for the purposes of vector control and for inhibiting growth enzymes in mosquitoes), anti-HIV, and anti-obesity. In terms of food science, researchers conduct extensive studies on food microbiology, especially probiotics. Glycosidase enzymes remain of great interest also, due to their potential application in agriculture and the food industry.

"The Department offers a wide range of laboratory and technical services, and makes available extensive nutritional information and advice for the general public"

The Department offers a wide range of laboratory and technical services, and makes available extensive nutritional information and advice for the general

public. Researchers serve to determine not only vitamin B_1, B_2 and B_6 levels in serum and red blood cells by enzymatic methods, but also folic acid levels by using microbiological assay. The Department works hard to ensure all specified requirements from both government and private sector hospitals and institutions are met.

Annually, the Department arranges short course training in 'Methods in Nutritional Assessment & Research'. Running for nearly 9 years now, these courses aim to educate nutritional field academics, teachers, private sector workers, hospital staff, and other professionals so they can initiate their own work to be carried out in hospitals, in school canteens, and in local health centers. Last year's training course, from 1-4 October 2012, welcomed 32 participants and topics covered, among others, were: planning anthropometric assessments; the development of food and nutrition guidelines; computer training for nutritional evaluation; dietary research; as well as general guidance on the particular research skills required to initiate nutritional assessment programs. Another advanced training short course was provided by the Department of Tropical Nutrition and Food Science, entitled 'Methods in Nutritional and Epidemiology Research', which was held from 15-17 October 2012. This welcomed 18 participants.

Staff members were also regularly called upon in 2012 to be guest lecturers, co-advisors, as well as external examiners for both undergraduate and graduate student examining bodies, at a host of prestigious institutions, including: Rangsit University, Khon Kaen University, Mae Fah Luang University, Thammasat University, Srinakharinwirot University, as well as the Faculty of Science, Mahidol University. Staff of the Department received frequent invitations to be peer reviewers, not only for a number of renowned international journals, but also to be contributors to various prestigious scientific projects. The Department published 7 articles in international journals and one article locally, last year.

In terms of research over the last 12 months, this includes Asst. Prof. Dumrongkiet's own study into 'A *Solanum torvum* GH3 beta-glucosidase: molecular characterization, its physiological functions, analysis, and structural elements responsible for its natural substrate specificity', which was supported by a Dean's Fund Research Grant. Other projects beginning last year: **Prof. Dr. Rungsunn Tungtrongchitr's** study, 'Genetic variation and protein changes related to obese children and their relatives'; **Assoc. Prof. Dr. Karunee Kwanbunjan's** study into the 'Effect of weight loss programs on body weight, BMI, body fat, and nutritional indicators of metabolic syndrome in obese women', supported by the Faculty of Tropical Medicine; **Ms. Kririyaporn Songmuaeng's** 'Study of cytotoxicity of heme in mouse macrophage (RAW264.7)'; and **Dr. Pornrutsami Jintaridth's** 'Methylation in osteoporosis by pyrosequencing' project, again supported by funding from the Faculty of Tropical Medicine.

These new investigations are on top of the Department's ongoing research work, which includes: Asst.

Dr. Pornrutsami Jintaridth

Prof. Dumrongkiet's 'Recombinant alpha-glucosidase applied for identification of its inhibitors from natural products'; Dr. Karunee's 'MTHFR polymorphism of folate metabolic genes and susceptibility to colorectal cancer in Thais'; **Dr. Amornrat Aroonnual's** 'Screening and identification of antimicrobial compounds from *Bifidobacterium* with inhibitory activity against *Clostridium difficile*'; Dr. Pornrutsami Jintaridth's 'Methylation of DNA repetitive sequence in rat brain' and 'Methylation pattern in osteoporosis by pyrosequencing' studies; **Dr. Apanchanid Thepouyporn's** 'Study of Gambicin: anti-microbial peptides from *Culex quinquefasciatus*'; and **Assoc. Prof. Talabporn Harnroongroj's** 'Preoperative serum albumin level and total lymphocyte count related to complication and length of hospital stay in total knee arthroplasty'.

The last year has proved especially busy for the Department of Tropical Nutrition and Food Science, as Asst. Prof. Dr. Dumrongkiet has sought to expand operations and strengthen its national and international collaborative links. Looking forward, the Department's experts are going to carry on working for the benefit of local patients and the wider public, with their investigations into community nutrition, nutrigenomics and nutrigetics, food microbiology and food safety. Research will also continue into the nutritional problems of vulnerable groups, into cancer by employing advanced molecular biology techniques, and into the development of natural, locally-sourced products from medicinal plants.

Department of Tropical Nutrition & Food Science
8th Floor, Chamlong Harinasuta Building
Tel.: 66 (0) 2-354-9100-19 **ext.** 1582-5
Website: http://www.tm.mahidol.ac.th/nutrition/

Department of **Tropical Pathology**

Asst. Prof. Dr. Urai Chaisri
Head of the Department

The Department of Tropical Pathology was established in 1968, operating as a Pathology Unit out of the Department of Tropical Medicine whilst providing medico-scientific services for the Hospital for Tropical Diseases. The esteemed Dr. Mario Riganti led the Unit during this initial phase, and he went on to become the first Head of Department when it was officially established in 1989.

> "The Department aims to continue its high quality research presentation and publication output… as part of the growth and expansion of the Faculty of Tropical Medicine as it moves towards greater international collaboration and the onset of an integrated ASEAN community in 2015"

From its inception, the Department of Tropical Pathology has endeavored to maintain strong community bonds via the research work of its members, but also through the ongoing education and training courses it offers.

The Department's researchers lead scientific explorations across a whole range of different fields, encompassing: the pathogenesis and pathophysiology of organ failure in patients with severe malaria, histopathology, immunohistochemistry and immunocytochemistry, as well as ultrastructural studies of tropical diseases, including malaria and other parasitic infectious diseases. Many of these research activities are performed using advanced light and electron microscopy techniques; 3 electron microscopes are available within the Department for work on tropical diseases, their vectors, and other ultrastructural studies.

The Department of Tropical Pathology itself is composed of 3 separate units: the Diagnostic Pathology Unit, the Electron Microscopy Unit, and the Tissue Culture & Immunocytochemistry Unit.

Researchers at the Department's specialist Diagnostic Pathology Unit have developed a reputation for reliability, for quality of services provided, for their histopathological expertise on clinical management problems, as well as for helping clinicians with particularly challenging diagnoses at the Hospital for Tropical Diseases.

The Electron Microscopy Unit, meanwhile, was established in 1992, and has a key role in supporting ultra-

structural microscopy analysis. The Unit has facilities for both TEM and SEM, and offers both students and new researchers experience in the operation of highly technical equipment in support of their research interests.

One of the global experts in electron microscopy and immunology, **Dr. Urai Chaisri**, has been Head of the Department since 2011. Dr. Urai has taken the lead on guiding the Department's diverse research activities. These include: the pathogenesis of severe malaria, cytokine involvement and cell signaling in severe malaria, vascular model studies in the pathogenesis of atherosclerosis, proteomics research (such as cancerous squamous cells in the oral cavity and salivary gland tumors), urine biomarkers in malaria acute renal failure, and immunity in gnathostomiasis.

One of the chief successes of the Department under Dr. Urai's leadership has been its recent visualization and measurement of sequestration *in vivo*. For the first time, investigators were able to show that sequestration of parasitized erythrocytes in the microvasculature of vital organs is the central pathological feature of severe falciparum malaria.

Dr. Emsri Pongponratn

The last 12 months have brought numerous research accomplishments, during what has been a particularly busy period for the Department's specialists. **Assoc. Prof. Dr. Emsri Pongponratn**, the Faculty of Tropical Medicine's Deputy Dean for International Affairs, and working out of the Electron Microscopy Unit within the Department of Tropical Pathology, is Principal Investigator on the project, 'Examining the pathophysiology of organ failure in severe malaria using histopathology, immunohistochemistry and electron microscopy'. The project is supported by the Office of the Higher Education Commission and Mahidol University under the National Research Universities Initiative. This 3 year study is a wide-ranging histopathological, immunohistochemical, immunocytochemical, and ultrastructural investigation of the pathogenesis of cerebral malaria and other severe forms of malarial disease, including lung injury and placental malaria. Utilizing her broad collaborative links that encompass institutions from across the USA, UK and Australia, Dr. Emsri's analysis will culminate later in 2013. It is her belief that, "The results of this research can offer a better understanding of the pathogenesis and pathophysiology of severe falciparum malaria, and the development of better therapies for a deadly disease which is continuing to endure."

Another of the Department's specialists, **Assoc. Prof. Dr. Yaowapa Maneerat**, had a very productive 2012, serving as PI on 3 separate projects. In her 'Study of the role of hemozoin (HZ) from *P. falciparum* in T independent immunity', Dr. Yaowapa found that HZ can induce B cells to produce specific antibodies without help from T lymphocytes. The significance of this 3 year project, which is supported by CENID and concludes later in 2013, is that it will further our understanding of another aspect of human immunity to falciparum malaria.

Dr. Yaowapa also completed her 'Study of the immunoevasive strategies of Gnathostoma spinigerum, focusing on the inhibitory effects of excretory secretions (ES) to immune cells'. This 2 year project was supported


Dr. Yaowapa Maneerat

by TropMed. Dr. Yaowapa found ES can modulate the functions of NK cells and monocytes by inhibiting receptor expression. Benefits involve improving our understanding of immunoevasive strategies of the infective larva stage in infected patients.

Dr. Yaowapa's third project is still ongoing. A 'Study of gene profiles of Thai patients with coronary heart disease and dyslipidemia, in comparison to normal volunteers', is a 2 year project supported by Mahidol University. Dr. Yaowapa and her team expect to find gene profiles which can be used as markers, which can then be used to predict the development of coronary heart disease in Thai dyslipidemia patients. Collaborations for this study include Thoracic surgeons at Phramongkutklao Hospital and Rajavithi Hospital.

Deputy Head of the Department, **Assoc. Prof. Dr. Parnpen Viriyavejakul**, enjoyed a tremendously busy 12 months. She served as Principal Investigator and Co-PI/Mentor on several ongoing projects researching malaria – all are aimed at developing new ideas and concepts which help explain and understand the pathogenesis of severe *P. falciparum* malaria. 'Exploring transcriptional factor-nuclear factor kappa B (NF-κB) activation in malaria as a new regulating factor in the pathogenesis of malaria' is a project funded by a Mahidol University Research Grant, and demonstrates NF-κB activation in severe *P. falciparum* malaria and its correlation to apoptosis in endothelial cells in the brain's blood vessels.


Dr. Parnpen Viriyavejakul

Her 'Study of neurons, glial cells and signaling molecule-nuclear factor kappa B in severe malaria' is funded through the Office of the Higher Education Commission and Mahidol University, under the National Research Universities Initiative. The project's aim is to investigate signaling molecules involved in the pathogenesis of cerebral malaria.

'Investigating causes of acute renal failure (ARF) in severe malaria by histopathology and immunohistochemistry' is funded by the National Research Council of Thailand. This broad holistic study involves the use of clinical samples to evaluate new acute kidney injury markers for early detection of ARF in malaria, as well as tissue samples to demonstrate protein changes and expression in severe malaria patients.

Dr. Parnpen collaborates with several institutions in Thailand and has published a number of important papers over the last 12 months which have contributed significantly to the Department of Tropical Pathology's success. "Overall, the results of these projects may serve as a guideline for prevention and management of acute complications of severe malaria, and provide targets for the development of novel therapeutic treatment."

Last year also, the Department of Tropical Pathology was the beneficiary of a 10 million THB 3 year subsidy from the National Research Council of Thailand, the Office of the Higher Education Commission, and the Faculty of Tropical Medicine and Mahidol University, again under the National Research Universities Initiative. This funding will support the Department's efforts across a wide range of different projects, including research into the pathogenesis of acute renal failure and lung injury in severe malaria. Researchers continue to aim to identify links between clinical features and cell signaling events

to further explain pathogenesis in the severest forms of the disease.

One of the defining strengths of the Department is the collaborative links it has built with other regional and international centers and organizations. These include: the Division of Electron Microscopy, Department of Cellular Pathology, The John Radcliffe Hospital, Oxford University, UK; Liverpool School of Tropical Medicine, UK; University of Leeds, UK; the Department of Immunology at the Wenner-Gren Institute, Stockholm University, Sweden; Oita and Osaka Universities, Japan; and the Department of Pathology, Faculty of Medicine at the University of Sydney, Australia.

Because of these links, the Department has a number of global experts available for consultation, including Prof. David Ferguson from Oxford University, Dr. Gareth Turner of MORU, and the aforementioned Dr. Mario Riganti.

The Department collaborates domestically with such institutes as: Rajavithi Hospital, Bangkok; the Department of Microbiology, Faculty of Medicine, Srinakharinwirot University; the Faculty of Dentistry, Srinakharinwirot University; the Faculty of Dentistry, Chulalongkorn University; and the Department of Parasitology, Faculty of Medicine, Chiang Mai University.

The Department regularly welcomes surgical specimens from other hospitals and institutes for diagnosis and research, and offers training courses for postgraduate students and researchers in tropical pathology, electron microscopy and histopathology. Indeed, the Department established the Reference Centre for Malaria Pathology in 2010, bringing together a rare collection of tropical disease specimens, autopsy cases, and other malaria pathogenesis teaching materials to facilitate learning for both new and established investigators.

Future months promise to be just as busy for the Department's experts, as they continue their dual role as educators and as providers of important services for the Hospital for Tropical Diseases. These services include: histopathological diagnosis, cytopathological diagnosis, autopsies, histologies, frozen sections, cytologies, core biopsies, and fine needle aspiration. Looking forward, the Department aims to continue its high quality research presentation and publication output, not just at international conferences and in world-renown journals, but as part of the growth and expansion of the Faculty of Tropical Medicine as it moves towards greater international collaboration and the onset of an integrated ASEAN community in 2015.

Department of Tropical Pathology
2nd Floor, Khunying Tranakchit Building
Tel.: 66 (0) 2-354-9100-4, 66 (0) 2-306-9100-9 **ext.** 1670, 1622
Website: http://www.tm.mahidol.ac.th/pathology/

Department of **Tropical Pediatrics**

The Department of Tropical Pediatrics, founded by **Prof. Dr. Tan Chongsuphajaisiddhi**, was established in 1974 to carry out clinical research, provide medical services, and disseminate knowledge in the area of Tropical Pediatrics. The mission in 2012 remained consolidating advances in these areas.

Through the work of leading researchers like **Prof. Dr. Arunee Sabchareon** and **Assoc. Prof. Dr. Pornthep Chanthavanich**, the Department of Tropical Pediatrics has been furthering its commitment to local and regional pediatric healthcare services, and has been endeavoring to further strengthen its links to society at large.

Prof. Arunee Sabchareon

The Department's researchers have made a wide variety of significant contributions to the advancement of knowledge in Tropical Pediatrics, covering areas like immunization, dengue epidemiology in Thailand, intestinal parasites, and conducting clinical trials of dengue, Japanese encephalitis, influenza and other vaccines.

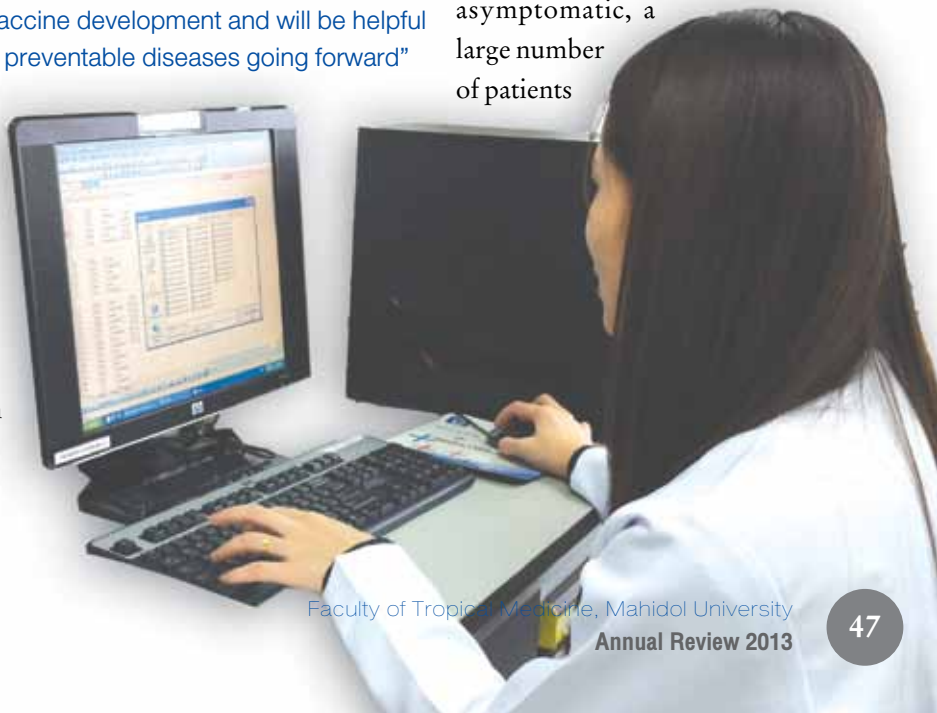
In terms of both research carried out in the field of Tropical Pediatrics, and providing knowledge through its Diploma in Tropical Medicine & Hygiene (D.T.M. & H.) and Master's in Clinical Tropical Medicine (Tropical Pediatrics) courses, as well as its Ph.D. (Clinical Tropical Medicine) program, the work of the Department's new researchers over the last 12 months has moved to include Kawasaki disease, malaria, respiratory syncytial virus disease, diphtheria-pertussis-tetanus vaccination, and erythrocyte sedimentation rates in children.

Assoc. Prof. Dr. Chukiat Sirivichayakul
Head of the Department

One of the Department's research highlights over the last 12 months concerns its vaccine trials. **Assoc. Prof. Dr. Chukiat Sirivichayakul**, the current Head of the Department, says: "Emerging and re-emerging infectious diseases are a major health problem, and many new vaccines are currently being developed. Our research will continue to facilitate vaccine development and will be helpful for vaccine preventable diseases going forward."

Another research highlight was its highly focused trials of dengue. Dengue continues to pose a substantial risk to pediatric health. Indeed, it remains true that over 50% of all Thai children at the age of 5 years old have been exposed to the dengue virus. Whilst such exposure is usually asymptomatic, a large number of patients

"Emerging and re-emerging infectious diseases are a major health problem. Our research will continue to facilitate vaccine development and will be helpful for vaccine preventable diseases going forward"



still suffer severe diseases every year, and this is why the TropMed Dengue Diagnostic Center (TDC), based within the Department, continues to fight infection through the various diagnostic services it offers to patients, and in its contributions to current and future dengue-based vaccine trials.

Last year, the Department published in The Lancet its long-awaited phase 2b Sanofi Pasteur dengue vaccine trial study, 'The protective efficacy of the recombinant, live-attenuated CYD tetravalent dengue vaccine' – as well as a number of other papers on dengue. The Department also published widely on malaria and immunology.

While so much of the emphasis of research success is centered on finding viable vaccine candidates and increasing efficacy towards this end, a lot of the unseen work that goes on in the lab is about eliminating variables and increasing viability bit by bit, stage by stage. As shown in the Department's 2012 Lancet paper, dengue vaccine efficacy did not yield as much clinical success as had been hoped, and an efficacious dengue vaccine requires further development. Yet Dr. Chukiat references the results of this high profile vaccine trial as the most notable research achievement of the past 12 months. Dr. Chukiat: "Although it was found that vaccine efficacy was quite disappointing, this finding is a major milestone in dengue vaccine development. It also raises many research questions that need further discoveries." Plans are already in place to study the markers of protection on dengue disease using the study's stored blood samples.

Dr. Chukiat Sirivichayakul

Turning to another highpoint from last year, the Department hosted an international training course on dengue in August, 2012, in which 15 participants were welcomed from 6 different countries. As well as this, the Department coordinated several other short-term training sessions, for example, one for staff of the Department on 'Good Clinical Practice'. It also continued its work to augment the Thailand Chapter of the International Society of Tropical Pediatrics, following its success as co-organizer of the 9th International Congress of Tropical Pediatrics in 2011.

As well as the ongoing clinical research and its efforts in the dissemination of knowledge, services have remained at the forefront of the Department's mission. These have included contributions to inpatient and outpatient care at the Hospital for Tropical Diseases – where a number of Departmental staff work as clinical doctors, specializing in general pediatrics, pediatric infectious diseases, and allergies – as well as the provision of up-to-date research information on Tropical Pediatrics to international visitors and local health personnel. Dr. Chukiat: "We provide outpatient and inpatient medical services for children. We also provide dengue diagnostic services, antibody detection, and viral genome detection."

Regional and international collaborations have played a huge part in the growth of the Department over the last 35 years, and are a significant feature of its activities and success in areas like vaccine trials (which don't just include dengue, but also Japanese encephalitis,

rabies, influenza and other vaccines) and pediatric infectious diseases in the Tropics. Dr. Chukiat: "Our researchers have been funded by many organizations, such as the International Vaccine Institute, GSK, as well as Sanofi Pasteur. We have close academic links with the Armed Force Research Institute of Medical Sciences (AFRIMS), the Mahidol Osaka Center for Infectious Diseases (MOCID), and the Center for Vaccine Development. We continue to seek out new opportunities with other leading dengue researchers, with the support of the National Science and Technology Development Agency."

Looking forward, the Department has already begun organizing a short training course on Tropical Pediatrics, which is set for July, 2013. The Department continues to investigate the efficacy of avian influenza and dengue vaccine candidates in children as well.

Dr. Chukiat, in closing: "Important current researches are in the field of dengue. We are steadfast in our efforts, and remain committed to discovering why our dengue vaccine did not work so well, despite its good immunogenicity. If we can answer this question, we may be able to develop a highly efficacious dengue vaccine from which all future generations can benefit."

Department of Tropical Pediatrics
6th Floor, Khunying Tranakchit Building
Tel.: 66 (0) 2-354-9100-4, 66 (0) 2306-9100-9 **ext.**1462, 1466
Website: http://www.tm.mahidol.ac.th/pediatrics/

BIKEN-Endowed Department of Dengue Vaccine Development

"Our target, and my own personal mission, will always be vaccine development"

Prof. Dr. Eiji Konishi
Head

Dr. Eiji Konishi is Chair of the internationally respected BIKEN-Endowed Department of Dengue Vaccine Development, whose ongoing studies involve basic researches to develop a DNA vaccine against dengue. Attached to the Faculty of Tropical Medicine via its collaborative links with Osaka University, Japan, Dr. Konishi's efforts concern employing genes of the dengue virus to yield non-infectious, virus-like particles; when patients are inoculated, they experience an antibody response, which in turn results in the development of immunity against dengue.

While not endemic to Japan, dengue remains one of the biggest drains on public health resources of any arbovirus. After starting the process of relocating his research facilities from Kobe University, his former institution, to the Faculty of Tropical Medicine back in October of 2011, Dr. Konishi cited the full establishment of his unit and the successful re-launch of his work in Thailand as the standout accomplishment of the last 12 months. With so much – albeit welcome – upheaval packed into such a short space of time, Dr. Konishi is glad to be back in his lab using basic science to reveal dengue's pathogenesis.

Dr. Konishi's groundbreaking vaccine studies on the front line of dengue research underlines the impact of work being done within the Faculty today. With estimates of approximately 300,000 new infections per day (estimated cases per year: 100 million), one of the most crucial – yet one of the least expensive – weapons in the scientific community's global defense against dengue transmission remains education; but it is education that is research-led by teams like we have at BIKEN. Where Thailand in many respects succeeds in this regard, according to Dr. Konishi, for other communities and for other nations, there is still much work to do.

Strengthening collaborations and furthering all our joint efforts, not just on a local and regional level, but also internationally, utilizing resources and expertise between countries like Thailand here at the Faculty of Tropical Medicine, in Japan with BIKEN, one of the country's largest vaccine companies, and also in Indonesia at the University of Indonesia and Airlangga University, remains at the heart of the Faculty's strategy to be 'One of the World's Leaders in Tropical Medicine'.

And with Dr. Konishi's highly specialized team and all his equipment now firmly in place, the next 12 months stand to be as eventful for Dr. Konishi as the last. But Dr. Konishi's focus remains clear: "Our target, and my own personal mission, will always be vaccine development."

BIKEN-Endowed Department of Dengue Vaccine Development
5th Floor, 50th Anniversary Chalermprakiat Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 2041
Email: ekon@biken.osaka-u.ac.jp

Center of Excellence **for Antibody Research (CEAR)**

Asst. Prof. Dr. Pongrama Ramasoota
Head

"The startling advances the Center has made over such a short space of time are just one reason it now enjoys recognition not just domestically from its local partners, but also regionally in Southeast Asia"

The Center of Excellence for Antibody Research (CEAR) was established at the end of 2009, simultaneously with the start of a joint collaborative research project between the Faculty of Tropical Medicine at Mahidol University and Osaka University in Japan. It stands as the product of a highly productive partnership between its Director, **Dr. Pongrama Ramasoota**, and **Dr. Kazuyoshi Ikuta** from Osaka University.

The Center's mission is strongly focused on 'Researches of Discovery' for the benefit of individuals, society, and the international community at large. It is involved in some of the most cutting edge research being carried out within the Faculty today, and its modus operandi involves thinking out of the box and pushing the envelope with regards to scientific inquiry.

The Center's experts work simultaneously with different members of the Faculty of Tropical Medicine and the Research Institute of Microbial Diseases (RIMD) at Osaka University, on projects like, 'Research and development of therapeutic products against infectious diseases, especially dengue virus infection'. Working together, they established the 'MAHIDOL-JST-JICA Friendship Laboratory' with the partial support of a 46 million baht (equipment and reagents) grant from the Japanese government. Contracted under the 'Science and Technology Research Partnership for Sustainable Development', this 4 year (2009-2012) venture is promoted by the Japan International Cooperation Agency (JICA), with technical support from experts at RIMD.

Since CEAR's inception, and like other leading investigators from Japan and the US, Dr. Pongrama has been firm in the belief that antibody development represents the future of effective therapeutics. To this end, several projects have been set up dedicated to developing therapeutic and diagnostic antibodies against tropical disease.

A US Patent was issued jointly to CEAR and Osaka University in 2011 for their development of therapeutic antibodies against dengue, for their work, 'Efficient preparation of human monoclonal antibody to neutralize all serotypes of dengue virus using peripheral blood lymphocytes from patients' (US Patent Number 3190-170). Dr. Pongrama and Dr. Ikuta managed to isolate 20 clones of human monoclonal antibodies with the capacity to neutralize all 4 serotypes of the dengue virus. The significance in terms of impact these antibodies' potential had on dengue treatment was there immediately for all to see. It was followed with a second patent for the study, 'Epitope-based vaccine with dengue virus domain II immunogens derived from the recognition region by dengue patients' peripheral blood

lymphocyte-derived human monoclonal antibodies, showing neutralization of all four serotypes of dengue virus' (US Patent Number 3190-181).

Dr. Pongrama and Dr. Ikuta's breakthrough remains significant. Their studies represent the world's first therapeutic human monoclonal antibodies against all 4 serotypes of dengue virus that can neutralize 20 clinical isolates of dengue virus (5 isolates per serotype) (*in vitro*). Their work also demonstrated the capacity to neutralize dengue in monkeys (*in vivo*), to the extent that almost all dengue-infected animals were able to survive upon treatment with the Center's newly developed human monoclonal antibodies.

This remarkable success provided a platform for further study in 2012. The Center's specialists set about further utilizing engineering technology for additional purification of these antibodies; modifying, then amplifying the human genes that code them, then inserting them as a vector into mammalian cells (thus obtaining more specific antibodies). Their efficacy was then able to be tested using animal trials. These investigations are ongoing.

Various new therapeutic and diagnostic MAbs that can be used in the diagnosis of tropical diseases – such as influenza virus, and foot-and-mouth-disease virus infections – are currently being developed by CEAR's experts using classical hybridoma and novel phage-display technologies. The research achievements of the Center are summarized in the study, 'Therapeutic and diagnostic monoclonal antibodies against tropical diseases'. Monoclonal antibodies (MAb) can now be used as a diagnostic and therapeutic tool; indeed, they have become the most expensive reagent in the world. This summary report brings together information from a number of different projects, and it stands as a marker for progress in the field to date.

Besides its exhaustive research work, the year 2012 proved a busy one in a number of other ways. The Center continued its role as an education provider, in the shape of the M.Sc. and Ph.D. programs it runs; it remains actively involved in graduate student production, in informing and instructing the next generation of investigators dedicated to antibody research. It continued to provide a host of specialist **services**, not least in dengue diagnosis using PCR at the Hospital for Tropical Medicine; 55 patients were seen last year for free, rapid diagnosis of dengue. Also, advanced equipment services were provided to over 150 members of the Faculty's staff. Teams of scientists from JICA also routinely visit the Faculty for the purposes of encouraging technology transfer, and there are special lectures by CEAR's experts and its collaborators which are open to all Faculty staff throughout the year.

There were numerous international conference presentations by its members, at the following prestigious events: the International Congress on Veterinary Sciences (ICVS 2013); the Joint International Tropical Medicine Meeting (JITMM 2012); the Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha); the 60th Annual Meeting of the Japanese Society for Virology; as well as 'Focus on Microscopy 2012', which was held in Singapore.

As a measure of the significance of CEAR's work, and the deep impact and widening recognition of the work of its researchers, Dr. Pongrama was asked to be interviewed for Thai television to talk about the success of the Center's pioneering research. His introduction began with the headline: 'The first dengue therapeutic antibodies have been developed at CEAR'.

Dr. Pongrama's own personal efforts were recognized in terms of an academic position appointment. Due to his accomplishments during his time as CEAR's Director, Dr. Pongrama was elected 'Collaborative Professor' of Osaka University. He will serve in his new role from 1 October 2012 until 30 September 2013.

Many of these developments are made possible through the efforts of CEAR's frontline researchers. One of the Center's lead investigators, **Dr. Pannamthip Pitaksajjakul**, is supported by grants from JICA, the Dean's Research Fund, and the Faculty itself. Dr. Pannamthip has been involved in the development of an H5N1 Fab human antibody diagnostic kit. The result now is that a rapid test for use in detecting and differentiating H5N1 influenza virus from other influenza viruses has gone into licensed production. A new human MAb that can be used to treat H5N1 Influenza virus remains under development, as does human MAb specific to Dengue and HIV viruses, using novel human hybridoma (SPYMEG cell) technology. Dr. Pannamthip has also been working on the production of therapeutic antibodies against Chikungunya virus (CHIKV). She emphasizes that the success of the Center rests on how much team members are willing to help each other, and on the support its members have received from the beginning from both the Faculty and from JICA.

Dr. Pannamthip Pitaksajjakul

This collaboration between experts from the Faculty of Tropical Medicine and their partners at Osaka University, working together as part of the CEAR team, continues to bear fruit. The startling advances the Center has made over such a short space of time are just one reason it now enjoys recognition not just domestically from its local partners, but also regionally in Southeast Asia, and as a lead research institution of the international scientific community.

Center of Excellence for Antibody Research (CEAR)
5th Floor, 50th Anniversary Chalermprakiat Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 2042, 66 (0) 2-306-9186
Website: http://www.tm.mahidol.ac.th/cear/

Center of Excellence **for Biomedical & Public Health Informatics (BIOPHICS)**

"Information technology has become a significant part of healthcare practice, but as yet we still lack people who can appropriately integrate IT and healthcare skills. Graduates from our programs will be able to act as a bridge between these two areas"

Asst. Prof. Dr. Jaranit Kaewkungwal
Director

The highly specialized, not-for-profit Center of Excellence for Biomedical and Public Health Informatics was established in 1999. The Center is not research-based by the standard definition; BIOPHICS' contribution to the Faculty's output is more concerned with academic services. Indeed, since its inception, it has been providing a wide variety of services relating to data analysis and management, and has been utilizing a range of 'regulated environment' data systems which adhere to US-FDA compliance standards.

Directed by **Dr. Jaranit Kaewkungwal**, the unit's functions can be separated into two distinct categories: (1) supporting long-term health informatics projects, specifically ones involving disease surveillance; and (2) clinical research data management for government groups and private pharmaceutical companies. These activities can be generalized as clinical data management (CDM) and public health informatics (PHI).

Dr. Jaranit's Center has seen marked progress over recent months. Using information from its CDM analysts, the unit's IT specialists have been able to develop fully customizable methods for biomedical study management, like respondent-driven surveys, automatic AE/SAE reporting mechanisms, and patient tracking. Concerning this last aspect, and also involving the PHI portion of its work, BIOPHICS has continued its development of cutting-edge 'mHealth' mobile technology systems – a revolutionary step in public health informatics. Assisted by **Dr. Saranath Lawpoolsri Niyom** and **Mr. Amnat Khamsiriwatchara**, the Deputy Directors of BIOPHICS, the last 12 months in particular have seen tremendous advances in this regard, and it is an area Dr. Jaranit is particularly proud of: "Our specialists host and manage a national malaria information system. Now we are able to track patients via a web-based program, which is imbedded with applications on mobile technology devices, as well as by using Geographical Information Systems (GIS) along the border in ways we were unable to before. We also work with World Health Organization (WHO) and Ministry of Public Health teams in identifying outbreaks in refugee camps."

A large part of the modern CDM work BIOPHICS undertakes is as an academic services consultant, not only for different government groups on the domestic stage like the Government Pharmaceutical Organization (GPO), and companies like Novartis, Sanofi Pasteur and Jansen Pharmaceuticals, but also for international organizations

like the Armed Forces Research Institute of Medical Sciences (AFRIMS) and the aforementioned WHO. Indeed, BIOPHICS has established a reputation for excellence in its consultancy work, providing professional insight and data management expertise in disease surveillance and in clinical trials – not least to the WHO, where staff members have assisted in archiving and managing data, and have worked on customizing a special system specifically for WHO projects. BIOPHICS' service-orientated efforts with AFRIMS have involved stepping up preparations for a future malaria vaccine.

Awards in the last 18 months include prestigious grants from the WHO, the Global Fund Round 10, as well as Bill & Melinda Gates Foundation Grand Challenges Explorations. Several of its projects are geared towards meeting the social responsibilities laid out as part of its mission, for the benefit of people in remote areas with limited access to healthcare and for other neglected minorities.

BIOPHICS is assisted by established collaborators from a number of other departments within the Faculty, including the Department of Tropical Hygiene and the Department of Social & Environmental Medicine. Dr. Jaranit: "We are one of the very few institutes in Thailand with this kind of expertise, capable of doing the work we do. We have direct access to international authorities on quality assurance, data management and statistics, and are supported by leading information technology specialists."

In terms of training, BIOPHICS remains committed to capacity-building for health personnel in Southeast Asia. This is arranged and co-ordinated in a number of ways, not least by providing the annual international 'Workshop in Public Health Informatics', short course certificates, and short-term training sessions in data management for biomedical and clinical research. Working with the Thailand Center of Excellence for Life Sciences (TCELS), BIOPHICS is an organizer of training on data standards both in biomedicine and clinical trials.

Another of the biggest successes of the last 12 months, and one cited by Dr. Saranath as a key highlight for her in recent months, has been the development of a new curriculum in Biomedical and Public Health Informatics. The program, which launched in 2012 on the back of support from the Rockefeller Foundation and in collaboration with the Department of Tropical Hygiene, offers a new graduate Diploma and an M.Sc. degree in the field (length of study: 6 months and 12 months, respectively). The programs have welcomed 19 students from 8 different countries in their first year, from: Bangladesh, Cambodia, China, Lao PDR, Myanmar, Philippines, Thailand and Vietnam. Dr. Saranath: "Health informatics is relatively new in our region. However, we need people working in this field to apply their knowledge to meet actual health concerns. These two programs aim to produce graduates who are competent in applying information technology to different health practices."

Indeed, BIOPHICS, through the direct support of the Rockefeller Foundation, have been able to offer 15 scholarships to students in its inaugural year. Dr. Saranath: "I feel strongly that these two programs in Biomedical and Health Informatics can have a large impact on the community, not just in Thailand but in other countries as well. Now, information technology has become a significant part of healthcare practice, but as yet we still lack people who can appropriately integrate IT and healthcare skills. Graduates from our programs will be able to act as a bridge between these two areas. This stands to improve health and benefit public health practice across our region."

Dr. Saranath's work in developing the curriculum involved meeting numerous challenges. It required in-depth consultation and collaboration with a variety of institutions and experts, both regional and international. These included: the University of Washington and Oregon Heath Science University from the USA; Thailand's Ministry of Public Health; the National Health Security Office (NHSO); the Health System Research Institute (HSRI); the National Electronics and Computer Technology Center (NECTEC); and the

Faculty of Medicine, Ramathibodi Hospital. Dr. Saranath: "Experts from these institutions have been helping us in the curriculum development process, and serve as guest lecturers on the two programs themselves. Indeed, this access to expertise is part of our programs' core strength."

Dr. Jaranit was also quick to cite the development of this new curriculum in Biomedical and Public Health Informatics as a standout achievement of the last 12 months. Dr. Jaranit: "As I've said previously, there was a serious educational gap in the region where no public health informatics programs were available. The Rockefeller Foundation recognized this, and chose our Faculty to develop the curriculum."

Aside from its long-term educational goals, BIOPHICS offers specific training sessions for the purposes of educating domestic as well as international researchers and institutes, about both data management and health informatics. In recent months, it has coordinated training sessions on data management methods with support from the Thailand Center of Excellence for Life Sciences, and collaborated with the University of Washington on its aforementioned annual 'Workshop on Public Health Informatics'. This workshop introduced public health informatics to public health and IT specialists from across the SEAMEO network – Cambodia, Indonesia, Lao PDR, Myanmar, Philippines, Thailand and Vietnam – as well as from Yunnan Province in China. One of its central themes involved how to go about using the latest advances in information science and technology to support public health practice, education and research.

BIOPHICS has continued to further its regional profile, as well as its presence on the international stage. It has been collaborating closely with domestic and foreign health information centers and with both governmental and non-governmental agencies. Dr Jaranit: "One of the projects in the last 12 months we are proud of concerns developing and then implementing a pilot model febrile and malaria information system for the Ministry of Health in Bhutan. We have been working closely with the authorities there in planning and implementing this prototype, and its outcomes and impact are due to be seen next year. Besides using this pilot model as a measure for moving towards malaria elimination in Bhutan, the latent goal of this initiative is to develop a generic disease management prototype. Should it prove effective, we think it can be adopted on a much broader scale for use across different regions." Other current research within the Center is focusing on linking health informatics to clinical informatics and geo-informatics, and the future agenda is planned to include animal and human health informatics as well.

In terms of the future, as well as sharing, disseminating and using basic and applied aspects of informatics in the health sciences field, BIOPHICS' mission remains focused on training and academic services. As part of its future growth, Dr. Jaranit's intention is directing capacity-building projects more towards laboratory and basic science projects. BIOPHICS will continue its role as a resource center for training (at both degree and certificate level), research and development, and as a provider of services for health informatics. Its goals of establishing standard, interoperable health information systems for tropical medicine in the region, and of being an informatics reference center of tropical medicine for public access and use, Dr. Jaranit says, marks the unit out in Southeast Asia. The vision is for BIOPHICS to continue working on developing, managing and disseminating knowledge-based management systems, as well as active disease surveillance systems of tropical disease, for the purposes of aiding clear policy and for the provision of administrative support. Dr. Jaranit: "Moving forward, our intention is clear: to further strengthen our collaborative links, and our capacity for networking with other organizations and global centers of bio-, clinical and health informatics."

Center of Excellence for Biomedical & Public Health Informatics (BIOPHICS)
3rd–4th Floor, 60th Anniversary of His Majesty the King's Accession to the Throne Building
Tel.: 66 (0) 2-354-9181-86; **Website:** http://www.biophics.org/

Dr. Tamaki Okabayashi
Head

Mahidol-Osaka **Center for Infectious Diseases (MOCID)**

"Collaboration represents a core element of MOCID's research success, and is one of the reasons such rapid advances have been made over such a short space of time; collaborations not just locally, but regionally and internationally"

The Mahidol-Osaka Center for Infectious Diseases (MOCID) was established jointly in 2010 by the Faculty of Tropical Medicine at Mahidol University and the Research Institute for Microbial Diseases (RIMD) at Osaka University.

Led by Director, **Prof. Yoshiharu Matsuura**, and Vice-Director, **Dr. Tamaki Okabayashi**, the scope of this collaborative venture covers a wide range of basic science and lab research-based topics, from genomics, replication, host-microbe interaction, to virulence factors of Thai pathogenic microbes.

Experts from Mahidol and Osaka came together as part of MOCID under the directorship of Prof. Matsuura to develop more effective rapid diagnostic kits and to study the epidemiology/pathogenesis of a variety of widespread international health concerns – not least Dengue and Chikungunya viruses (DENV/CHIKV). Specifically, it undertakes surveillance of viral disease, and carries out basic research on monoclonal antibodies and immunopathology (virus and host) for the purposes of developing effective therapeutics and diagnostics. Its specialists are involved day in, day out in the evaluation of model systems and clinical samples.

Initially funded by both Osaka University and the Japan Initiative for Global Research Network on Infectious Diseases (J-GRID), MOCID was designed to efficiently host the outputs of collaborating members from both institutions; outputs which are released for publication as well as patent application by co-authorship. It is just one of a number of highly productive Thai-Japanese collaborative projects currently under way. The aim of the two institutions remains progress towards clinical trials of prophylactic vaccines, as well as other practicable diagnostic and therapeutic products.

The focus of MOCID's expert researchers, specifically, is mosquito-borne infectious disease, and





their primary targets are Dengue and Chikungunya viruses. MOCID's collaborative team continues to work to clarify the pathogenesis of dengue virus-inducing dengue fever, as well as dengue hemorrhagic fever; both remain a leading cause of death in tropical and subtropical regions. Research continues into Chikungunya virus also, and strategies in developing diagnostics and therapeutics focus largely on the preparation of human and murine monoclonal antibodies. As Vice-Director Dr. Okabayashi, points out: "To develop treatment and understand the characteristics of these viruses, appropriate diagnoses are required. In addition, tissue cultures for isolation of clinical viruses are very useful in understanding the mechanisms of how these viruses induce disease."

Dr. Okabayashi himself arrived in Thailand in 2011; neither Dengue nor Chikungunya viruses exist in Japan. One of his main research interests involves the human skin's immune response to mosquito bites, and an *in vivo* model is used for testing mosquito salivary gland extracts on human keratinocyte cells. It is during this immune response that human macrophages become infected with Chikungunya and Dengue viruses. Investigations of this mechanism are at the core of understanding – and it is hoped, stopping – macrophage infection and subsequent clinical manifestations of both these ailments. Dr. Okabayashi and his researchers continue to strive to achieve efficacy towards this end.

Throughout the length of this special collaboration, MOCID has undertaken a number of significant projects with the Faculty of Tropical Medicine's specialist researchers. With the Center for Excellence for Antibody Research (CEAR), for example, work is ongoing on dengue virus monoclonal antibodies ('Human MAb to neutralize all DENV serotypes using lymphocytes from patients at acute phase of the secondary infection' – Settgapramote et al., BBRC, 2012), as is Chikungunya virus surveillance through the efforts of Dr. Subenya Injampa and Mr. Patthamaphong Jaiklom in their detection of CHIKV from humans and animals in Thailand.

With the Department of Tropical Pediatrics, researchers have been studying the pathogenicity of dengue virus and also vaccine development. They have been looking at antibody dynamics in dengue patients, specifically the relationship between ADE and DENV severity, with Dr. Arunee Sabchareon and Dr. Kriengsak Limkittikul. There was also a very successful training scheme at MOCID towards this end as well, run by Dr. Khuanchai Koompapong, Dr. Supawat Chatchen, and Ms. Jittraporn Pathanamahapoom.

With Dr. Ronald E. Morales and Dr. Rutcharin Potiwat from the Faculty's Department of Medical Entomology, MOCID's **Dr. Orapim Puiprom** continues to work toward more refined methods of detection of mosquito-borne viruses, and the role of salivary gland proteins in CHIKV replication.

With the Department of Microbiology & Immunology and the Department of Tropical Hygiene,

MOCID worked on the 'Detection of enteric viruses in flood water from the 2011 Thai Flood'. Indeed, all the considerable information garnered as a result of this exhaustive project by Pornsawan et al. is still in the process of being reviewed.

Also, with the Faculty of Science and the Department of Pharmacology, MOCID has been collaborating with Dr. Noppawan Phumala Morales and Ms. Samaphorn Maneethep on the pathogenicity of JE virus, and reactive oxygen species production in JEV-infected microglia.

Beyond collaborative research titles, MOCID operates broader research investigations in conjunction with Mahidol University. The Dengue Research Group, which involves such distinguished names as Dr. Pratap Singhasivanon and Dr. Pongrama Ramasoota, and Dr. Udomsak Silachamroon and Dr. Watcharapong Piyaphanee from the Hospital of Tropical Diseases, sees Mahidol University and MOCID researchers working in unison towards a molecular diagnosis of DENV/CHIKV infection.

The Collaboration Research Group on Zoonotic Diseases in Thailand involves the Faculty of Veterinary Science and the Faculty of Tropical Medicine, as well as MOCID and the Zoonotic Diseases Control Center of NIAH-Thailand. Here, MOCID continues its investigations into CHIKV and HEV.

The Enteric Group works under Dr. Yaowalark Sukthana, the current Dean of the Faculty of Tropical Medicine, and Dr. Chalit Komalamisra, and finds MOCID researches continuing their investigations into viral enteric diseases like HEV, HAV, Norovirus etc.

Collaboration represents a core element of MOCID's research success, and is one of the reasons such rapid advances have been made over such a short space of time; collaborations not just locally, but regionally and internationally.

Studies are ongoing between Indonesia, Japan, and Thailand through Airlangga University, Kobe and Osaka Universities, and MOCID at the Faculty of Tropical Medicine, Mahidol University, respectively, through their NIH-funded work on 'The generation of human monoclonal antibodies against DENV/CHIKV', and 'The development of immunochromatography rapid diagnostic kits for mosquito-borne infections with DENV and CHIKV'.

Research with MOCID's counterparts at the Primate Research Institute, Kyoto University is ongoing on the evolution of primates and microbiology. Also, at the Faculty of Veterinary Science at Rakuno Gakuen University, Hokkaido, projects of a collaborative nature on the surveillance of HEV have taken place, as have several highly successful academic exchanges – exchanges, it is hoped, that will continue long into the future.

Mahidol–Osaka Center for Infectious Diseases (MOCID)
12th Floor, 50th Anniversary Chalermprakiat Building
Tel.: 66 (0) 2-354-9156
Website: http://virology.biken.osaka-u.ac.jp/mocid/about.php

Mahidol Oxford **Tropical Medicine Research Unit (MORU)**

Prof. Dr. Nicholas Day
Director

"In September 2013, MORU and the Faculty of Tropical Medicine will be co-organizing the 7th World Melioidosis Congress"

Mahidol Oxford Tropical Medicine Research Unit (MORU) is a collaboration between the Faculty of Tropical Medicine at Mahidol University and the University of Oxford, and is supported by the Wellcome Trust, UK. MORU's central aim is to develop effective and practical means of diagnosing and treating tropical infections that are responsible for significant morbidity and mortality in populous rural areas of Asia and beyond. The main research interests are the epidemiology, diagnosis, pathophysiology and treatment of malaria, melioidosis, scrub typhus, leptospirosis and other tropical infections. With research centers, study sites and varied laboratories throughout Asia and Africa, this broad network ensures the success of MORU's capabilities.

Prof. Nicholas White, Chairman of Wellcome Trust SEA Tropical Medicine Research Units, explains that about 50-60% of MORU's focus is on malaria research, and the balance is on other infectious diseases and nutritional issues. Although global mortality from malaria has decreased by about one-third over the past 5-7 years, there are still about 2,000 deaths per day on a global scale. As such, studies continue on the epidemiology, treatment and pathophysiology of malaria in conjunction with other main infectious diseases.

Artemisinin-based combination drugs are currently the best treatment against malaria, however about five years ago, researchers working along the Thai-Cambodia border discovered that patients were showing signs of resistance to the treatment. This is a cause of great concern because it is the same location where parasites developed a resistance to chloroquine in the 1950s. At that time chloroquine was the drug used to treat malaria, and the resistance spread west to India and then Africa causing millions of deaths. In order to prevent a repeat of that outcome, much resource has been applied to the primary objective of eliminating artemisinin-resistant malaria.

The Tracking Resistance to Artemisinin Collaboration (TRAC) is a three-year project being coordinated by MORU and Oxford University. It is funded by the UK Department for International Development, and the goal is to provide information and tools to slow or halt the spread of artemisinin-resistant malaria. There are 15 sites in eight countries where the main components of the project are clinical research, assessment of demand factors, and evaluating new

approaches to vector control. Research from MORU has provided the biological, economic, and clinical basis for changing global antimalarial treatment recommendations to artemisinin combination therapies (ACTs). This is the most important development in antimalarial chemotherapy in the past fifty years.

Shoklo Malaria Research Unit (SMRU) is the major source of clinical and scientific information on *vivax* and *falciparum* malaria in pregnancy in a low transmission area, and is the main source of information on antimalarial drug treatment in pregnancy. SMRU contributed 8 of the 12 existing studies on antimalarial drugs in pregnancy and worked with 69% of all patients studied. The studies show that sub-clinical infections (with *falciparum* and also *vivax*) were causes of abortion in the first trimester of pregnancy. By using 3D ultrasound, the impact of malaria on fetal growth shows that even a single treated episode of malaria could cause a reduction in the fetal head circumference.

Although the widespread distribution of mosquito bed-nets has made a huge contribution to combating malaria, challenges still exist in other issues such as the production and availability of fake drugs. Counterfeit drugs may contain sub-standard or no active ingredient, so when patients take them, the "weaker" parasites may be killed, but the "stronger" ones will survive and may develop resistance to smaller doses of artemisinin. These patients then become carriers of this newly-developed resistance which can spread through human migration. MORU has conducted and published surveys uncovering the deadly use of fake antimalarial drugs throughout Southeast Asia and has provided simple methods for their detection.

Prof. Nicholas Day, Director of MORU, re-emphasizes the organizations goals to develop tools to detect and treat artemisinin-resistant malaria, but also to eliminate malaria altogether. This by no means minimizes the importance of research of other threats, and with their numerous international collaborations, MORU is geographically situated in an optimal position to coordinate efforts to further research on other diseases as well.

Dr. Day voiced his concern about the increasing importance for studying Melioidosis; an infectious disease found in soil and water in resource-poor environments. A survey done in Thailand showed that most people do not know what Melioidosis is, much less how it is acquired, even though it causes deaths annually in approximately ten times as many people as malaria in the country.

Current treatment recommendations based on their studies include an oral-eradicative melioidosis

antibiotic treatment using co-trimoxazole, and that no benefit was observed with ceftazidime and meropenem, the two most widely used treatments. MORU has developed the first evidence-based guidelines for the prevention of melioidosis. They have recommend that residents and visitors to melioidosis-endemic areas avoid direct contact with soil and water, outdoor exposure to heavy rain or dust clouds, refrain from consuming untreated water, and washing food to be eaten raw using boiled or bottled water.

MORU is now part of a working group of the Ministry of Public Health (MoPH), Thailand, where they define diagnostic guidelines and surveillance mechanisms for melioidosis in Thailand. In September 2013, MORU and the Faculty of Tropical Medicine will be co-organizing the 7th World Melioidosis Congress. The objective of this assembly is to support linkage between experts from all around the world by discussing, exchanging, and sharing their knowledge, experiences and opinions for mutual awareness of global threats from Melioidosis.

MORU currently has a research network that consists of three major research centers equipped with clinical research and laboratory facilities (in Thailand and Laos), numerous clinical study sites that are equipped with clinical malaria and microbiology laboratories, as appropriate (in Thailand, Laos, Myanmar, Bangladesh, Cambodia, India and the Democratic Republic of Congo), and a pharmacology laboratory for developing and conducting assays of antimalarial and anti-influenza drugs in biological fluids as well as pharmacometric data analysis (in Thailand).

International-standard BioSafety Level 3 laboratories have newly opened in Bangkok and Vientiane, as have new healthy volunteer wards at the Hospital for Tropical Diseases in Bangkok for conducting detailed pharmacokinetic and Phase I studies complying with Good Clinical Practice standards.

Statistical support and mathematical modeling groups provide extensive theoretical data on simulated complex structures, which is not only cost-effective but also informative for determining potential cause-and-effect relationships. Their comprehensive mathematical-economic model of drug resistance contributed to revised global recommendations on antimalarial drug policy.

As part of their ongoing educational services to the public, MORU provides valuable experiences through research talks, seminars, and regular group meetings. Exchange programs are available depending on the scope of research and availability of the resources at the offsite location, thus providing an ideal and interesting balance of teaching, sharing knowledge and performing research.

Mahidol Oxford Tropical Medicine Research Unit (MORU)
3rd Floor, 60th Anniversary of His Majesty the King's
Accession to the Throne Building
Tel.: 66 (0) 2-203-6333
Website: http://www.tropmedres.ac/

Mahidol Vivax Research Unit (MVRU)

Dr. Jetsumon (Sattabongkot) Prachumsri
Head

"We need to share all our expertise, because malaria research is not something any one team can do on their own. No one has the complete skillset to solve the kind of problems we are facing"

The Mahidol Vivax Research Unit, one of the youngest members of the Faculty of Tropical Medicine family, is directed by **Dr. Jetsumon (Sattabongkot) Prachumsri**. With over 100 publications in peer-reviewed journals to her name (Sattabongkot J.), and supported by a team with in excess of 30 years' experience in advanced malaria research, the Unit remains ultra-competitive and highly ambitious under Dr. Jetsumon's leadership.

Established in March 2011 with funding from the Bill & Melinda Gates Foundation for research on *Plasmodium vivax*, the central office and main laboratory are both located within the Faculty of Tropical Medicine at Mahidol University, Bangkok, with its field laboratory operating out of the Kanchanaburi campus.

With the announcement in October 2007 of the Bill & Melinda Gates Foundation's intention to eradicate malaria from the world, malaria research underwent a sea change in mood and impetus. With greater focus and more resources at the ready to fund new studies, Dr. Jetsumon, who was already in the position of having accrued 20 years' experience in the lab and field, was a natural choice to head up efforts aimed at tackling the malaria problem on the front line in Asia.

Dr. Jetsumon initially began her career in Bangkok with the Armed Forces Research Institute of Medical Sciences (AFRIMS). AFRIMS is an overseas laboratory of the Walter Reed Army Institute of Research (WRAIR), based out of Bethesda, USA. Side by side with US military researchers, she worked as Head of the Laboratory Science Section within the Department of Entomology. While her US colleagues from AFRIMS and WRAIR focused on the more virulent species of falciparum malaria, Dr. Jetsumon devoted her time to vivax malaria – a niche specialism that has made her team indispensable today. Indeed, MVRU's reputation has gone from strength to strength, and has led to collaborations with institutions from the US, Australia, China, Japan, Korea, Brazil and numerous other countries.

Dr. Jetsumon recognizes the importance of these collaborations: "We need to share all our expertise, because malaria research is not something any one team can do on their own. No one has the complete skillset to solve the kind of problems we are facing."

While a number of different methods exist as part of the development of therapeutics and vaccines targeting malaria, Dr. Jetsumon's specialist team occupy a unique position on the research landscape. Working on means of transmission and 'transmission-blocking', this research is geared towards neutralizing the parasite before it reaches humans, while it is still in the mosquito vector. Preventing infected persons from transmitting the disease to others via a vaccine of this type does not in itself prevent illness in those already suffering with the disease, but represents an opportunity – if *P. vivax* transmission is continually blocked – to lower the rate of incidence of new cases. Dr. Jetsumon and her team believe this unique, cutting-edge approach may be the most efficient way of tackling malaria moving forward.

Dr. Jetsumon's laboratory is one of an extremely select number in its having routine access to *P. vivax*-infected blood, which can be fed to Anopheles vectors. This alone marks out the MVRU as a reference laboratory for evaluation of *P. vivax* transmission-blocking candidate vaccines. Clinical evaluation of this type of vaccine efficacy can be carried out faster than other more traditional ones, which are typically delayed by various levels of administration and red tape. Measuring using just patient blood samples and mosquitoes allows Dr. Jetsumon and her team the advantage of concentrating solely on vaccine efficacy.

Traditionally, *P. vivax* researchers have faced one major obstacle to their scientific inquiries: because it only infects very young red blood cells, there remains no established method of culturing *P. vivax in vitro*. This was a challenge Dr. Jetsumon recognized from the off: "Because it continues to be so difficult to sustain in the lab, researchers are required to get samples directly from vivax malaria-infected patients. This is a big reason why Thailand remains an ideal place for vivax research." While malaria transmission in The Kingdom is low and is seasonal, 50% of all recorded cases are caused by *P. vivax*.

This accessibility has afforded Dr. Jetsumon's team particular opportunities – such as culturing *P. vivax in vitro* – right at the cutting edge, in being able to investigate a wide range of techniques in collaboration with a number of highly regarded international institutes. With funding from the Bill & Melinda Gates Foundation, a large scale collaborative project is under way, led by the University of South Florida (USF) and encompassing the Walter & Eliza Hall Institute of Medical Research (WEHI) in Australia and Nagasaki University in Japan. Each team is trying out different ways of solving the culturing problem: WEHI is using stem cell technology to generate young red blood cells; Nagasaki is attempting to use genetic modification to change this attribute of the parasite; and USF is attempting to maintain small-scale cultures of the *P. vivax* parasite. Meanwhile, Dr. Jetsumon is developing methods to optimize both the culturing environment and find a naturally-occurring isolate that's able to persist in the lab.

As well as the short term culture of *P. vivax*, MVRU specialists have undertaken routine microscopic examination of malaria parasites in human blood smear. Previous studies have also included *in vitro* culture of blood stage *P. falciparum* (with gametocyte culture), culture of ookinete, as well as culture of liver stage of the parasites.

Indeed, to support novel drug and vaccine advances, and as part of the global effort to understand the biology of transmission (such as gametocytes, sporogonic stages etc.), the MVRU has collaborated on a wide range of regional and international studies, including: malaria transmission and gametocyte dynamicity in Thailand in comparison with Brazil and Papua New Guinea; *P. vivax* liver stage biology; and malaria transmission in Asia. Emphasizing those malaria species which cause disease in Thailand, the Unit has also paid particular attention to *P. malariae* and *P. ovale*.

One of the operating strengths of the Unit is its linkages to the international community and the number of collaborations it has with 'brand name' global institutes and organizations. As mentioned, the MVRU has received funding from the Bill & Melinda Gates foundation, as well as government bodies like US NIAID, NIH, and the US Department of Defense. The Unit's full list of collaborative partners is extensive, but not limited to: the **US** (Universities of South Florida,



Georgia, California at Irvine, Pennsylvania State, the School of Public Health at Harvard, Johns Hopkins, Tulane, Seattle Biological Research Institute); **Japan** (Universities of Ehime, Nagasaki and Osaka); the **Republic of Korea** (the Korean NIH and Kangwon National University School of Medicine); **Spain** (CRESIB: Barcelona Centre for International Health Research); **Australia** (WEHI: Walter & Eliza Hall Institute); as well as the **People's Republic of China** (Jiangsu Institute of Parasitic Diseases).

The Unit is also a member of a number of malaria working groups, such as: the Steering Committee for Malaria Eradication Scientific Alliance (MESA); Scientific Member & Training Center for the Asia Pacific Malaria Elimination Network (APMEN); as well as the Transmission Blocking Vaccine Working Group.

Within Mahidol University itself, the MVRU has worked extensively with specialists from the Faculty of Science, the Faculty of Medicine at Ramathibodi Hospital, the Faculty of Medical Technology, and the Faculty of Tropical Medicine.

The year 2012 was extremely busy for the Faculty of Tropical Medicine and for Dr. Jetsumon and her team. The 'Proteomic study of *P. vivax* liver stage' was a Congressionally Directed Medical Research Program, funded in agreement with the US Department of Defense. Unlike *P. falciparum*, *P. vivax* liver stage can cause relapse infection, meaning patients can suffer more than one episode of the disease from just one bite from an infected mosquito. This project aims to use proteomic technology to study markers of liver stage *P. vivax*, which has proved extremely challenging *in vitro* in many labs in the past. While other laboratories are limited in terms of their access to vectors and parasites for *P. vivax* sporozoite production – prerequisites for initiation of liver stage *in vitro* / *ex vivo* – the MVRU is in a position to routinely produce *P. vivax*-infected mosquitoes on a large scale. Right now, it has a team focusing solely on the study of this very important stage of *P. vivax* malaria.

Elsewhere, the MVRU has continued their 'Evaluation of LAMP for malaria diagnosis', funded by the US NIH. Also the, 'Evaluation of malaria vaccine candidates *in vitro* / *ex vivo*' was a multi-institute collaborative venture, involving US NIAID, NIH, Tulane and Johns Hopkins Universities from the US, Ehime University from Japan, and WEHI from Australia.

Other research projects which are still ongoing include the 'Long term continuous culture of *P. vivax* blood stage'. Funded by the Bill & Melinda Gates Foundation, this project began in December 2010, and is scheduled to conclude in October 2013.

'The comparative epidemiology of *P. falciparum* and *P. vivax* transmission in Papua New Guinea, Thailand and Brazil', also funded by the Bill & Melinda Gates Foundation, began in December 2011 and will conclude in October 2014.

Furthermore, the MVRU is one of 15 partners coordinating the Southeast Asian Malaria Research Center. Led by Pennsylvania State University, and funded as part of the NIH-funded International Centers of Excellence in Malaria Research (ICEMR) mechanism, this 7-year project endeavors to determine the actual mechanism of malaria transmission and is collecting large amounts of immunological and epidemiological data to help towards achieving this end. Dr. Jetsumon is Project Leader of the epidemiology branch of the ICEMR, and is tasked with managing the collection of ecological, vector and molecular epidemiology data from malaria endemic areas in China, Myanmar, and her own field site in Tha Song Yang district in Tak Province, Thailand.

One of the core aims of Dr. Jetsumon's Unit remains increasing capacity for younger generations of researchers, and enhancing international collaboration between institutes specializing in different disciplines. The MVRU continues to seek to expand its capacity for training, and enhance research opportunities for junior members of the scientific research community. To this end, it has targeted funding opportunities for training, for technology exchange, and for the development of new curriculums between Mahidol University and academic institutions, for example, in America.

Dr. Jetsumon has also widened the envelope of responsibilities of the MVRU to include the training of students at Mahidol University. The MVRU provides undergraduate and graduate training in malaria research, and offers short courses for researchers from Mahidol, as well as those from other universities and centers in Thailand and abroad. Indeed, it has welcomed undergraduate students from all parts of Thailand, including Burapha University, as well as from the University of California at Irvine in the US; graduate investigators have been welcomed from Penn State University, Johns Hopkins, and Georgia from the US, and Kangwon National University School of Medicine from the Republic of Korea.

Dr. Jetsumon is forthright in her belief that trainees benefit most from taking part in real research projects early on, thus delivering a greater sense of how it feels to work as part of an active and competitive research community. Together with coordinating training sessions at her field site in Kanchanaburi for domestic and international investigators, on subjects ranging from parasite culturing to research techniques to human use protocols, the next year promises to be just as busy for Dr. Jetsumon and her team – if not more so, having accepted in October 2012 the position of Deputy Dean for Research of the Faculty of Tropical Medicine. Her responsibilities now include overseeing the consolidation of the Faculty's existing research successes, and helping to expand opportunities as it moves towards closer integration with ASEAN in 2015, as well as the global research community as a whole.

Mahidol Vivax Research Unit (MVRU)
3rd Floor, 50th Anniversary Chalermprakiat Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 2020
Website: http://www.tm.mahidol.ac.th/eng/mvru/client/main.html

Malaria Consortium Asia

Mr. Henry Braun
Director

malaria consortium
disease control, better health

"Malaria Consortium specializes in operational research, behavior change communications, surveillance, and cross-border coordination"

Malaria Consortium is one of the world's leading non-profit organizations specializing in the comprehensive control of malaria and other communicable diseases – particularly those affecting children under five. Malaria Consortium works in Africa and Southeast Asia with communities, government and non-government agencies, academic institutions, and local and international organizations, to ensure good evidence supports delivery of effective services. A primary focus for the organization is to strengthen the interface between research and implementation, practice and policy and health systems and disease control. Malaria Consortium also supports efforts to combat neglected tropical diseases (NTDs) and is seeking to integrate NTD management with initiatives for malaria and other infectious diseases.

Mr. Henry Braun is Director of Malaria Consortium's Asia Programme. Malaria Consortium's role in Asia is to provide support to national programs and partners in the Greater Mekong Sub-region (GMS), to ensure good evidence supports the delivery of effective services, while providing technical support for monitoring and evaluation of programs and activities for evidence-based decision making and strategic planning. Furthermore, Malaria Consortium also specializes in operational research, behavior change communications, surveillance, and cross-border coordination; focusing its activities in containment of artemisinin resistance, strengthening the capacity of national malaria programs in the control of malaria, and providing assistance in developing strategies and plans for pre-elimination and elimination of the disease.

Through collaboration with other partners Malaria Consortium has contributed to develop the Regional Malaria Indicator Framework (RMIF) which aims to harmonize and standardize key indicators and data points to be collected, reported, and used by countries and the sub-region overall. The Consortium is a founding member and active partner of the Asian Collaborative Training for Malaria (ACTMalaria) network and regularly contributes to curriculum refinement and facilitation of training courses including the Management of Malaria Field Operations (MMFO). The organization, along with other partners, is currently leading the development of a Monitoring, Evaluation, and Surveillance cascade training on the Regional Malaria Indicators Framework for the GMS countries (Cambodia, Lao PDR, Myanmar, Thailand, Vietnam, and Yunnan province of China).

Malaria Consortium has provided technical support to Thailand and Cambodia for the development of successful proposals, including the strategy to contain artemisinin resistance, and securing longer term funding through the Global Fund (Cambodia's Round 9 and Thailand's Round 10). Malaria Consortium has the overall monitoring and evaluation role for this project and provides technical support for strengthening surveillance and coordination to enable rapid and high quality implementation of the project. Additionally, it provides

technical assistance in behavior change communication strategy, tools development, and assessment.

Finally, Malaria Consortium provides technical assistance and management of five sub-sub recipients (Family Health International (FHI), BBC World Trust, Association of Medical Doctors Asia (AMDA), Women's Media Center (WMC), and Institut Pasteur-Cambodia (IPC) to monitor progress and ensure that goals and objectives are achieved.

Malaria Consortium Asia
8th Floor, Anekprasong Building
Tel.: 66 (0) 2-354-5628
Website: http://www.malariaconsortium.org/

Assoc. Prof. Dr. Yaowalark Sukthana
Director of TROPMED Thailand

Southeast Asian Ministers of Education Organization Regional Tropical Medicine & Public Health Network (SEAMEO TROPMED Thailand)

"The mission of SEAMEO TROPMED is to develop the capacity of individuals and institutions in delivering quality healthcare"

SEAMEO TROPMED Network was established in 1966 under the Southeast Asian Ministers of Education Organization, to work for regional cooperation on education, training and research in tropical medicine and public health. The Network's mission is to develop individual and institutional capacity for delivering quality healthcare, with the overarching aim of improving people's living conditions through relevant programs and services. To this end, it also serves as a focal point for higher education in tropical medicine and public health.

The Network's Coordinating Office is based in Bangkok, Thailand, and is headed by **Assoc. Prof. Dr. Pratap Singhasivanon** who works as its Secretary General/ Coordinator. SEAMEO TROPMED Network functions through 3 established Regional Centres, in Malaysia, the Philippines and Thailand. Each Centre is affiliated with a local academic and research institution, which provides faculty, physical facilities, and technical staff. The Network Office coordinates these 3 Centres' programs and projects to meet SEAMEO objectives. At the same time, the Network Office executes regional activities and plans, and also publishes the Southeast Asian Journal of Tropical Medicine and Public Health.

SEAMEO TROPMED Network's 3 Regional Centres are: (1) the Regional Centre for Microbiology, Parasitology & Entomology in Malaysia (at the Institute

for Medical Research, Kuala Lumpur); (2) the Regional Centre for Public Health, Hospital Administration & Occupational Health in the Philippines (at the College of Public Health, University of the Philippines); and (3) the Regional Centre for Tropical Medicine in Thailand (at the Faculty of Tropical Medicine, Mahidol University).

The Regional Centre in Thailand is overseen by **Assoc. Prof. Dr. Yaowalark Sukthana,** TROPMED Thailand's Director. Among those significant achievements from last year, TROPMED Thailand reported the participation of 189 students from 27 countries in their 5 international degree programmes; 380 fellows in attendance on its short courses; and a new training programme on school health and nutrition, which welcomed 85 participants from 13 different nations from around the world.

TROPMED Thailand contributed a number of participants to a variety of short courses organized by the Faculty of Tropical Medicine, including: four (4) participants for 'A Formal Course on Medical Malacology for Southeast Asian Countries', which was held from 9-18 July 2012; five (5) participants for the '2nd Asian Dengue Course', held from 3-7 September 2012; three (3) participants for the '10th International Training Course on the Management of Malaria', held from 10-14 September 2012; and two (2) participants for the 'Workshop on Tropical Disease Epidemiology: A Modern Approach', which was held from 14-23 May 2013. TROPMED Thailand was also represented by four (4) participants, including **Prof. Dr. Ma Sandra B. Tempongko** (Deputy Coordinator, SEAMEO TROPMED Network) to the 'World Health Summit' in Singapore, which was held on 8-10 April 2013.

Also, from a total of 23 scholarships provided by SEAMEO TROPMED Network for the reporting period 2012-2013, eight (8) were from TROPMED Thailand: two (2) Myanmar students were supported for their Ph.D. in Clinical Tropical Medicine; one (1) Myanmar and one (1) Thai student were sponsored for their Ph.D. in Tropical Medicine; and two (2) Myanmar and two (2) Thai students were funded for their M.Sc. in Tropical Medicine.

Other significant highlights of the Centre's activities last year were: (i) ongoing work on the development of an AIDS vaccine, which was voted by Time magazine as one of the Ten Medical Breakthroughs for the year 2009; (ii) its work on Influenza management; (iii) its DF/DHF cohort studies; and (iv) treatment of severe falciparum malaria in African children, which led to the revision of treatment guidelines for African children by WHO. Three (3) international conferences were organized by TROPMED Thailand last year, as well.

The new Rajanagarindra Building for Asia's Centre of Excellence for Tropical Diseases was established with Biosafety Level 3 laboratories. In addressing growing demands about a number of emerging and re-emerging public health issues, TROPMED Thailand also reported an increase in its publications output last year, based on the extensive research activities of the Centre's members.

SEAMEO TROPMED Network
7th Floor, 60th Anniversary of His Majesty the King's Accession to the Throne Building
Tel.: 66 (0) 2-354-9145 or 146; **Email:** h.braun@malariaconsortium.org
Website: http://seameotropmednetwork.org/

Vaccine Trial Centre (VTC)

"One of the major achievements in 2012 is for the first time in the world, the completion of Phase I of the study of H5N2 Avian Influenza vaccine"

Prof. Dr. Punnee Pitisuttithum
Acting Director

Vaccine Trial Centre (VTC) stands for Vitality, Team excellence, and Creativity, aptly quoted by **Prof. Punnee Pitisuttithum**, Acting Director of the Vaccine Trial Centre, to describe the culture at VTC. The Centre is responsible for research studies where the safety, immune responses and efficacy of newly developed vaccines against infectious diseases is evaluated in human volunteers.

Dr. Punnee currently oversees a variety of projects especially focusing on diseases prevalent in Thailand and Asia. To name a few, they include research in Avian Influenza, HIV/AIDS, Dengue infection, Human Papillomavirus (HPV) infection, cervical cancer and shigellosis infection.

One of the major achievements in 2012 is for the first time in the world, the completion of Phase I of the study of H5N2 **Avian Influenza** vaccine. The study is of the safety, tolerability, and immunogenicity of live attenuated influenza candidate vaccine strain in human volunteers. The strain was originally produced by the Institute of Experimental Medicine in St. Petersburg, Russia, but the Department has taken the lead in completion of Phase I, with plans to proceed to Phase II immediately. Participants in the study number from 24 in the prior year, to about 150 subjects in the coming year. If the vaccine proves to be successful, then it will be licensed for pandemic use.

The ongoing study of **HIV** Vaccine Efficacy Trial RV144 continues into Phase III Evaluation of Late Boost Strategies for HIV-uninfected participants. In conjunction with the Government of Thailand Ministry of Public Health, the Advancement of Military Medicine, Military HIV Research Program and Armed Forces Research Institute of Medical Sciences, the project aims to assess if the human immune response can be boosted with a booster shot after receiving the initial five-year dosage.

Research projects in Human Papillomavirus (**HPV**) continue in collaboration with Merck & Co., Inc. A Phase III clinical trial study is underway to Study the Immunogenicity, Tolerability, and Manufacturing Consistency of V503 (a multivalent HPV L1 virus-like particle [VLP] vaccine) in Preadolescents and Adolescents with a Comparison to Young Women. In addition, also being conducted is A Randomized, International, Double-Blinded, Controlled with GARDISILTM, Dose-Ranging, Tolerability, Immunogenicity, and Efficacy Study of a Multivalent Human Papillomavirus (HPV) L1 VLP Vaccine Administered to 16 to 26 Year Old Women.

In collaboration with the Ministry of Public Health, Department of Virology, Armed Forces Research Institute of Medical Sciences, the Vaccine Trial Centre is also part of a multi-center study to determine the efficacy of chimeric dengue vaccine (CYD14), manufactured by Sanofi Pasteur, in 2-14 year olds at Kamphaeng Phet Hospital.

The staff at the Centre is a combination of experts and is sourced according to the needs of ongoing projects. Excellence standards are maintained through capacity building, participation at international events, field experience, and continuous training sessions.

Some of the ongoing projects being undertaken by the Centre are: A Randomized, international, Double-Blinded (With In-House Blinding), Controlled With GARDASILTM, Dose-Ranging, Tolerability, Immunogenicity, and Efficacy Study of a Multivalent Human Papillomavirus (HPV) L1 Virus-Like Particle (VLP) Vaccine Administered to 16 to 26 Year Old Women – follow up

Phase III Clinical Trial to Study the Immunogenicity, Tolerability, and Manufacturing Consistency of V503 (A Multivalent Human Papillomavirus [HPV] L1 Virus-Like Particle [VLP] in Preadolescents and Adolescents (9 to 15 years old) with a Comparison to Young Women (16 to 26 years old) – follow up

Efficacy and Safety of a Novel Tetravalent Dengue Vaccine in Healthy Children Aged 2 to 14 years in Asia

Phase II safety and immunogenicity of live attenuated influenza H5 candidate vaccine strain A/17/turkey/Turkey/05/133 (H5N2) in healthy Thai volunteers

RV 305 (Randomized, Double Blind Evaluation of Late Boost Strategies for HIV uninfected Participants in the HIV Vaccine Efficacy Trial RV 144: "Aventis Pasteur* Live Recombinant ALVAC-HIV (vCP1521) Priming with VaxGen** gp120 B/E (AIDSVAX® B/E) Boosting in HIV-uninfected Thai Adults")

RV 306 (Randomized, Double Blind Evaluation of Different One-Year Boosts after Sanofi Pasteur Live Recombinant ALVAC-HIV (vCP1521) and Global Solutions for Infectious Diseases (GSID) gp120 B/E (AIDSVAX® B/E) Prime-Boost Regimen in HIV-uninfected Thai Adults)

Vaccine Trial Centre (VTC)
9th Floor, Anekprasong Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 2060#11
Website: http://www.tm.mahidol.ac.th/vtc/

WHO **Collaborating Centre for Clinical Management of Malaria**

Prof. Dr. Polrat Wilairatana
Director

The World Health Organization in collaboration with the Ministry of Public Health and Thai Government has designated the Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand as a WHO Collaborating Centre for Clinical Management of Malaria since 1996. **Prof. Polrat Wilairatana** leads the department as Director of the Centre.

The Centre focuses on five core activities:

1. Information exchange:
   - Set up standard guidelines for developing training modules for management of uncomplicated and complicated/severe malaria.
   - Provide informal exchange via research and scientific articles in journals.
2. Regular activities:
   - Act as a referral center and provide consultative services for case management of uncomplicated and complicated/severe malaria.
   - Set up and annually update standard guidelines for case management of uncomplicated and complicated/severe malaria.
3. Training:
   - Develop training modules for conducting 5 or 10 days training course on clinical management of severe malaria, thereby transferring technology and training of nationals/international for malaria endemic countries.
   - Testing of training modules thereby ensuring capacity building via education and training.
4. Research:
   - Undertake research for future improvement of case management of malaria including antimalarial drug trials, adjuvant drugs clinical pharmacology, nursing and intensive care, epidemiology of drug resistance, and related research in case management of uncomplicated and complicated/severe malaria.
   - Participate in the hospital-based and field of new rapid diagnostic kits for detection of malaria and/or complications.
   - Conduct research related to epidemiology of malaria including drug resistance and clinical management.
5. Technical collaboration:
   - Collaborate with other institutes in Thailand and other countries for research, teaching and training on malaria including case management of uncomplicated and complicated/severe malaria.
   - Organizing international and national conferences/meetings.

WHO Collaborating Centre for Clinical Management of Malaria
4th Floor, 60th Anniversary of His Majesty the King's Accession to the Throne Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 1454
Email: *polrat.wil@mahidol.ac.th*
Website: http://www.malariatraining.com/

WorldWide Antimalarial Resistance Network (WWARN) Asia Regional Centre

Mr. Jeffery Smith
Director

"WWARN hopes to improve the quality of data, encourage the scientific community to work together, and… change the course of emerging antimalarial drug resistance"

The WorldWide Antimalarial Resistance Network (WWARN) established its Asia Regional Centre at the Faculty of Tropical Medicine in March 2010. **Mr. Jeffery Smith**, Director of the Asia Region and also Coordinator of the Mekong Molecular Surveillance Network, along with **Ms. Jessica Fried**, Project Manager of the Asia Region, manage the operation of the Centre.

WWARN was founded in 2009 by a group of malaria scientists from over 50 institutions around the world, who recognized the need for a comprehensive, global surveillance system to provide early warning of the spread of drug resistant malaria parasites to vulnerable populations, particularly in Asia and Africa.

WWARN activities are focused on five distinct disciplines to improve surveillance efforts, including clinical, pharmacology, molecular, in vitro, and drug quality. These scientific groups are led by experts from institutions around the world, and have developed online tools to assist with quality assurance, data analysis, and standardization of analytic procedures. Through its Platform for Partnership, WWARN has facilitated the formation of study groups for scientists with common specific interests. Members of the study groups are invited to pool important, relevant data to address key research questions that can only be answered through a collaborative effort.

The Asia Regional Centre hosts two WWARN initiatives that play crucial roles in the fight against malaria: the Quality Assurance/Quality Control (QA/QC) Programme and the Mekong Molecular Surveillance Network (MSN). The QA/QC programme provides reference materials to laboratories routinely measuring antimalarial drugs and, together with WHO, is coordinating efforts worldwide to establish therapeutic standards for these drugs. The MSN, implemented with funding from USAID through the University of Maryland, is working with malaria molecular laboratories in the Greater Mekong Subregion. The MSN aims to increase capacity for molecular genotyping methods to enable accurate interpretation of antimalarial therapeutic efficacy surveillance results, as well as collect samples that may aid in the identification of molecular markers of parasite resistance to the artemisinin derivatives.

Through these and other initiatives, WWARN hopes to improve the quality of data, encourage the scientific community to work together to answer important questions and, through doing so, change the course of emerging antimalarial drug resistance to improve the lives of those most affected.

WorldWide Antimalarial Resistance Network (WWARN) – Asia Regional Centre
11th floor, Chamlong Harinasuta Building
Tel.: 66 (0) 2-354-9128; **Website:** www.wwarn.org

Bangkok School of **Tropical Medicine (BSTM)**

"It is a proud achievement to know that many of the graduates have important roles in society and have influenced actions, both directly and indirectly, in improving community health in their respective countries"

Assoc. Prof. Dr. Waranya Wongwit
Former Deputy Dean for Education

The Bangkok School of Tropical Medicine (BSTM) was established since the foundation of the Faculty of Tropical Medicine in 1960. At present, BSTM offers postgraduate programs from graduate diploma to doctoral levels, and all programs are taught in the English language. There are eight degreed programs, i.e. two diplomas, four master degrees and two PhD degrees, specifically related to tropical diseases and public health, and are offered to medical doctors, scientists and other interdisciplinary professions worldwide.

For over half a century, BSTM stands as a leading international organization and has produced over 3,000 students worldwide. It is a proud achievement to know that many of the graduates have important roles in society and have influenced actions, both directly and indirectly, in improving community health in their respective countries.

Prof. Dr. Sasithon Pukrittayakamee
Deputy Dean for Education

Assoc. Prof. Waranya Wongwit, former Deputy Dean for Education, is proud to announce the completion of the curriculum revision following the Thai Qualifications Framework for Higher Education (TQF). The revised curricula were implemented in all programs since the first semester of the Academic Year 2012. TQF-accredited programs emphasize interpersonal skills and responsibility, analytical and communication skills, ethical and moral development, and knowledge and cognitive skills.

The School has a substantial representation of students from many countries. Approximately 50% of all students are from other countries, and upto 95% of students in some courses are foreigners.

Financial aid is available in various forms of assistance; some programs offer tuition fee waiving. For the first time ever, the Faculty of Tropical Medicine asked Mahidol University for a tuition fee exemption in favor of one student from Myanmar. The exemption was granted for a period of three years. Approximately 22 students were awarded various types of scholarships from various national and international sources. A few sources of scholarships include Thailand International Development Cooperation Agency (TICA), Office of Higher Education Commission (OHEC), SEAMEO TROPMED Network, Deutscher Akademischer Austausch Dienst (DAAD), and the World Bank.

Over the next year, BSTM will launch at least 10 million Baht worth of scholarships to promote education for both Thai and foreign students. One of the grant categories is to give financial support to promote international exchange of students for both inbound and outbound study experiences.

In order to assist students in the transition of living in Bangkok and being successful in their studies, the School organizes numerous events throughout the year to provide orientation, promote unity, and ensure high morale. Orientation Day signifies the beginning of the academic program when students are welcome to the School and, if needed, are educated about the Thai lifestyle and cultural differences. Freshie Day coincides with the opening day of the Master and Doctorate programs, and is a networking event for students to meet each other and their educators. Wai Khru Day is a traditional holiday where gratitude and respect are paid to teachers and professors, and Sports Month is a month-long series of games and sports.

As part of their training, students are exposed to both cognitive and practical styles of teaching. In conjunction with the Department of Clinical Tropical Medicine, students now perform more ward rounds and site visits amounting to approximately four weeks in a six-month time frame at periphery hospitals. These hospitals are specifically chosen because they are not fully equipped and are a more realistic representation of facilities in a developing country.

In addition to existing collaborations for knowledge sharing, programs are also available where students can spend four weeks at a field site for clinic study in the host country. As part of the community support services, students also volunteer their time by participating in charity events and environmental protection activities such as planting trees and transplanting corals in the restoration of the coral reefs.

Prof. Sasithon Pukrittayakamee, Deputy Dean for Education, foresees great implementations in the coming years. The Mahidol University Council has recently approved two new programs, Graduate Diploma in Biomedical and Health Informatics [DBHI] and Master of Sciences in Biomedical and Health Informatics [MBHI], and plans are already underway to develop two more curricula in the field of School Health. The outcome will strengthen the School's international presence and build the student body to become more diverse. Students with non-medical backgrounds will be encouraged to enter the programs, thus preparing future generations to deal with the trans-disciplinary approach in line with current and future times.

The eight degreed programs offered by the School are:

- Graduate Diploma in Tropical Medicine and Hygiene [DTM&H]
- Master of Clinical Tropical Medicine [MCTM]
- Master of Clinical Tropical Medicine in Tropical Pediatrics [MCTM (TP)]
- Doctor of Philosophy in Clinical Tropical Medicine [PhD (CTM)]
- Master of Science in Tropical Medicine [MSc (Tropical Medicine)]
- Doctor of Philosophy in Tropical Medicine [PhD (Tropical Medicine)]
- Graduate Diploma in Biomedical and Health Informatics [DBHI]
- Master of Sciences in Biomedical and Health Informatics [MBHI]

Bangkok School of Tropical Medicine
5rd-4th Chamlong Harinasuta Building
Faculty of Tropical Medicine, Mahidol University
420/6 Rajvithi Road, Bangkok 10400, Thailand
Tel.: 66 (0) 2-354-9149, 66 (0) 2-354-9100-19 **ext.** 1532, 1533
Fax: 66 (0) 2-354-9150, 66 (0) 2-643-5579
E-mail: tmedu@diamond.mahidol.ac.th
Website: http://www.tm.mahidol.ac.th/eng/academic/aca_index.htm

Hospital for **Tropical Diseases**

"The aim remains ongoing quality improvement to reach the top standard of excellence in treatment and research in tropical medicine"

Asst. Prof. Dr. Udomsak Silachamroon
Director

The Hospital for Tropical Diseases was established by two of Mahidol University's most notable dignitaries, the late Professor Emeritus Chamlong Harinasuta and the late Professor Khunying Tranakchit Harinasuta. Commencing operations on 23 February 1961, the Hospital offered a small Outpatients Department and 20 inpatient beds.

Today, the Hospital has 250 beds, 34 medical doctors, 64 nurses, and 87 nurse assistants, all working hard to deliver care and treatment to local and regional communities. Last year, it served 83,160 outpatients and 1,779 inpatients. The Hospital has continued to expand throughout the course of its 50 year history, and it is now recognized globally as a highly specialized facility for treating patients with tropical diseases.

While the Hospital remains a specialist center for tropical disease treatment and research, it also provides general medical and pediatric services and solutions for health problems like diabetes and hypertension, together with lung, renal and liver diseases. It runs a number of expert clinics, including: Gnathostomiasis, Dermatology, Infectious Diseases, Endocrinology, Gastroenterology, Chest, Nephrology, Travel Medicine, etc.

Led by Hospital Director, **Dr. Udomsak Silachamroon**, last year saw further advances and a number of notable achievements. Chief among these was the development of the Fever Clinic. Established with the aim of serving patients with 'fever from any cause' in 2010, the clinic has started coming into its own as the number of patients has increased from 1,259 in 2011 to 1,843 in 2012. The etiology of fever among febrile patients is shown in the pie diagram.

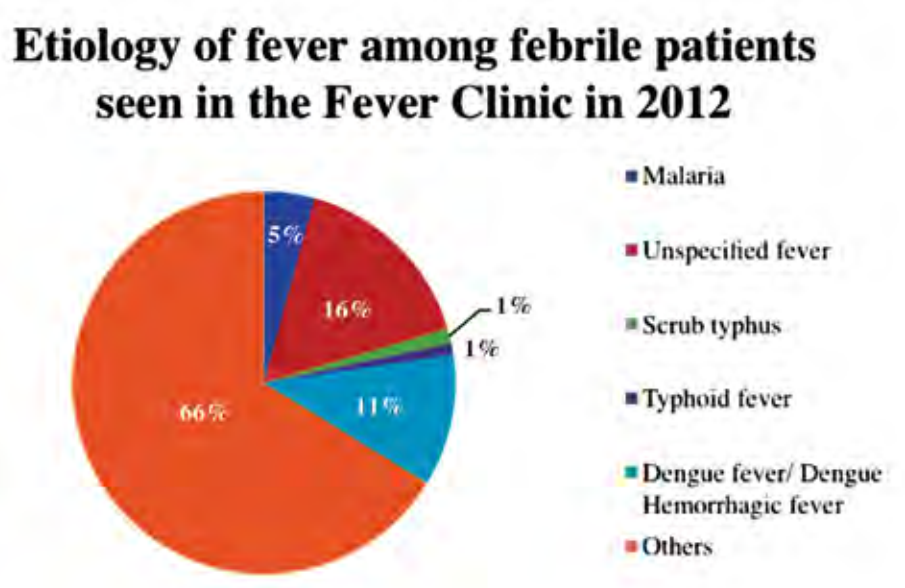
Ongoing improvements in the Hospital's Travel Clinic over the last 12 months also represent significant progress. The number of travelers attending the clinic has increased continuously year by year. In 2012, 2,581 travelers passed through its doors; 1,344 travelers visited the clinic in 2011 – representing a near 100% increase in the number of service users. Aside from this, experts from the Hospital's Travel Medicine unit published 4 original articles, including the largest rabies risk survey among travelers; this was published in the PLOS Neglected Tropical Diseases peer-reviewed journal.

Establishment of the Hospital for Tropical Diseases as an internationally-renown center for treating patients with tropical diseases has been challenging for all its teams, but 2012 saw the Hospital's leadership continue its move towards quality. One of the institution's main strategic goals is 'best quality', and the Administrative Board, the lead team, and other committees have been set up and are now fully functioning to drive the Hospital towards this end. Last year saw the Hospital achieve Step 2 on the National Hospital Accreditation program; the aim remains ongoing quality improvement to reach the top standard of excellence in treatment and research in tropical medicine.

Last but not least, August 2012 saw the completion of the Rajanagarindra Building construction process at 'Asia Center of Excellence for Tropical Diseases'. It stands as the new flagship building of the Hospital for Tropical Diseases, and will be fully operational by April 2013.

Hospital for Tropical Diseases
Rajanagarindra Building
Faculty of Tropical Medicine, Mahidol University
420/6 Rajvithi Road, Ratchathewi, Bangkok 10400, Thailand
Tel.: 66 (0) 2-306-9199; **Fax:** 66 (0) 2-306-9146;
Email: tmhospital@diamond.mahidol.ac.th
Website: http://www.tm.mahidol.ac.th/hospital/hospital-contactus-en.php

FIGURE 1:



Numbers of patients treated at the Hospital for Tropical Diseases in 2012, classified by disease.

	DISEASES	OUTPATIENT	INPATIENT
1	Falciparum malaria	22	77
2	Vivax malaria	34	136
3	Mixed Falciparum malaria and Vivax malaria	1	2
4	Unspecified fever	215	-
5	Scrub typhus	17	1
6	Typhoid fever	1	-
7	Diarrhea	128	39
8	Food poisoning	35	8
9	Hepatitis	1,865	5
10	Dengue fever/ Dengue Hemorrhagic fever	148	297
11	Taeniasis	18	1
12	Hookworm	3	-
13	Strongyloidiasis	8	-
14	Gnathostomiasis	426	-
15	Opisthorchiasis viverrini	9	-
16	Filariasis	3	3
17	Dermatitis	2,726	8
18	Tuberculosis (pulmonary)	112	8
19	HIV infection	91	1
20	Hypertension	6,608	21
21	Diabetes mellitus	2,822	25
22	Hyperlipidemia	7,787	3
23	Diseases of oral cavity, salivary gland, and jaw	261	220
24	Other diseases	59,825	924
	Total	**83,169**	**1,779**

Community **Outreach**

"To protect local communities, one of the Faculty's core aims moving forward is to be more actively aggressive in securing research funding for the purpose of supporting regional networks"

The current Dean of the Faculty of Tropical Medicine, Mahidol University, **Assoc. Prof. Dr. Yaowalark Sukthana** emphasizes in the Foreword to this Annual Review how the Faculty has been inspired and supported by its links to the community and global research partners. One of the key narratives over the past year is how the Faculty has been able to grow in strength due to the firmness of these bonds. The need to build upon our links with local people, our partners in ASEAN, and as a unified regional and international community is a clear requisite for progress on the path to sustainability and long-term growth.

Steps have already been taken to establish cross-disciplinary collaborations as part of the 'One Health' approach. Many emerging and re-emerging tropical diseases are being transmitted by human-animal-environmental interactions, so the Faculty has begun the process of drawing together and combining the collective efforts of multiple disciplines to better our understanding of the One Health triangle of people, animals, and the environment. **Assoc. Prof. Dr. Pratap Singhasivanon** stresses that it is only through sharing resources when responding to zoonotic disease-related issues, with different disciplines working together, that health issues can start to be addressed effectively. A significant achievement, not just for the Faculty but for Mahidol University as a whole, has been establishing Thailand as a One Health center for progress on this front. Being part of the One Health University Network has afforded a multitude of new international collaborative opportunities. Working in unison with Thailand's Ministry of Public Health, research findings are now in a position to be implemented at regional and national levels, and thus integrated into global health policy development.

The Faculty's links to society have been especially emboldened over the last 12-18 months due to the extensive efforts of its researchers, teachers and support staff. The **Hospital for Tropical Diseases** represents one of the Faculty's most obvious interfaces. It delivers care and treatment to local and regional communities, and last year served 83,160 outpatients and 1,779 inpatients. It provides general medical and other pediatric services, and runs various clinics: Gnathostomiasis, Dermatology, Infectious Diseases, Endocrinology, Gastroenterology, Chest, Nephrology, as well as Travel Medicine. Of particular note, numbers attending its Travel Clinic increased to 2,581 in 2012, providing the basis for a new

residency program in Traveler Medicine. Last year also saw further strengthening of the Hospital's community links in respect of its Fever Clinic, which was established with the aim of serving patients with 'fever from any cause'; the number of patients increased to 1,843 in 2012. The Hospital continues on its path towards becoming one of the world's elite health service providers, having already received Hospital Accreditation Levels 1 and 2; Level 3 assessment stands to be completed later in 2013.

The **Bangkok School of Tropical Medicine (BSTM)** continued its role as a leading provider of educational services, building on its already substantial involvement as part of the local area. The School is proud that many of its graduates – over 3,000 have passed through its doors – who have gone on to occupy various important roles internationally, influencing decisions and actions, both directly and indirectly, and improving community health in their respective countries. Last year again the School was active in encouraging students in different community support services, including volunteering for charity events, and for environmental protection activities like tree-planting and transplanting corals as part of the restoration of the coral reefs.

Much of the work carried out within the Faculty now and in the future stands to impact society on the large scale. With estimates of approximately 300,000 new dengue infections per day (estimated cases per year: 100 million), Dr. Eiji Konishi's groundbreaking vaccine studies with the **BIKEN-Endowed Department of Dengue Vaccine Development (BIKEN),** on the frontline of dengue research, underlines the ground-breaking nature of the Faculty's research efforts.

A range of new therapeutic and diagnostic monoclonal antibodies that can be used in the diagnosis of different tropical diseases continues to be developed by experts at the **Center of Excellence for Antibody Research (CEAR)**. Studies last year followed on from the major success of the Center's recent past: its patented work on the development of therapeutic antibodies against dengue. The products of this were the world's first therapeutic human monoclonal antibodies against all 4 serotypes of dengue virus that can neutralize 20 clinical isolates of dengue virus (5 isolates per serotype) (*in vitro*). The Center's mission remains 'researches of discovery' for the benefit of both individuals and wider society.

The **Center of Excellence for Biomedical and Public Health Informatics (BIOPHICS)** continued to focus its core activities on clinical data management and public health informatics, and on academic services relating to data analysis and management. Last year, the development of a new curriculum in Biomedical and Public Health Informatics, based on support from the Rockefeller Foundation and in collaboration with the Department of Tropical Hygiene, was one of the

Faculty's standout achievements. The Center's new graduate Diploma and M.Sc. degree programs welcomed 19 students from 8 different countries. Both programs stand to have a large impact on the community, not just in Thailand but as a model for other countries in Asia as well.

Specialists at the **Mahidol-Osaka Center for Infectious Diseases (MOCID)** continued to focus on mosquito-borne infectious disease, specifically dengue and chikungunya viruses (DENV/CHIKV). MOCID's collaborative team continues to work to clarify the pathogenesis of dengue virus-inducing dengue fever, as well as dengue hemorrhagic fever; both remain a leading cause of death in tropical and subtropical regions. Research continues into chikungunya virus, also. The team is involved day in, day out in the evaluation of model systems and clinical samples, with the long term aim of facilitating large-scale improvements at community level.

The **Mahidol-Oxford Tropical Medicine Research Unit (MORU)** continued its valuable work in developing effective means of diagnosing and treating morbidity- and mortality-significant tropical infections across rural communities in Asia. While global mortality from malaria has decreased by approximately one-third over the past 5-7 years, there are still an estimated 2,000 deaths per day globally. With this shocking statistic in mind, 50-60% of MORU's focus is on malaria research; the remainder is on other infectious diseases and nutritional issues. It provides ongoing educational services for public benefit, offering research talks, seminars and regular group meetings, while exchange programs are also available to facilitate knowledge sharing. MORU and the Faculty of Tropical Medicine will be co-organizing the 7th World Melioidosis Congress in September 2013. The aim here is to support collaborations between domestic and international experts by discussing, exchanging, and sharing their experiences and opinions for mutual awareness of global threats from melioidosis, and serves to underline MORU's vision of advancing high-quality care in the community.

One of the operating strengths of the **Mahidol Vivax Research Unit (MVRU)** is its linkages to the international community and the number of collaborations it has with 'brand name' global institutes and organizations. The Unit serves as a pathfinder for individuals and groups within the Faculty – with the underlying ethos of improving quality of life for people affected by the most frequently occurring and widely distributed cause of malaria, *Plasmodium vivax*. It provides undergraduate and graduate training in malaria research, and offers a variety of short courses for domestic and foreign researchers. Trainees benefit from taking part in real projects so they experience how it feels to work as part of an active and competitive research community. The Unit's focus continued to shift in 2012 as it looks to expand opportunities towards closer integration with its partners in ASEAN.

The **Vaccine Trial Centre** has established its reputation as a world pioneer for conducting vaccine trials; it has been responsible for a number of research studies affecting communities on the large scale, especially in Thailand and Asia. Its members are a combination of different experts who are sourced according to the needs of each ongoing project. Staffs undertake evaluation

of the safety, immune responses and efficacy of newly developed vaccines against infectious diseases in human volunteers. Projects over the past 12 months were focused on Avian Influenza, HIV/AIDS, Dengue infection, Human Papillomavirus (HPV) infection, cervical cancer, and shigellosis infection. Standards of excellence in the Centre are maintained to further broaden the positive impact it has had on society, via increased capacity-building, participation at international events, through

field experience, and the advanced training on offer.

The Faculty's Departments renewed efforts to further Mahidol University's community outreach operations in 2012. The Faculty has always sought to positively influence public behavior through a variety of means of local interaction, not just in terms of education, but also in building links and unifying shared goals for the purposes of long term productivity and growth.

The **Department of Clinical Tropical Medicine** has worked hard to establish a new generation of researchers who are ready to embrace the trans-disciplinary, One Health approach at international level. A key focus has been to be more active in doing research studies which have a direct impact on society and which benefit local communities. In conjunction with the Faculty of Social Sciences and Humanities, the Ministry of Public Health, and the Centers for Disease Control and Prevention, the Department has a large community project plan in Nakhon Phanom on the horizon, assessing knowledge, attitudes and practices of different communities towards influenza. Greater access to patients, once medical services are fully up and running in the new Hospital building on campus, will allow for increased services in treatment and aftercare as well.

Community services are at the core of work carried out by the **Department of Helminthology**. These include immunodiagnosis for helminthic infections, parasite exams for food and vegetable products, providing teaching materials, sharing specimens, and producing Kato-Katz Kits for quantitative stool examinations in the field. Two medical doctors from the Department also conduct routine rounds at local outpatient wards twice weekly. Recent research activities have included collaborations with several prestigious universities in Japan, the US, Taiwan and France, all of which have contributed to the Department's status in Southeast Asia as a prime location for carrying out research, and all of which are geared towards the long term goal of provision of services for the benefit of local people.

The **Department of Medical Entomology** continued its operational research activities for controlling bacteria in the community, and for checking for maximum effectiveness of potential vaccine solutions. Consultations on mosquito-borne diseases and their control measures are offered to local researchers, as well as to public health officials at home and abroad. The Department runs the Insect Vector Rearing Laboratory, which functions as a reference center for all mosquito vectors

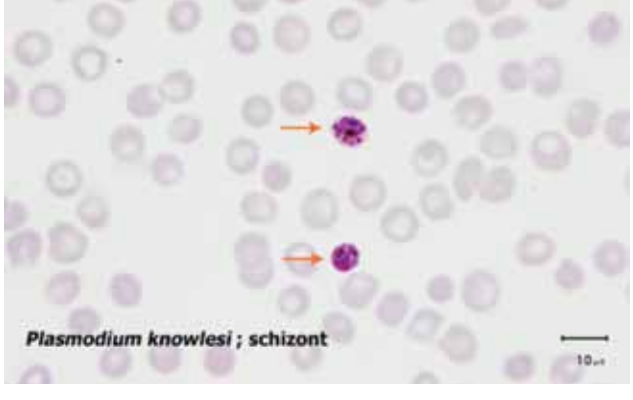
in Thailand. In-depth training on medically significant insects and arthropods is available, and different vector control services are provided on request as well. Its work remains largely service-orientated, both for private industry and wider society. The advancement of a 'DNA barcode' database of medically significant insect vectors in Thailand continues, which will help in developing control measures for use in local communities. The Department also contributes to the 'Surveillance Rapid Respond Team' of the Epidemiology Section of the Provincial Health Office of Nakhon Pathom, which was side by side with local people during the Flooding Crisis of 2011.

Last year, the **Department of Microbiology & Immunology** continued its provision of diagnostic services, including detection of a range of diverse microorganisms such as influenza viruses, contaminated aerobic bacteria and fungi in herbal medicine, enteric viruses, and antibodies against *Leptospira*. The success of its two training courses in Bacteriology and Viral Diagnosis in 2012 – which brought requests for individual training sessions and further lectures as a result – are part of the long term planning of the Department as it emboldens its commitment to research for the benefit of the community, and for sharing of knowledge to aid improvements in service provision.

The basic and molecular inquiries of the **Department of Molecular Tropical Medicine & Genetics** continued last year, not just into tropical diseases, but also in response to high priority outbreaks in Thailand. As one of the Faculty's most advanced and innovative investigative teams, its efforts on the front line of molecular and genetic research have forged strong community links locally and regionally over a number

of years now. Its experts continued this tradition in 2012, providing a range of academic services including workshops, training courses, and counseling related to molecular biology technology.

Due to societal concerns about zoonotic disease outbreaks and emerging protozoan organisms, the **Department of Protozoology** has been at the forefront of efforts in 2012 to advance the One Health approach. The Department has long recognized the importance of collaborations, and due to the compact size of its team, enjoys more personal, open-access relationships that facilitate cross-fertilization of ideas and greater transdisciplinary interchange. Members are experts in medical technology, biochemistry and protozoology; a knowledge base which fortifies the entire Faculty's



training, research, and service-orientated activities in the field of medical protozoa.

The work of the **Department of Social & Environmental Medicine** has expanded to meet the community's changing needs, and local involvement and teaching both remain core parts of its strategy. Much of the focus is on development projects, on generating Environmental & Health Impact Assessments

(EHIAs), and studying the effects of climate change and industry on regional populations. Its research activities are concentrated on community outreach, and experts continue to work towards positive impacts, whether it's establishing platforms for local stakeholders to contribute to the management of disease, or empowering communities to have influence on flood and water management in their local areas.

Experts at the **Department of Tropical Hygiene** have long sought ways interventions can be implemented in wider society, and activities over the last 12 months have included epidemiological studies on public health

problems in rural areas, as well as other community-based research work. The Department continues to focus on population-based studies and on delivery of services to the community. This is perhaps best represented by the Rajanagarindra Tropical Disease International Centre (RTIC), which it runs near the Thai-Myanmar border. The Department has been offering health services to local residents free of charge for a number of years via the RTIC and its malaria clinic. The Department offers academic consultation, and provides extracurricular academic and lab services, as well as training courses as part of its contribution to wider society.

The **Department of Tropical Nutrition and Food Science** continued its tradition of working for the benefit of both local patients and the wider public, with investigations into community nutrition, nutrigenomics and nutrigenetics, food microbiology and food safety. Investigations over the last 12 months have included the nutritional problems of vulnerable groups, employing advanced molecular biology techniques to study cancer, and the development of natural, locally-sourced products from medicinal plants.

Over the past 12 months, the **Department of Tropical Pathology** maintained its strong community bonds, not just via the research work of its members, but also through the ongoing education and training courses it provides. Its experts excel in their dual role as educators and as providers of important services for the Hospital for Tropical Diseases. These services include histopathological diagnosis, cytopathological diagnosis, autopsies, histologies, frozen sections, cytologies, core biopsies, as well as fine needle aspiration, among many others.

The **Department of Tropical Pediatrics** expanded its commitment to local and regional pediatric healthcare services, and strengthened the Faculty's links to wider society. Its researchers have made significant contributions to the advancement of knowledge in Tropical Pediatrics over the years, in areas like immunization, dengue epidemiology in Thailand, intestinal parasites, and in their clinical trials of dengue, Japanese encephalitis, influenza, and other vaccines. Dengue continues to pose a major risk to pediatric health, and a particular research highlight over the last 12 months has been its highly focused trials of dengue. The Department's 'TropMed Dengue Diagnostic Center' (TDC) continues to fight

infection via the diagnostic services it offers to patients, and in the form of its contributions to the Department's dengue-based vaccine trials.

The Faculty of Tropical Medicine has advanced significantly over the last 12 months. This success has been maintained by strong domestic associations, as well as by the prestigious partnerships it has managed to establish with international collaborators. However, big challenges lie ahead; the global economic downturn persists, while competition is on the rise due to globalization. To protect local communities, one of the Faculty's core aims moving forward is to be more actively aggressive in securing research funding for the purpose of supporting regional networks. This means taking collective responsibility with our partners in ASEAN as part of the trans-disciplinary approach, and fully utilizing existing links to push the envelope of research for the benefit of ordinary people, not just in Thailand, but beyond.

Ethics **Committee**

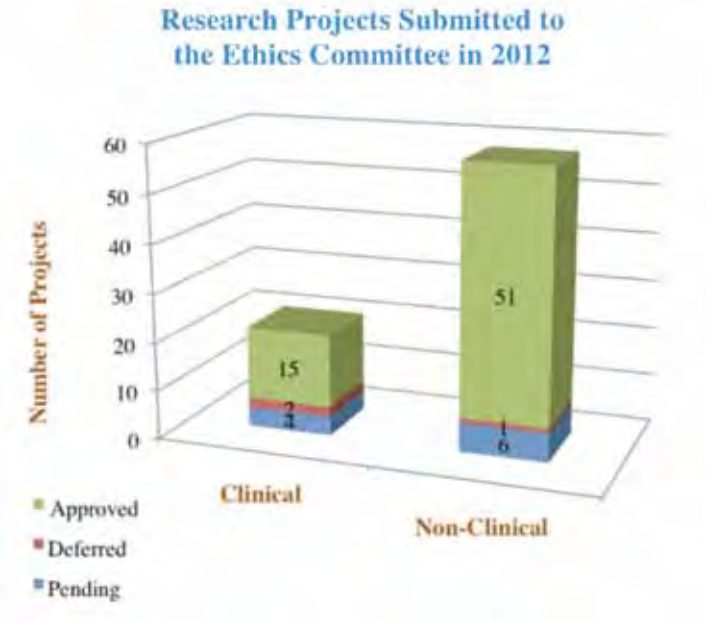
Prof. Dr. Krisana Pengsaa
Chairperson for Panel 1

Prof. Dr. Srisin Khusmith
Chairperson for Panel 2

"TropMed EC has been selected by Thai FDA to be visited, reviewed and interviewed by WHO representatives for assessment of the vaccine regulatory system in Thailand"

Established in 1993, the role of the Ethics Committee (EC) is to ensure that the rights, safety, confidentiality, and welfare of research participants are properly protected, using both national and international ethical and scientific quality standard for designing, conducting, recording and reporting. It is one of the ten Ethics Committees officially recognized by the Food and Drug Administration (FDA) of Thailand, and has received re-recognition in 2011 by the Forum for Ethical Review Committees in Asia and the Western Pacific (FERCAP).

There are two panels in the EC; Panel 1 is mandated for reviewing clinical studies, and Panel 2 for non-clinical research which includes both laboratory and field biomedical science, social science, epidemiological research, and research conducted by postgraduate students. The TropMed EC cooperates with external organizations such as the Thai Food and Drug Administration (Thai FDA), Forum of Ethical Review Committee in Thailand (FERCIT) and Institutional Review Board (IRB) of other research institutes.



Prof. Krisana Pengsaa is Chairperson for Panel 1, and **Prof. Srisin Khusmith** is Chairperson for Panel 2. The Chairs of both Panels also contribute to Mahidol University Center of Ethical Reinforcement for Human Research (MU-CERif), which was organized to be an independent office supported by the University. The main role of MU-CERif is to provide confidence to the public that all participants in research, conducted under Mahidol University, will be guaranteed human rights and welfare.

Mrs. Pornpimon Adams is Member-Secretary of the Committee and also manages the Ethics Committee Secretariat Office. The Office is the contact point for investigators and the Ethics Committee, and handles the administrative responsibilities of the Committee. They maintain documentation provided to the Committee and ensures application processes are followed for all projects submitted to the EC. In addition, the Office also organizes annual training sessions for Committee members and Faculty staff to ensure that best-practice standards are maintained.

Ethics Committee Highlights: TropMed EC has been selected by Thai FDA to be visited, reviewed and interviewed by WHO representatives for assessment of the vaccine regulatory system in Thailand.

EC members presented "Ethical Considerations for Research Involving Minority Populations in Thailand: Lessons Learnt from the Ethics Committee of the Faculty of Tropical Medicine" in the Annual FERCAP Conference and General Assembly in Sri Lanka

Prof. Dr. Srisin Khusmith, Chair of TropMed EC Panel 2, was invited as Surveyor for the SIDCER-FERCAP Survey at Medical Ethics Committee of Peking University the Sixth Hospital in Beijing, China

The Center of Ethical Reinforcement for Human Research and representatives of the four Institutional Review Boards of Mahidol University conducted an Admiring Survey to learn from and share the experiences of the FTM EC

An admiring survey was held for the four IRBs of Mahidol University to discuss and share Ethical Review Protocol

Ethics Committee Secretariat Office
Faculty of Tropical Medicine Mahidol University
4th Floor, 60th Anniversary of His Majesty the King's
Accession to the Throne Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 1349, 66 (0) 2-306-9126
Website: http://www.tm.mahidol.ac.th/RESEARCH/CLIENT/Ethics.html

Office of **the Dean**

Asst. Prof. Kasinee Buchachart, Secretary of the Faculty, manages the Office of the Dean which is a support unit whose responsibility is to facilitate the operational tasks of the Faculty. The areas of focus are teaching services, research services, and hospital services. The Office comprises of eight units: Administration and General Affairs Unit, Human Resources Unit, Finance Unit, Procurement Unit, Educational Technology Unit, Information Technology Unit, Asset Management Unit, and Legal and Property Unit.

Office of the Dean
6th Floor, 60th Anniversary of His Majesty the King's
Accession to the Throne Building
Tel.: 66 (0) 2-354-9199
Website: http://www.tm.mahidol.ac.th/eng/index-eng.php

Office of **Educational Administration (OEA)**

The Office of Education Administration (OEA) works to coordinate all of the different educational curriculums that the Faculty of Tropical Medicine offers. Its duties can be broken down into 8 general categories:

Documents & General Administration: The OEA manages all documents and registration forms, and performs general tasks such as producing handouts and photocopies. It works to facilitate communication within its own office and between other offices, and also organizes the opening and closing ceremonies for all courses.

Finance & Procurement: The OEA is responsible for making each yearly financial plan, as well as corresponding with the Faculty's various fundraisers. It handles all accounting, financial reporting, invoices and receipts, as well as inventory maintenance.

Corporate Communication: The OEA is in charge of making the School Public Relations plan, and handles all communication between the School and the general public. It manages all e-mail correspondence regarding international program information and advice given to prospective students, and is responsible for updating the School's website. It manages application submissions, verifies the enrollment of foreign applicants, and co-ordinates events such as the Faculty's open house and road shows.

Teaching & Learning Coordination: The OEA not only manages student course registration, it also coordinates all teaching and classroom timetables. It manages payment dispersal for internal and external

lecturers, and organizes special events, such as guest lecturer and student academic forums. The OEA is also responsible for the production of the Student Manual.

Registration & Teaching-Learning Evaluation: The OEA manages all student records and maintains the School's comprehensive student database (this includes both current students and alumni). As part of the process of providing high quality education to TropMed's members, one of the OEA's most important tasks involves facilitating both teacher and course evaluations, as well as organizing and assisting with the development of student research projects, and managing other ongoing projects.

Laboratory & Audio-visual Media: The OEA is responsible for coordinating all management and maintenance of laboratory facilities and equipment, which are used as tools for teaching and training.

Educational Quality Development: The OEA organizes all Education Assessment Reports and exam paper collections. It is also responsible for identifying and reporting risk factors which might hinder access to education. The OEA also organizes laboratory field trips and ensures they are in accordance with TropMed educational standards.

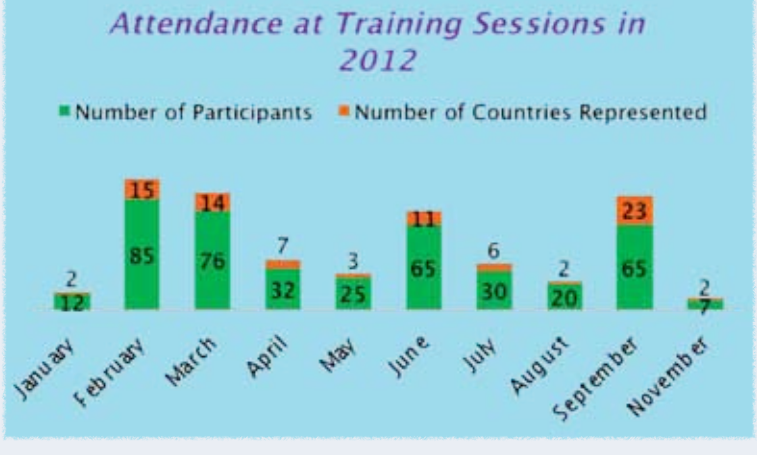
Student Activities & Student Services: The OEA develops and implements an action plan for a variety of different student activities for the purposes of enhancing and adding to the enjoyment of studying in Bangkok. It helps with the coordination of events like 'Freshie Day', the 'Welcome Field Trip', MU International Day, sporting occasions and other community service projects. The OEA organizes cultural events like Wai Khru Day and other ceremonies which involve convocation, and documents them using a range of visual media. The OEA also compiles the TropMed International Student Guide, provides visa assistance, escorts international students to health service centers, and provides information and advice about sources of available funding.

Office of Educational Administration
3rd Floor, Chamlong Harinasuta Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 1539
Email: chiraporn.pra@mahidol.ac.th

Office of **International Cooperation (OIC)**

The Office of International Cooperation (OIC) promotes, facilitates and strengthens the Faculty's international collaborative activities relating to medical science. Collaborative academic activities are encouraged through both local and international partnerships, and the Faculty is currently affiliated with more than 40 national and international leading research institutions, thereby making international collaboration a major contributing academic strength of the Faculty of Tropical Medicine.

Mr. Peerawat Maipanich, Acting Head of the Office, oversees the major responsibilities in the following areas:



International Training/Attachment

- Creates Memorandum of Understanding (MoU) and Faculty Agreements of collaborations
- Organizes training courses to international participants for diagnosis, treatment management, prevention and control of diseases
- Coordinates visits by international dignitaries and visiting professors

International Center & Local Center

- Liaison for SEAMEO TROPMED Thailand and WHO Collaborating Centre for Clinical Management of Malaria
- Liaison for SEAMEO TROPMED Network, MORU, ACIPAC, WWARN, Malaria Consortium, and Osaka University
- Contact point for international advisor/consultant and international academic peers

International Public Relations

- Provides international visibility through marketing and advertising media
- Promotes international special events
- Produces annual Administrative Reports

Administrative Affairs

- Supports and organizes requests for special projects
- Provides information for international scholarships and cultural studies/hospitality
- Oversees office administration and document management

School Health and One Health Network Office

- Manages School Health and One Health Information Hub, School Health and One Health Training Program
- Oversees School Health Curriculum Development, and School Health Research
- Administers School Model Development, School Health and One Health Website Development


Visiting delegations from various countries


Participants at training sessions


Participants on field trips


MoU signing

Office of International Cooperation (OIC)
4th Floor, 60th Anniversary of His Majesty the King's Accession to the Throne Building
Tel.: 66 (0) 2-306-9118
Website: http://www.*tm.mahidol.ac.th/ENG/TMIRU/TMIRU_INDEX.HTM*

Office of **Research Services (ORS)**

Mrs. Pornpimon Adams is Head of the Office of Research Services (ORS). The Office coordinates and supports research activities of the Faculty of Tropical Medicine to achieve Excellence in research and to retain its position as a leading research institution in Tropical Medicine. There are five units within ORS:

Research Administration:

- Notifies TropMed staff members of international and domestic funding opportunities. Assistance is provided in facilitating international grants from pre-award stage through to post-project stage. English-editing services are also provided to staff and students for documents such as journal manuscripts, presentations, reports, abstracts, etc.

Publications and Graphic Design:

- Provides website layout design for the TropMed Research office, produces ORS publications, and handles requests for a variety of communication materials.

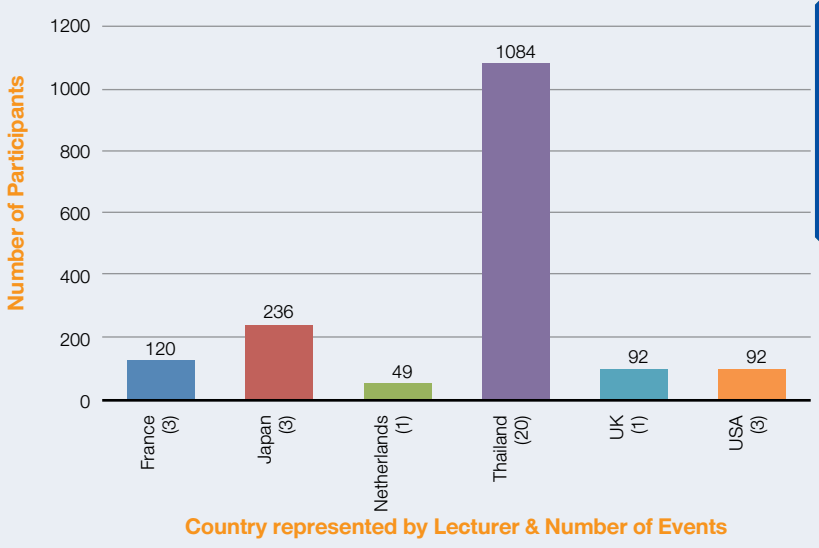
Conference and Event Planning:

- Plans, organizes and hosts national and international conferences, coordinates training workshops and ad-hoc special talks/lectures.

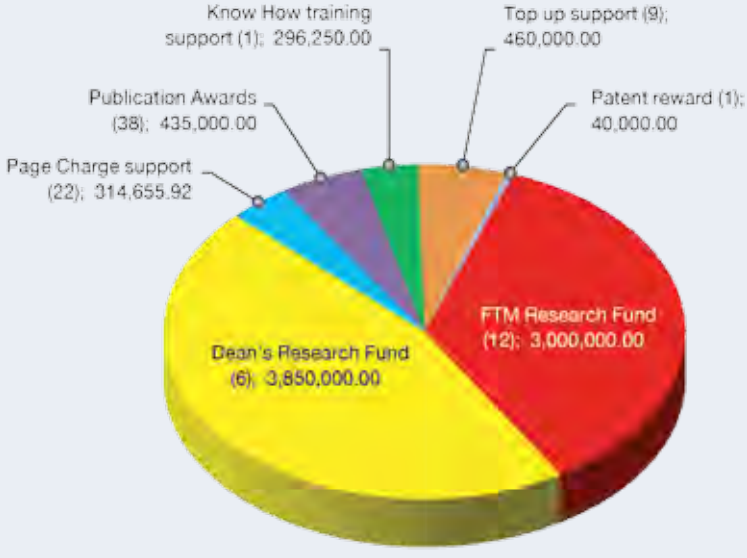
Publication Database and IT Management:

- Handles all computer programming and software installation needs, sets up video conferencing equipment, and maintains the Research website.

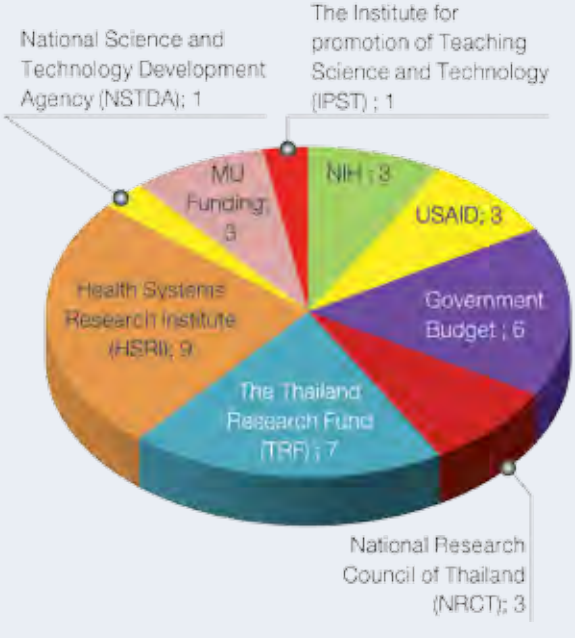
Invited Lecturers and Participants in 2012



Allocation of Funds for Research Promotion in 2012



Research Proposal Submissions in 2012



Ethics Committee Secretariat Office:

- This is the contact point for investigators and the Ethics Committee. In addition to the administrative responsibilities, the Secretariat Office maintains documentation provided to the Committee and ensures application processes are followed for all projects submitted to the Ethics Committee.

Office of Research Services (ORS)
4th Floor, 60th Anniversary of His Majesty the King's Accession to the Throne Building
Tel.: 66 (0) 2-354-9100-4 **ext.** 1524, 1525, 66 (0) 2-306-9123
Website: http://www.tm.mahidol.ac.th/research/client/ORS.html

Office of **Policy & Strategic Planning (OPS)**

Ms. Yaowapa Pratoomsuwan is Head of Office of Policy and Strategic Planning (OPS). The Office is responsible for facilitating and supporting the Faculty in various areas as noted below.

Planning and Monitoring:

- Prepare 1-year and 4-year administrative strategic plans for the Faculty
- Monitor, communicate and publish Key Performance Indicators (KPI)
- Analyze and review the Faculty's performance as an institutional research facility
- Analyze the Faculty's structure of establishment and collaboration efforts
- Coordinate and negotiate business-related budgets
- Coordinate and host meetings for organization development
- Provide data and statistics management to support executive decision-making
- Producing the Fiscal Annual Report

Budgeting and Financial Management:

- Prepare annual expense proposal and 4-year investment plan for Government support
- Set the criteria to allocate the annual budget
- Monitor and record monthly financial reports

Quality Assurance:

- Write the Faculty's Self-Assessment Report (SAR) in accordance with Mahidol University Quality Development (MUQD)
- Coordinate internal and external surveys of the Faculty
- Facilitate documentation and data recording related to Key Performance Indicators (KPI) of Mahidol University and external standards

Risk Management and Internal Audit:

- Monitor internal checks and balances system
- Estimate and report risk levels of the Faculty administration
- Facilitate internal audit of the Faculty's budget and monetary affairs

OPS Highlights:

- OPS hosted the Brainstorm of Strategic Planning Meeting in May 2012 to define the steps forward of the Faculty's role in preparation for the ASEAN Community in 2015
- Database management system called TM-HERA has been developed to centralize information for research, education, academic services and human resource development
- WOW Service Projects have been implemented to provide best service practices for administration offices in order to meet the needs of customers
- Plans for career development of academic staff have been implemented to encourage and prepare staff for promotions in their course of profession

Office of Policy & Strategic Planning (OPS)
6th Floor, 60th Anniversary of His Majesty the King's Accession to the Throne Building
Tel.: 66 (0) 2-306-9121, **ext.** 9100
Website: http://www.tm.mahidol.ac.th/eng/index-eng.php

Brainstorm Meeting

WOW Services

Appendices

Publications 2012

DEPARTMENTS

Department of Clinical Tropical Medicine

1. Blacksell SD, Paris DH, Chierakul W, Wuthiekanun V, Teeratakul A, Kantipong P, Day NPJ. Prospective Evaluation of Commercial Antibody-Based Rapid Tests in Combination with a Loop-Mediated Isothermal Amplification PCR Assay for Detection of Orientia tsutsugamushi during the Acute Phase of Scrub Typhus Infection. *Clin Vaccine Immunol* 2012 Mar;19(3):391-5.
2. Bodhidatta L, Pitisuttithum P, Chamnanchanant S, Chang KT, Islam D, Bussaratid V, Venkatesan MM, Hale TL, Mason CJ. Establishment of a Shigella sonnei human challenge model in Thailand. *Vaccine* 2012 Nov;30(49):7040-5.
3. Bonsignori M, Pollara J, Moody MA, Alpert MD, Chen X, Hwang KK, Gilbert PB, Huang Y, Gurley TC, Kozink DM, Marshall DJ, Whitesides JF, Tsao CY, Kaewkungwal J, Nitayaphan S, Pitisuttithum P, Rerks-Ngarm S, Kim JH, Michael NL, Tomaras GD, Montefiori DC, Lewis GK, DeVico A, Evans DT, Ferrari G, Liao HX, Haynes BF. Antibody-dependent cellular cytotoxicity-mediating antibodies from an HIV-1 vaccine efficacy trial target multiple epitopes and preferentially use the VH1 gene family. *J Virol* 2012 Nov;86(21):11521-32.
4. ChamnanchanuntS*, Kanagaraj D, Thanachartwet V, Desakorn V, Rojnuckarin P. Early predictors of clinicallysignificant bleeding in adults with dengue infection. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):890-9.
5. Chamnanchanunt S*, Thungthong P, Nakhakes C, Suwanban T,Iam-arunthai K. Dengue virus infection in a patient with chronic myeloid leukemia. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):900-3.
6. Chotivanich K*, Mungthin M, Ruengweerayuth R, Udomsangpetch R, Dondorp A, Singhasivanon P, Pukrittayakamee S,White NJ. The effects of serum lipids on the in vitro activity of lumefantrine and atovaquone against plasmodium falciparum. *Malar J* 2012 May;11:177.
7. Chotivanich K, Udomsangpetch R, Suwanarusk R, Pukrittayakamee S, Wilairatana P, Beeson JG, Day NPJ, White NJ*. *Plasmodium vivax* adherence to placental glycosaminoglycans. *Plos One* 2012 Apr;7(4):e34509.
8. Chupeerach C, Tungtrongchitr A, Phonrat B, Schweigert FJ, Tungtrongchitr R*, Preutthipan S. Association of Thr420Lys polymorphism in DBP gene with fat-soluble vitamins and low radial bone mineral density in postmenopausal Thai women. *Biomarkers Med* 2012 Feb;6(1):103-8.
9. De Souza MS, Ratto-Kim S, Chuenarom W, Schuetz A, Chantakulkij S, Nuntapinit B, Valencia-Micolta A, Thelian D, Nitayaphan S, Pitisuttithum P, Paris RM, Kaewkungwal J, Michael NL, Rerks-Ngarm S, Mathieson B, Marovich M, Currier JR, Kim JH, Chunsuttiwat S, Premsri N, Namwat C, Kunasol P, Thongcharoen P, Khamboonruang C, Bussaratid V, Maek-a-nantawat W, Dhitavat J, Suntharasamai P, Pungpak S, Vanijanonta S, Kaewkunwal J, Khamsiriwatchara A, Jarujareet P, Easmila C, Tabprasit S, Ngauy V, Paris R, Benenson M, Morgan P, Brown A, De Souza M, Trichavaroj R, Thaitawat N, Kongnonkok K, Keawboon B, Phuang-Ngern Y, Mason S, Gurunathan S, Tartaglia J, McNeil JG, Harkness R, Meric C, Baglyos L, El Habib R, Francis D, Lee C, Adams E, Robb ML, Milazzo M, Bolen A, Wessner B, Currier J, Birx DL, Stablein D, Germanson T, Dally L, Excler JL, Berenberg J. The Thai phase III trial (RV144) vaccine regimen induces T cell responses that preferentially target epitopes within the V2 region of HIV-1 envelope. *J Immunol* 2012 May;188(10):5166-76.
10. Desakorn V*, Wuthiekanun V, Thanachartwet V, Sahassananda D, Chierakul W, Apiwattanaporn A, Day NP, Limmathurotsakul D, Peacock SJ. Accuracy of a Commercial IgM ELISA for the Diagnosis of Human Leptospirosis in Thailand. *Am J Trop Med Hyg* 2012 Mar;86(3):524-7.
11. Duangdee C, Tangpukdee N, Krudsood S, Wilairatana P*. Use of buffy coat thick films in detecting malaria parasites in patients with negative conventional thick films. *Asian Pac J Trop Biomed* 2012 Apr;2(4):301-3.
12. Gautret P, Gaudart J, Leder K, Schwartz E, Castelli F, Lim PL, Murphy H, Keystone J, Cramer J, Shaw M, Boddaert J, von Sonnenburg F, Parola P, Pandey P, Kain KC, Burchard GD, Libman MD, Ward B, Maclean JD, McCarthy A, Connor BA, Simon F, Delmont J, Loutan L, Chappuis F, Field V, Wang A, MacDonald S, Jensenius M, DeVon CH, Gelman SS, Schlagenhauf P, Weber R, Steffen R, Caumes E, Pérignon A, Anderson N, Batchelor T, Meisch D, Carosi G, Stauffer WM, Walker PF, Wilder-Smith A, Licitra C, Crespo A, Torresi J, Brown G, Tachikawa N, Kurai H, Sagara H, Coyle CM, Wittner M, Hynes N, Bradley Sack R, McKenzie R, Perret C, Valdivieso F, Piyaphanee W, Silachamroon U, Mendelson M, Vincent P, Muller R, McLellan S, Hagmann S, Miller AO, Kass R, Doyle P, Ghesquiere W, Barnett ED, Holtom P, Goad J, Anglim A, Piper Jenks N, Kerr C, Flores-Figueroa J, Okhuysen PC. Travel-associated illness in older adults (>60 y). *J Travel Med* 2012 May-Jun;19(3):169-77.
13. Hanson J, Lam SWK, Mahanta KC, Pattnaik R, Alam S, Mohanty S, Hasan MU, Hossain A, Charunwatthana P, Chotivanich K, Maude RJ, Kingston H, Day NP, Mishra S, White NJ, Dondorp AM. Relative Contributions of Macrovascular and Microvascular Dysfunction to Disease Severity in Falciparum Malaria. *J Infect Dis* 2012 Aug;206(4):571-9.

Department of Clinical Tropical Medicine *(Continued)*

14. Haynes BF, Gilbert PB, McElrath MJ, Zolla-Pazner S, Tomaras GD, Alam SM, Evans DT, Montefiori DC, Karnasuta C, Sutthent R, Liao HX, DeVico AL, Lewis GK, Williams C, Pinter A, Fong Y, Janes H, DeCamp A, Huang Y, Rao M, Billings E, Karasavvas N, Robb ML, Ngauy V, de Souza MS, Paris R, Ferrari G, Bailer RT, Soderberg KA, Andrews C, Berman PW, Frahm N, De Rosa SC, Alpert MD, Yates NL, Shen X, Koup RA, Pitisuttithum P, Kaewkungwal J, Nitayaphan S, Rerks-Ngarm S, Michael NL, Kim JH. Immune-correlates analysis of an HIV-1 vaccine efficacy trial. *N Engl J Med* 2012 Apr;366(14):1275-86.

15. Hendriksen ICE, Ferro J, Montoya P, Chhaganlal KD, Seni A, Gomes E, Silamut K, Lee SJ, Lucas M, Chotivanich K, Fanello CI, Day NPJ, White NJ, Von Seidlein L, Dondorp AM. Diagnosis, clinical presentation, and in-hospital mortality of severe malaria in HIV-coinfected children and adults in mozambique. *Clin Inf Dis* 2012 Oct;55(8):1144-53.

16. Hendriksen ICE, Mwanga-Amumpaire J, von Seidlein L, Mtove G, White LJ, Olaosebikan R, Lee SJ, Tshefu AK, Woodrow C, Amos B, Karema C, Saiwaew S, Maitland K, Gomes E, Pan-Ngum W, Gesase S, Silamut K, Reyburn H, Joseph S, Chotivanich K, Fanello CI, Day NPJ, White NJ, Dondorp AM. Diagnosing Severe Falciparum Malaria in Parasitaemic African Children: A Prospective Evaluation of Plasma PfHRP2 Measurement. *PLoS Med* 2012 Aug;9(8):1001297.

17. Htun WL, Bowonwatanuwong C, Phonrat B, Pitisuttithum P*. Long term outcomes of nevirapine containing antiretroviral therapy at a center in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):860-70.

18. Karasavvas N, Billings E, Rao M, Williams C, Zolla-Pazner S, Bailer RT, Koup RA, Madnote S, Arworn D, Shen XY, Tomaras GD, Currier JR, Jiang M, Magaret C, Andrews C, Gottardo R, Gilbert P, Cardozo TJ, Rerks-Ngarm S, Nitayaphan S, Pitisuttithum P, Kaewkungwal J, Paris R, Greene K, Gao HM, Gurunathan S, Tartaglia J, Sinangil F, Korber BT, Montefiori DC, Mascola JR, Robb ML, Haynes BF, Ngauy V, Michael NL, Kim JH, de Souza MS, Collaboration MT. The Thai Phase III HIV Type 1 Vaccine Trial (RV144) Regimen Induces Antibodies That Target Conserved Regions Within the V2 Loop of gp120. *Aids Res Hum Retrovir* 2012 Nov;28(11):1444-57.

19. Kim JR, Nandy A, Maji AK, Addy M, Dondorp AM, Day NPJ, Pukrittayakamee S, White NJ, Imwong M*. Genotyping of *plasmodium vivax* reveals both short and long latency relapse patterns in kolkata. *Plos One* 2012 Jul;7(7):e39645.

20. Limmathurotsakul D*, Turner EL, Wuthiekanun V, Thaipadungpanit J, Suputtamongkol Y, Chierakul W, Smythe LD, Day NPJ, Cooper B, Peacock SJ. Fool's gold: Why imperfect reference tests are undermining the evaluation of novel diagnostics: A reevaluation of 5 diagnostic tests for leptospirosis. *Clin Infect Dis* 2012 Aug;55(3):322-31.

21. Luvira V*, Chamnanchanunt S, Bussaratid V, Leaungwutiwong P, Pitisuttithum P. Seroprevalence of latent cytomegalovirus infection among elderly Thais. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1419-25.

22. Mahavanakul W, Nickerson EK, Srisomang P, Teparrukkul P, Lorvinitnun P, Wongyingsinn M, Chierakul W, Hongsuwan M, West TE, Day NP, Limmathurotsakul D, Peacock SJ. Feasibility of Modified Surviving Sepsis Campaign Guidelines in a Resource-Restricted Setting Based on a Cohort Study of Severe S. Aureus Sepsis. *PLoS One* 2012 Feb;7(2):e29858.

23. Matys K, Mallary S, Bautista O, Vuocolo S, Manalastas R, Pitisuttithum P, Saah A. Mother-Infant Transfer of Anti-Human Papillomavirus (HPV) Antibodies following Vaccination with the Quadrivalent HPV (Type 6/11/16/18) Virus-Like Particle Vaccine. *Clin Vaccine Immunol* 2012 Jun;19(6):881-5.

24. Montefiori DC, Karnasuta C, Huang Y, Ahmed H, Gilbert P, de Souza MS, McLinden R, Tovanabutra S, Laurence-Chenine A, Sanders-Buell E, Moody MA, Bonsignori M, Ochsenbauer C, Kappes J, Tang HL, Greene K, Gao HM, LaBranche CC, Andrews C, Polonis VR, Rerks-Ngarm S, Pitisuttithum P, Nitayaphan S, Kaewkungwal J, Self SG, Berman PW, Francis D, Sinangil F, Lee C, Tartaglia J, Robb ML, Haynes BF, Michael NL, Kim JH. Magnitude and Breadth of the Neutralizing Antibody Response in the RV144 and Vax003 HIV-1 Vaccine Efficacy Trials. *J Infect Dis* 2012 Aug;206(3):431-41.

25. Paris R, Bejrachandra S, Thongcharoen P, Nitayaphan S, Pitisuttithum P, Sambor A, Gurunathan S, Francis D, Ratto-Kim S, Karnasuta C, de Souza MS, Polonis VR, Brown AE, Kim JH, Stephens HA. HLA class II restriction of HIV-1 clade-specific neutralizing antibody responses in ethnic Thai recipients of the RV144 prime-boost vaccine combination of ALVAC-HIV and AIDSVAX ® B/E. *Vaccine* 2012 Jan;30(5):832-6.

26. Piyaphanee W*, Kittitrakul C, Lawpoolsri S, Gautret P, Kashino W, Tangkanakul W, Charoenpong P, Ponam T, Sibunruang S, Phumratanaprapin W, Tantawichien T. Risk of Potentially Rabid Animal Exposure among Foreign Travelers in Southeast Asia. *PLoS Neglect Trop Dis* 2012 Sep;6(9):1852.

27. Piyaphanee W*, Olanwijitwong J, Kusolsuk T, Silachamroon U. Awareness, practices, and health problems of backpackers traveling during flooding in Thailand during 2011. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1193-200.

28. Piyaphanee W*, Steffen R, Shlim DR, Gherardin T, Chatterjee S. Travel Medicine for Asian Travelers—Do We Need New Approaches? *J Travel Med* 2012 Dec;19(6):335-7. (Review)

29. Pongponratn E, Ponmmano O, Chaisri U, Viriyavejakul P, Wilairatana P*. Plasmodium malariae-infected erythrocytes in the peripheral blood, liver, stomach and duodenum: an ultrastructural study. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1080-6.

Department of Clinical Tropical Medicine *(Continued)*

30. Punsawad C, Krudsood S, Maneerat Y, Chaisri U, Tangpukdee N, Pongponratn E, Nantavisai K, Udomsangpetch R, Viriyavejakul P*. Activation of nuclear factor kappa B in peripheral blood mononuclear cells from malaria patients. *Malar J* 2012 Jun;11:191.

31. Ramutton T, Hendriksen IC, Mwanga-Amumpaire J, Mtove G, Olaosebikan R, Tshefu AK, Onyamboko MA, Karema C, Maitland K, Gomes E, Gesase S, Reyburn H, Silamut K, Chotivanich K, Promnares K, Fanello CI, Von Seidlein L, Day NP, White NJ, Dondorp AM, Imwong M*, Woodrow CJ*. Sequence variation does not confound the measurement of plasma PfHRP2 concentration in African children presenting with severe malaria. *Malar J* 2012 Aug;11:276.

32. Robb ML, Rerks-Ngarm S, Nitayaphan S, Pitisuttithum P, Kaewkungwal J, Kunasol P, Khamboonruang C, Thongcharoen P, Morgan P, Benenson M, Paris RM, Chiu J, Adams E, Francis D, Gurunathan S, Tartaglia J, Gilbert P, Stablein D, Michael NL, Kim JH. Risk behaviour and time as covariates for efficacy of the HIV vaccine regimen ALVAC-HIV (vCP1521) and AIDSVAX B/E: A post-hoc analysis of the Thai phase 3 efficacy trial RV 144. *Lancet Infect Dis* 2012 Jul;12(7):531-7.

33. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon P, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P*, Ikuta K*. Human monoclonal antibodies to neutralize all dengue-virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul;423(4):867-72.

34. Songthap A, Pitisuttithum P*, Kaewkungwal J, Fungladda W, Bussaratid V. Knowledge, attitudes, and acceptability of a human papilloma virus vaccine among students, parents and teachers in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Mar;43(2):340-53.

35. Sungkanuparph S, Win MM, Kiertiburanakul S, Phonrat B, Maek-A-Nantawat W. HIV-1 drug resistance at virological failure versus immunological failure among patients failing first-line antiretroviral therapy in a resource-limited setting. *Int J STD AIDS* 2012 May;23(5):316-8.

36. Suriyaprom K, Phonrat B, Chuensumran U, Tungtrongchitr A, Tungtrongchitr R*. Association of *HTTLPR* and *5-HT*(2A) T102C polymorphisms with smoking characteristics and anthropometric profiles of Thai males. *Genet Mol Res* 2012 Oct;11(4):4360-9.

37. Tangpukdee N, Krudsood S, Kano S, Wilairatana P*. Falciparum malaria parasitemia index for predicting severe malaria. Int J Lab Hematol 2012 Jun;34(3):320-7.

38. Than NN, Sungkanuparph S, Maek-A-Nantawat W, Kaewkungwal J, Pitisuttithum P. Comparison of clinical outcomes between HIV-infected patients with and without HCV co-infection in a resource-limited setting. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):646-51.

39. Utennam D, Tungtrongchitr A, Phonrat B, Tungtrongchitr R*, Preutthipan S. Association of T869C gene polymorphism of transforming growth factor-β1 with low protein levels and anthropometric indices in osteopenia/osteoporosis postmenopausal Thai women. *Genet Mol Res* 2012 Jan;11(1):87-99.

40. Valecha N, Krudsood S, Tangpukdee N, Mohanty S, Sharma SK, Tyagi PK, Anvikar A, Mohanty R, Rao BS, Jha AC, Shahi B, Singh JPN, Roy A, Kaur P, Kothari M, Mehta S, Gautam A, Paliwal JK, Arora S, Saha N. Arterolane maleate plus piperaquine phosphate for treatment of uncomplicated *plasmodium falciparum* malaria: A comparative, multicenter, randomized clinical trial. *Clin Infect Dis* 2012 Sep;55(5):663-71.

41. West TE, Chierakul W, Chantratita N, Limmathurotsakul D, Wuthiekanun V, Emond MJ, Hawn TR, Peacock SJ, Skerrett SJ. Toll-like receptor 4 region genetic variants are associated with susceptibility to melioidosis. *Genes Immun* 2012 Jan;13(1):38-46.

42. Wilailak S, Vipupinyo C, Suraseranivong V, Chotivanich K, Kietpeerakool C, Tanapat Y, Therasakvichya S, Hamontri S, Linasmita V, Bunyapipat S, Chindavijak S, Ittiwisavakul K, Khemapech N, Suekwattana P, Thanapprapasr D, Lumbiganon P. Depot medroxyprogesterone acetate and epithelial ovarian cancer: A multicentre case-control study. *BJOG* 2012 May;119(6):672-7.

43. Wilairatana P, Ho TXH, Tangpukdee N. Intestinal helminthic infections associated with severity of falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):141. (Meeting abstract)

44. Wilairatana P, Krudsood S, Tangpukdee N. Liver profile changes in patients with ovale malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):222. (Meeting abstract)

45. Wilairatana P, Pongponratn E. Liver in scrub typhus. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)

46. Wilairatana P, Radomyos P. Liver fluke and intestinal parasitic infections in Thai workers. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):140. (Meeting abstract)

47. Wilairatana P, Tangpukdee N, Krudsood S. Bilirubin cut-off level to predict fatal outcome of severe falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)

48. Wilairatana P, Tangpukdee N, Krudsood S. Gastritis: common finding in dyspeptic patients with falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):406. (Meeting abstract)

Department of Clinical Tropical Medicine *(Continued)*

49. Wilairatana P, Tangpukdee N, Krudsood S. Gastrointestinal manifestations of falciparum malaria patients. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):141. (Meeting abstract)

50. Wilairatana P, Tangpukdee N, Krudsood S. Liver function tests in patients with malariae malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)

51. Wilairatana P, Tangpukdee N, Krudsood S. Liver function tests in fatal patients with severe falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):222. (Meeting abstract)

52. Wilairatana P, Tangpukdee N, Krudsood S. Liver function tests in patients with vivax malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)

53. Wilairatana P, Tangpukdee N, Krudsood S. Retrograding of intestinal ascariasis in cerebral malaria: A case report. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):387. (Meeting abstract)

54 Wilairatana P, Tangpukdee N, Radomyos P. Intestinal parasitic infection in marginalized people at Thai-Myanmar border. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):140. (Meeting abstract)

55. Win KKYK, Thanachartwet V*, Wattanagoon Y, Jerraksuwan S, Ruangweerayut R, Desakorn V. Factors associated with acute renal failure in adults with severe falciparum malaria. *Southeast Asian J Tropical Med Public Health* 2012 Sep;43(5):1071-9.

Department of Helminthology

1. Adisakwattana P, Nuamtanong S, Yenchitsomanus P, Komalamisra C, Meesuk L. Degradation of human matrix metalloprotease-9 by secretory metalloproteases of *Angiostrongylus cantonensis* infective stage. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1105-13.

2. Chaisiri K, Chaeychomsri W, Siruntawineti J, Ribas A, Herbreteau V, Morand S. Diversity of gastrointestinal helminths among murid rodents from northern and northeastern Thailand. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):21-8.

3. Lapcharoen P, Komalamisra N, Rongsriyam Y, Wangsuphachart V, Dekumyoy P, Prachumsri J, Kajla MK, Paskewitz SM. Investigations on the role of a lysozyme from the malaria vector Anopheles dirus during malaria parasite development. *Dev Comp Immunol* 2012 Jan;36(1):104-11.

4. Luvsansharav UO, Hirai I, Nakata A, Imura K, Yamauchi K, Niki M, Komalamisra C, Kusolsuk T, Yamamoto Y. Prevalence of and risk factors associated with faecal carriage of CTX-M β-lactamase-producing Enterobacteriaceae in rural Thai communities. *J Antimicrob Chemother* 2012 Jul;67(7):1769-74.

5. Maipanich W, Yoonuan T, Thaenkham U, Komalamisra C, Singhasivanon P, Adams PR. Houseflies: a Possible Transport Host of *Angiostrongylus* sp. *J Trop Med Parasitol* 2012 Jun;35(1):22-6.

6. Nuamtanong S, Dekumyoy P, Adisakwattana P*. Evaluation of recombinant serine protease inhibitor from *Trichinella spiralis* for immuno-diagnosis of swine trichinosis. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1094-104.

7. Pakdee W*, Thaenkham U, Dekumyoy P, Sa-nguankiat S, Maipanich W, Pubampen S. Genetic differentiation of *Strongyloides stercoralis* from two different climate zones revealed by 18S ribosomal DNA sequence comparison. *Southeast Asian J Trop Med Publc Health* 2012 Nov;43(6):1333-8. (Research note)

8. Piyaphanee W*, Olanwijitwong J, Kusolsuk T, Silachamroon U. Awareness, practices, and health problems of backpackers traveling during flooding in Thailand during 2011. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1193-200.

9. Ribas A, Veciana M, Chaisiri K, Morand S. *Protospirura siamensis* n. sp. (Nematoda: Spiruridae) from rodents in Thailand. *Syst Parasitol* 2012 May;82(1):21-7.

10. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon P, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P*, Ikuta K*. Human monoclonal antibodies to neutralize all dengue-virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul;423(4):867-72.

11. Tewawong N, Pitaksajjkul P, Dekumyoy P, Ekpo P, Ramasoota P*. Mimotope identification using phage displayed random peptide libraries against monoclonal antibodies specific to house dust mite. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):614-23.

12. Thaenkham U*, Blair D, Nawa Y, Waikagul J. Families Opisthorchiidae and Heterophyidae: Are they distinct? *Parasitol Int* 2012 Mar;61(1):90-3.

13. Thaenkham U, Pakdee W, Nuamtanong S, Maipanich W, Pubampen S, Sa-nguankiat S, Komalamisra C*. Population structure of *Angiostrongylus cantonensis* (Nematoda: metastrongylidae) in Thailand based on PCR-RAPD markers. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):567-73.

14. Veciana M, Chaisiri K, Morand S, Ribas A. Helminths of the Asian house shrew *Suncus murinus* from Cambodia. *Cambodian Journal of Natural History* 2012 Dec;2:115-122.

Department of Medical Entomology

1. Apiwathnsorn C*. Climate change and mosquito vectors. *J Trop Med Parasitol* 2012 Dec;35(2):78-85. (Review)
2. Apiwathnasorn C*. Literature review of parasitoids of filth flies in Thailand: a list of species with brief notes on bionomics of common species. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):48-54.
3. Chamavit P, Komalamisra N, Apiwathnasorn C. Insecticide Susceptibility of Aedes aegypti in Lop Buri,Phetchaburi, Prachin Buri, Surat Thani and Bangko, Thailand. *Journal of Health Science* 2012 May-June;21(3):467-76.
4. Changbunjong T, Weluwanarak T, Ratanakorn P, Maneeon P, Ganpanakngan M, Apiwathnasorn C, Sungvornyothin S, Sriwichai P, Sumruayphol S, Rungsittichai J*. Distribution and abundance of stomoxyini flies (Diptera: Muscidae) in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1400-10.
5. Changbunjong T, Weluwanarak T, Toawan N, Suksai P, Sedwisai P, Chamsai T, Jirapattharasate J, Sungpradit S, Samung Y, Ratanakonr P. Monquito distribution and West Nile virus infection in zoos and and in important sites of migratory and resident birds, Thailand. *Asian Pacific Journal of Tropical Disease* 2012 Aug;2(4):268-72.
6. Dieng H, Saifur R GM, Ahmad AH, Salmah MR C, Aziz AT, Satho T, Miak F, Jaal Z, Abubakar S, Morales RE. Unusual developing sites of dengue vectors and potential epidemiological implications. *Asian Pacific J Trop Biomedicine* 2012 Mar;2(3):228-32.
7. Lapcharoen P, Komalamisra N, Rongsriyam Y, Wangsuphachart V, Dekumyoy P, Prachumsri J, Kajla MK, Paskewitz SM. Investigations on the role of a lysozyme from the malaria vector Anopheles dirus during malaria parasite development. *Dev Comp Immunol* 2012 Jan;36(1):104-11.
8. Maneethep S, Morales Vargas RE, Sanvarinda Y, Phumala Morales N. Effect of Iron on LPS Induced Free Radical Production in Microglia cells. *Thai J Pharmacol* 2012 Dec;34(1):159-63.
9. Patramool S, Choumet V, Surasombatpattana P, Sabatier L, Thomas F, Thongrungkiat S, Rabilloud T, Boulanger N, Biron DG, Missé D. Update on the proteomics of major arthropod vectors of human and animal pathogens. *Proteomics* 2012 Dec;12(23-24):3510-23.
10. Pemo D, Komalamisra N*, Sungvornyothin S, Attrapadung S. Efficacy of three insecticides against Anopheles dirus and Anopheles minimus the major malaria vectors, in Kanchanaburi province Thailand. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1339-45.
11. Phanpoowong T, Lek-Uthai U, Thongrungkiat S, Komalamisra N, Srisawat R, Russell B, Renia L. Research note. Dengue-2 virus carrying capacity of Thai *Aedes aegypti* strains with different susceptibility to deltamethrin. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):634-40.
12. Prummongkol S, Panasoponkul C, Apiwathnasorn C, Lek-Uthai U. Biology of Culex sitiens, a predominant mosquito in Phang Nga, Thailand after a tsunami. *J Insect Sci* 2012 Jan;12:11.
13. Rojruthai S, Klunreaungsang R, Adisaimontri S, Samung Y, Bunjun B. *Culex spp*. Mosquito larva control by appling novaluron in polluted water. *Disease Control Jounral* 2012 Apr-Jun;38(2):138-46.
14. Ruangsittichai J. DNA Barcode and Application of Medical Entomology Reasearch. *Ramkhamhaeng research Jounral of Sciences and Technology* 2012 Jul-Dec;15(2):26-31.
15. Saifur GM R, Hasan AA, Dieng H, Ahmad H, Salman MD RC, Satho T, SAAD AR, Vargas EM R. Update on Temporal and Spatial Abundance of Dengue Vectors in Penang, Malaysia. *J Am Mosq Control Assoc* 2012 Jun;28(2):84-92.
16. Srisawat R*, Komalamisra N, Apiwathnasorn C, Paeporn P, Roytrakul S, Rongsriyam Y, Eshita Y. Field -collected permethrin-resistant Aedes aegypti from central Thailand contain point mutatioms in the domain IIS6 of the sodium channel gene (kdr). *Southeast Asian J trop Med Public Health* 2012 Nov;43(6):1380-6. (Research note)
17. Sriwichai P, Rongsiryam Y, Jariyapan N, Sattabongkot J, Apiwathnasorn C, Nacapunchai D, Paskewitz S. Cloning of a trypsin-like serine protease and expression patterns during plasmodium falciparum invasion in the mosquito, anopheles dirus (peyton and harrison). *Arch Insect Biochem Physiol* 2012 Aug;80(3):151-65.
18. Thipaksorn A, Apiwathnasorn C, Ruangsittichai J*. Modified molecular techniques for detection rice Odonate insects in Thailand. *Mun Ent Zool* 2012 Jun;7(2):852-6.
19. Thongrungkiat S*, Wasinpiyamongkol L, Maneekan P, Prummongkol P, Samung Y. Research note. Natural transovarial dengue virus infection rate in both sexes of dark and pale forms of *Aedes aegypti* from an urban area of Bangkok, Thailand. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1146-52.
20. Wasinpiyamongkol L, Patramool S, Thongrungkiat S, Maneekan P, Sangmukdanan S, Missé D, Luplertlop N*. Protein expression in the salivary glands of dengue-infected *Aedes aegypti* mosquitoes and blood-feeding success. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1346-57.

Department of Microbiology & Immunology

1. Bunupuradah T, Ubolyam S, Hansudewechakul R, Kosalaraksa P, Ngampiyaskul C, Kanjanavanit S, Wongsawat J, Luesomboon W, Pinyakorn S, Kerr S, Ananworanich J, Chomtho S, van der Lugt J, Luplertlop N, Ruxrungtham K, Puthanakit T. Correlation of selenium and zinc levels to antiretroviral treatment outcomes in Thai HIV-infected children without severe HIV symptoms. *Eur J Clin Nutr* 2012 Aug;66(8):900-5.
2. Chantratita N*, Tandhavanant S, Wikraiphat C, Trunck LA, Rholl DA, Thanwisai A, Saiprom N, Limmathurotsakul D, Korbsrisate S, Day NPJ, Schweizer HP, Peacock SJ. Proteomic analysis of colony morphology variants of Burkholderia pseudomallei defines a role for the arginine deiminase system in bacterial survival. *J Proteomics 2012 Jan;75(3):1031-42*.
3. Frickmann H, Chantratita N, Gauthier YP, Neubauer H, Hagen RM. Discrimination of *Burkholderia mallei/pseudomallei* from *Burkholderia thailandensis* by sequence comparison of a fragment of the ribosomal protein S21 (rpsU) gene. *Eur J Microbiol Immunol* 2012 Jun; 2(2):150-58.
4. Grundmann F, Dill V, Dowling A, Thanwisai A, Bode E, Chantratita N, Ffrench-Constant R, Bode HB. Identification and isolation of insecticidal oxazoles from *Pseudomonas* spp. *Beilstein J Org Chem* 2012 May;8:749-52.
5. Hirayasu K, Ohashi J, Kashiwase K, Hananantachai H, Naka I, Ogawa A, Takanashi M, Satake M, Nakajima K, Parham P, Arase H, Tokunaga K, Patarapotikul J, Yabe T. Significant Association of KIR2DL3-HLA-C1 Combination with Cerebral Malaria and Implications for Co-evolution of KIR and HLA. *PLoS Pathog* 2012 Mar;8(3):e1002565.
6. Luvira V*, Chamnanchanunt S, Bussaratid V, Leaungwutiwong P, Pitisuttithum P. Seroprevalence of latent cytomegalovirus infection among elderly Thais. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1419-25.
7. Panaampon J, Ngaosuwankul N, Suptawiwat O, Noisumdaeng P, Sangsiriwut K, Siridechadilok B, Lerdsamran H, Auewarakul P, Pooruk P, Puthavathana P. A novel pathogenic mechanism of highly pathogenic avian influenza H5N1 viruses involves hemagglutinin mediated resistance to serum innate inhibitors. *Plos One* 2012 May;7(5):e36318.
8. Paveenkittiporn W, Dejsirilert S, Kalambaheti, T*. Genetic speciation of environmental *Legionella* isolates in Thailand. *Infect Genet Evol* 2012 Oct;12(7):1368–76.
9. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon P, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P*, Ikuta K*. Human monoclonal antibodies to neutralize all dengue-virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul;423(4):867-72.
10. Surasombatpattana P, Patramool S, Luplertlop N, Yssel H, Missé D. *Aedes aegypti* saliva enhances Dengue virus infection of human keratinocytes by suppressing innate immune responses. *J Invest Dermatol* 2012 Aug;132(8):2103-5.
11. Teerasut C, Lei H-Y, Natthakorn K, Jittmittraphap A, Thammapalo S, Witayathawornwong P, Lin Y-T, Jarman Y-T, Sawanpanyalert P, Jampangern W, Limkittikul K*.The serotype-independent but concentration-dependent enhancing antibodies among Thai dengue patients. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):624-33.
12. Thanwisai A, Tandhavanant S, Saiprom N, Waterfield NR, Ke Long P, Bode HB, Peacock SJ, Chantratita N*. Diversity of *Xenorhabdus* and *Photorhabdus* spp. and Their Symbiotic Entomopathogenic Nematodes from Thailand. *Plos One* 2012 Sep;7(9):e43835.
13. Tohmee N, Thongkamkoon P, Kalambaheti T, Sonthayanon P, Ramasoota P*. Production of recombinant *Bacillus anthracis* lethal factor for antibody detection in vaccinated cattle. *JITMM Proceedings* 2012;1:17-25.
14. Torok ME, Chantratita N, Peacock SJ. Bacterial gene loss as a mechanism for gain of antimicrobial resistance. *Curr Opin Microbiol* 2012 Oct;15(5):583-7.
15. Tuanyok A, Stone JK, Mayo M, Kaestli M, Gruendike J, Georgia S, Warrington S, Mullins T, Allender CJ, Wagner DM, Chantratita N, Peacock SJ, Currie BJ, Keim P. The Genetic and Molecular Basis of O-Antigenic Diversity in *Burkholderia pseudomallei* Lipopolysaccharide. *PLoS Negl Trop Dis* 2012 Jan;6(1):e1453.
16. Tungtrongchitr A, Sookrung N, Chaicumpa W, Indrawattana N, Meechan T, Thavara U, Visitsunthorn N, Bunnag C. Comparison of allergenic components and biopotency in whole body extracts of wild and laboratory reared American cockroaches, Periplaneta americana. *Asian Pac J Allergy Immunol* 2012 Sep;30(3):231-8.
17. Tungtrongchitr A, Sookrung N, Chaicumpa W, Indrawattana N, Poolphol R, Sae-Lim N, Wankhom S, Bunnag C, Vichyanond P. Convenient, rapid and economic detection and semi-quantification of American cockroach allergen in the environment. *Asian Pac J Allergy Immunol* 2012 Jun;30(2):99-106.
18. Uttayamakul S, Likanonsakul S, Manosuthi W, Wichukchinda N, Shioda T, Khusmith S*. Influence of *ABCB-1* C3435T polymorphisms on plasma nevirapine and efavirenz levels and their effects on virologic and immunological outcomes in HIV/TB co-infected Thai adults under anti-retroviral therapy. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):78-88.

Department of Microbiology & Immunology *(Continued)*

19. Wasinpiyamongkol L, Patramool S, Thongrungkiat S, Maneekan P, Sangmukdanan S, Missé D, Luplertlop N*. Protein expression in the salivary glands of dengue-infected Aedes aegypti mosquitoes and blood-feeding success. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1346-57.

20. West TE, Chierakul W, Chantratita N, Limmathurotsakul D, Wuthiekanun V, Emond MJ, Hawn TR, Peacock SJ, Skerrett SJ. Toll-like receptor 4 region genetic variants are associated with susceptibility to melioidosis. *Genes Immun* 2012 Jan;13(1):38-46.

Department of Molecular Tropical Medicine & Genetics

1. Adhikari M, Ranjitkar S, Schousboe ML, Alifrangis M, Imwong M, Bhatta DR, Banjara MR. GENETIC DIVERSITY OF *PLASMODIUM VIVAX* MEROZOITE SURFACE PROTEIN-3 alpha (*PVMSP-3 alpha*) GENE IN JHAPA DISTRICT OF NEPAL. *Southeast Asian J Trop Med Public Health* 2012 Mar;43(2):280-6.

2. Cheeseman IH, Miller BA, Nair S, Nkhoma S, Tan A, Tan JC, Al Saai S, Phyo AP, Moo CL, Lwin KM, McGready R, Ashley E, Imwong M, Stepniewska K, Yi P, Dondorp AM, Mayxay M, Newton PN, White NJ, Nosten F, Ferdig MT, Anderson TJC. A Major Genome Region Underlying Artemisinin Resistance in Malaria. *Science* 2012 Apr;336(6077):79-82.

3. Hwang J, Jaroensuk J, Leimanis ML, Russell B, McGready R, Day N, Snounou G, Nosten F, Imwong M. Long-term storage limits PCR-based analyses of malaria parasites in archival dried blood spots. *Malar J* 2012 Oct;11:339.

4. Imwong M, Boel ME, Pagornrat W, Pimanpanarak M, McGready R, Day NPJ, Nosten F, White NJ*. The First *Plasmodium vivax* Relapses of Life Are Usually Genetically Homologous. *J Infect Dis* 2012 Feb;205(4):680-3.

5. Kim JR, Nandy A, Maji AK, Addy M, Dondorp AM, Day NPJ, Pukrittayakamee S, White NJ, Imwong M*. Genotyping of *plasmodium vivax* reveals both short and long latency relapse patterns in kolkata. *Plos One* 2012 Jul;7(7):e39645.

6. Kotepui M, Thawornkuno C, Chavalitshewinkoon-Petmitr P, Punyarit P, Petmitr S*. Quantitative Real-Time RT-PCR of *ITGA7, SVEP1, TNS1, LPHN3, SEMA3G, KLB* and *MMP13* mRNA Expression in Breast Cancer. *Asian Pac J Cancer Prev* 2012 Dec;13(11):5879-82.

7. Krief S, Levrero F, Krief JM, Thanapongpichat S, Imwong M, Snounou G, Kasenene JM, Cibot M, Gantier JC. Investigations on anopheline mosquitoes close to the nest sites of chimpanzees subject to malaria infection in Ugandan Highlands. *Malar J* 2012 Apr;11:116.

8. Lyko B, Hammershaimb EA, Nguitragool W, Wellems TE, Desai SA. A high-throughput method to detect *Plasmodium falciparum* clones in limiting dilution microplates. *Malar J* 2012 Apr;11:124.

9. Manske M, Miotto O, Campino S, Auburn S, Almagro-Garcia J, Maslen G, O'Brien J, Djimde A, Doumbo O, Zongo I, Ouedraogo JB, Michon P, Mueller I, Siba P, Nzila A, Borrmann S, Kiara SM, Marsh K, Jiang H, Su XZ, Amaratunga C, Fairhurst R, Socheat D, Nosten F, Imwong M, White NJ, Sanders M, Anastasi E, Alcock D, Drury E, Oyola S, Quail MA, Turner DJ, Ruano-Rubio V, Jyothi D, Amenga-Etego L, Hubbart C, Jeffreys A, Rowlands K, Sutherland C, Roper C, Mangano V, Modiano D, Tan JC, Ferdig MT, Amambua-Ngwa A, Conway DJ, Takala-Harrison S, Plowe CV, Rayner JC, Rockett KA, Clark TG, Newbold CI, Berriman M, MacInnis B, Kwiatkowski DP. Analysis of Plasmodium falciparum diversity in natural infections by deep sequencing. *Nature* 2012 Jul;487(7407):375-9.

10. Mayxay M, Khanthavong M, Chanthongthip O, Imwong M, Pongvongsa T, Hongvanthong B, Phompida S, Vanisaveth V, White NJ, Newton PN. Efficacy of artemether-lumefantrine, the nationally-recommended artemisinin combination for the treatment of uncomplicated falciparum malaria, in southern Laos. *Malar J* 2012 Jun;11:184.

11. Mayxay M, Khanthavong M, Chanthongthip O, Imwong M, Lee SJ, Stepniewska K, Soonthornsata B, Pongvongsa T, Phompida L, Hongvanthong B, Ringwald P, White NJ, Newton PN. No Evidence for Spread of Plasmodium falciparum Artemisinin Resistance to Savannakhet Province, Southern Laos. *Am J Trop Med Hyg* 2012 Mar;86(3):403-8.

12. Nantakomol D, Imwong M, Mas-Oodi S, Plabplueng CD, Isarankura-Na-Ayudhya C, Prachayasittikul V, Nuchnoi P. Increase membrane vesiculation in essential hypertension. *Labmedicine* 2012 Jan;43(1):6-9.

13. Nantakomol D, Imwong M, Mas-Oodi S, Plabplueng CD, Isarankura-Na-Ayudhya C, Prachayasittikul V, Nuchnoi P. Increased Blood Levels of Phosphatidyl Serine-Microparticles in Patients With Essential Hypertension. *Labmedicine* 2012 Jan;43(1):14-6.

14. Nantakomol D, Palasuwan A, Chaowanathikhom M, Soogarun S, Imwong M. Red cell and platelet-derived microparticles are increased in G6PD-deficient subjects. *Eur J Haematol* 2012 Nov;89(5):423-9.

15. Pillai AD, Nguitragool W, Lyko B, Dolinta K, Butler MM, Nguyen ST, Peet NP, Bowlin TL, Desai SA. Solute restriction reveals an essential role for clag3-associated channels in malaria parasite nutrient acquisition. *Mol Pharmacol* 2012 Dec;82(6):1104-14.

16. Ramutton T, Hendriksen IC, Mwanga-Amumpaire J, Mtove G, Olaosebikan R, Tshefu AK, Onyamboko MA, Karema C, Maitland K, Gomes E, Gesase S, Reyburn H, Silamut K, Chotivanich K, Promnares K, Fanello CI, Von Seidlein L, Day NP, White NJ, Dondorp AM, Imwong M*, Woodrow CJ*. Sequence variation does not confound the measurement of plasma PfHRP2 concentration in African children presenting with severe malaria. *Malar J* 2012 Aug;11:276.

Department of Molecular Tropical Medicine & Genetics *(Continued)*

17. Saelee P, Chuensumran U, Wongkham S, Chariyalertsak S, Tiwawech D, Petmitr S. Hypermethylation of suppressor of cytokine signaling 1 in hepatocellular carcinoma patients. *Asian Pac J Cancer Prev* 2012 Jul;13(7):3489-93.
18. Sanguansin S, Petmitr S, O-charoenrat P, Pongstaporn W. Association of glutathione S-transferase omega gene polymorphisms with progression of head and neck cancer. *Mol Biol Rep* 2012 Dec;39(12):10915-20.
19. Smith M, Campino S, Gu Y, Clark TG, Otto TD, Maslen G, Manske M, Imwong M, Dondorp AM, Kwiatkowski DP, Quail MA, Swerdlow H. An in-solution hybridisation method for the isolation of pathogen DNA from human DNA-rich clinical samples for analysis by NGS. *Open Genomics Journal* 2012;5(1):18-29.
20. Thueng-in K, Thanongsaksrikul J, Srimanote P, Bangphoomi K, Poungpair O, Maneewatch S, Choowongkomon K, Chaicumpa W. Cell Penetrable Humanized-VH/VHH That Inhibit RNA Dependent RNA Polymerase (NS5B) of HCV. *Plos One* 2012 Nov;7(11):49254.
21. Tirakarn S, Riangrungroj P, Kongsaeree P, Imwong M, Yuthavong Y, Leartsakulpanich U. Cloning and heterologous expression of Plasmodium ovale dihydrofolate reductase-thymidylate synthase gene. *Parasitol Int* 2012 Jun;61(2):324-32.
22. Tohmee N, Thongkamkoon P, Kalambaheti T, Sonthayanon P, Ramasoota P*. Production of recombinant *Bacillus anthracis* lethal factor for antibody detection in vaccinated cattle. *JITMM Proceedings* 2012;1:17-25.
23. White NJ*, Imwong M. Relapse. *Adv Parasitol* 2012 Dec;80:113-50.(Book series)

Department of Protozoology

1. Kotepui M, Thawornkuno C, Chavalitshewinkoon-Petmitr P, Punyarit P, Petmitr S*. Quantitative Real-Time RT-PCR of *ITGA7, SVEP1, TNS1, LPHN3, SEMA3G, KLB* and *MMP13* mRNA Expression in Breast Cancer. *Asian Pac J Cancer Prev* 2012 Dec;13(11):5879-82.
2. Koompapong K, Sukthana Y*. Seasonal variation and potential sources of *Cryptosporidium* contamination in surface waters of Chao Phraya River and Bang Pu Nature Reserve pier, Thailand. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):832-40.
3. Krairojananan P, Sattabongkot J, Chavalitshewinkoon-Petmitr P. Effect of peritrophic matrix C-lectin(AdPMCTL) on blood-meal size in Anolpheles dirus. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1134-45.Prasertbun R, Sukthana Y, Popruk S*. Real-time PCR: Benefits for detection of mild and asymptomatic giardia infections. *Tropical Medicine and Health* 2012 Jun;40(2):31-5.
4. Sukthana Y*, Mahittikorn A, Wickert H, Tansuphaswasdikul S. A promising diagnostic tool for toxoplasmic encephalitis: Tachyzoite/bradyzoite stage-specific RT-PCR. *Int J Infect Dis* 2012 Apr;16(4):e279-e84.
5. Wiengcharoen J, Nakthong C, Mitchaothai J, Udonsom R, Sukthana Y. Toxoplasmosis and Neosporosis among beef cattle slaughtered for food in western Thailand. *Southeast Asian J Tropical Med Public Health* 2012 Sep;43(5):1087-93.
6. Wiengcharoen J, Nokkaew W, Prasithpon S, Prasomtong P, Sukthana Y. Neospora caninum and *Toxoplasma gondii* antibodies in captive elephants (Elephaus maximus indicus) in Kanchanaburi province. *Thai J Vet Med* 2012 Mar;42(2):235-40.

Department of Social & Environmental Medicine

1. Buacharoen T, Kongtip P, Tharpoophasiam P, Chantanakul S, Sujirarat D. The Urinary Cotinine and Serum 25 Hydroxyvitamin D Levels in Male Smokers. *J Med Assoc Thai* 2012 Jun;95(Suppl 6):S87-S93.
2. Decharat S, Kongtip P, Tharnpoophasiam P, Thetkathuek A. An examination of blood lead levels in thai nielloware workers. *Saf Health Work* 2012 Sep;3(3):216-23.
3. Kaewkong W, Imtawil K, Maleewong W, Intapan PM, Sri-Aroon P, Wongkham S, Wongkham C. Genome size estimation of liver fluke Opisthorchis viverrini by real-time polymerase chain reaction based method. *Parasitol Int* 2012 Mar;61(1):77-80.
4. Khansakorn N, Wongwit W, Tharnpoophasiam P, Hengprasith B,Suwannathon L, Chanprasertyothin S, Sura T,Kaojarern S,Sritara P,Sirivarasai J. Genetic variations of glutathione S-transferase influence on blood cadmium concentration. *Journal of Toxicology* 2012;2012:art no.356126.
5. Lapcharoen P, Komalamisra N, Rongsriyam Y, Wangsuphachart V, Dekumyoy P, Prachumsri J, Kajla MK, Paskewitz SM. Investigations on the role of a lysozyme from the malaria vector Anopheles dirus during malaria parasite development. *Dev Comp Immunol* 2012 Jan;36(1):104-11.
6. Nithikathkul C, Wongsaroj T, Buntilov V, Limsomboon J. Geographic information system of fish-borne parasitic Zoonoses metacercaria from water reservoirs under his Majesty's recommended project, Phitsanulok, Thailand. *International Journal of Geoinformatics* 2012 Sep;8(3):53-7.

Department of Social & Environmental Medicine *(Continued)*

7. Noda M, Masrinoul P, Punkum C, Pipattanaboon C, Ramasoota P, Setthapramote C, Sasaki T, Sasayama M, Yamashita A, Kurosu T, Ikuta K, Okabayashi T*. Limited cross-reactivity of mouse monoclonal antibodies against Dengue virus capsid protein among four serotypes. *Biologics* 2012 Nov;6:409-16.
8. Sanpool O, Intapan PM, Thanchomnang T, Sri-Aroon P, Lulitanond V, Sadaow L, Maleewong W. Development of a real-time PCR assay with fluorophore-labelled hybridization probes for detection of Schistosoma mekongi in infected snails and rat feces. *Parasitology* 2012 Sep;139(10):1266-72.
9. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon P, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P*, Ikuta K*. Human monoclonal antibodies to neutralize all dengue-virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul;423(4):867-72.
10. Son HN, Pitaksajjakul P*, Limkittikul K, Boonha K, Puiprom O, Kurosu T, Ikuta K, Ramasoota P. Three genotype groups of Dengue virus serotype 2 infected among Thai patients. *JITMM Proceedings* 2012;1:26-34.
11. Songthap A, Pitisuttithum P*, Kaewkungwal J, Fungladda W, Bussaratid V. Knowledge, attitudes, and acceptability of a human papilloma virus vaccine among students, parents and teachers in thailand. *Southeast Asian J Trop Med Public Health* 2012 Mar;43(2):340-53.
12. Tewawong N, Pitaksajjkul P, Dekumyoy P, Ekpo P, Ramasoota P*. Mimotope identification using phage displayed random peptide libraries against monoclonal antibodies specific to house dust mite. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):614-23.
13. Tohmee N, Thongkamkoon P, Kalambaheti T, Sonthayanon P, Ramasoota P*. Production of recombinant *Bacillus anthracis* lethal factor for antibody detection in vaccinated cattle. *JITMM Proceedings* 2012;1:17-25.
14. Tipkrua N, Pitaksajjakul P, Suksamrarn S, Ramasoota P*. Mangosten extract coated pre-filter can inhibit *Mycobacterium tuberculosis in vitro*. *JITMM Proceedings* 2012;1:35-45.
15. Wongsaroj T, Nithikathkul C, Reungsang P, Royal L, Nak ai W, Krailaa D, Ramasoota P. Geographic information of helminthiasis in Thailand. *International Journal of Geoinformatics* 2012 Sep;8(3):59-64.

Department of Tropical Hygiene

1. Bonsignori M, Pollara J, Moody MA, Alpert MD, Chen X, Hwang KK, Gilbert PB, Huang Y, Gurley TC, Kozink DM, Marshall DJ, Whitesides JF, Tsao CY, Kaewkungwal J, Nitayaphan S, Pitisuttithum P, Rerks-Ngarm S, Kim JH, Michael NL, Tomaras GD, Montefiori DC, Lewis GK, DeVico A, Evans DT, Ferrari G, Liao HX, Haynes BF. Antibody-dependent cellular cytotoxicity-mediating antibodies from an HIV-1 vaccine efficacy trial target multiple epitopes and preferentially use the VH1 gene family. *J Virol* 2012 Nov;86(21):11521-32.
2. Bunupuradah T, Ubolyam S, Hansudewechakul R, Kosalaraksa P, Ngampiyaskul C, Kanjanavanit S, Wongsawat J, Luesomboon W, Pinyakorn S, Kerr S, Ananworanich J, Chomtho S, van der Lugt J, Luplertlop N, Ruxrungtham K, Puthanakit T. Correlation of selenium and zinc levels to antiretroviral treatment outcomes in Thai HIV-infected children without severe HIV symptoms. *Eur J Clin Nutr* 2012 Aug;66(8):900-5.
3. Chaichalotornkul S, Suvitayavat W, Sangalangkarn V, Nawa Y, Kikuchi K, Kawahara K, Saiwichai T, Narkpinit S, Singhasivanon P, Maruyama I, Tancharoen S. Inhibition of HMGB1 translocation by green tea extract in rats exposed to environmental tobacco smoke. *EnvironmentAsia* 2012 Jan;5(1):70-6.
4. Chantratita N*, Tandhavanant S, Wikraiphat C, Trunck LA, Rholl DA, Thanwisai A, Saiprom N, Limmathurotsakul D, Korbsrisate S, Day NPJ, Schweizer HP, Peacock SJ. Proteomic analysis of colony morphology variants of Burkholderia pseudomallei defines a role for the arginine deiminase system in bacterial survival. *J Proteomics 2012 Jan;75(3):1031-42*.
5. Chotivanich K*, Mungthin M, Ruengweerayuth R, Udomsangpetch R, Dondorp A, Singhasivanon P, Pukrittayakamee S,White NJ. The effects of serum lipids on the in vitro activity of lumefantrine and atovaquone against plasmodium falciparum. *Malar J* 2012 May;11:177.
6 De Souza MS, Ratto-Kim S, Chuenarom W, Schuetz A, Chantakulkij S, Nuntapinit B, Valencia-Micolta A, Thelian D, Nitayaphan S, Pitisuttithum P, Paris RM, Kaewkungwal J, Michael NL, Rerks-Ngarm S, Mathieson B, Marovich M, Currier JR, Kim JH, Chunsuttiwat S, Premsri N, Namwat C, Kunasol P, Thongcharoen P, Khamboonruang C, Bussaratid V, Maek-a-nantawat W, Dhitavat J, Suntharasamai P, Pungpak S, Vanijanonta S, Kaewkunwal J, Khamsiriwatchara A, Jarujareet P, Easmila C, Tabprasit S, Ngauy V, Paris R, Benenson M, Morgan P, Brown A, De Souza M, Trichavaroj R, Thaitawat N, Kongnonkok K, Keawboon B, Phuang-Ngern Y, Mason S, Gurunathan S, Tartaglia J, McNeil JG, Harkness R, Meric C, Baglyos L, El Habib R, Francis D, Lee C, Adams E, Robb ML, Milazzo M, Bolen A, Wessner B, Currier J, Birx DL, Stablein D, Germanson T, Dally L, Excler JL, Berenberg J. The Thai phase III trial (RV144) vaccine regimen induces T cell responses that preferentially target epitopes within the V2 region of HIV-1 envelope. *J Immunol* 2012 May;188(10):5166-76.

Department of Tropical Hygiene *(Continued)*

7. Desakorn V*, Wuthiekanun V, Thanachartwet V, Sahassananda D, Chierakul W, Apiwattanaporn A, Day NP, Limmathurotsakul D, Peacock SJ. Accuracy of a Commercial IgM ELISA for the Diagnosis of Human Leptospirosis in Thailand. *Am J Trop Med Hyg* 2012 Mar;86(3):524-7.

8. Duangdee C, Tangpukdee N, Krudsood S, Wilairatana P*. Use of buffy coat thick films in detecting malaria parasites in patients with negative conventional thick films. *Asian Pac J Trop Biomed* 2012 Apr;2(4):301-3.

9. Hanvoravongchai P, Chavez I, Rudge JW, Touch S, Putthasri W, Chau PN, Phommasack B, Singhasivanon P, Coker R, AsiaFluCap Project C. An analysis of health system resources in relation to pandemic response capacity in the Greater Mekong Subregion. *Int J Health Geogr* 2012 Dec;11:53.

10 Haynes BF, Gilbert PB, McElrath MJ, Zolla-Pazner S, Tomaras GD, Alam SM, Evans DT, Montefiori DC, Karnasuta C, Sutthent R, Liao HX, DeVico AL, Lewis GK, Williams C, Pinter A, Fong Y, Janes H, DeCamp A, Huang Y, Rao M, Billings E, Karasavvas N, Robb ML, Ngauy V, de Souza MS, Paris R, Ferrari G, Bailer RT, Soderberg KA, Andrews C, Berman PW, Frahm N, De Rosa SC, Alpert MD, Yates NL, Shen X, Koup RA, Pitisuttithum P, Kaewkungwal J, Nitayaphan S, Rerks-Ngarm S, Michael NL, Kim JH. Immune-correlates analysis of an HIV-1 vaccine efficacy trial. *N Engl J Med* 2012 Apr;366(14):1275-86.

11 Hendriksen ICE, Mwanga-Amumpaire J, von Seidlein L, Mtove G, White LJ, Olaosebikan R, Lee SJ, Tshefu AK, Woodrow C, Amos B, Karema C, Saiwaew S, Maitland K, Gomes E, Pan-Ngum W, Gesase S, Silamut K, Reyburn H, Joseph S, Chotivanich K, Fanello CI, Day NPJ, White NJ, Dondorp AM. Diagnosing Severe Falciparum Malaria in Parasitaemic African Children: A Prospective Evaluation of Plasma PfHRP2 Measurement. *PLoS Med* 2012 Aug;9(8):1001297.

12. Karasavvas N, Billings E, Rao M, Williams C, Zolla-Pazner S, Bailer RT, Koup RA, Madnote S, Arworn D, Shen XY, Tomaras GD, Currier JR, Jiang M, Magaret C, Andrews C, Gottardo R, Gilbert P, Cardozo TJ, Rerks-Ngarm S, Nitayaphan S, Pitisuttithum P, Kaewkungwal J, Paris R, Greene K, Gao HM, Gurunathan S, Tartaglia J, Sinangil F, Korber BT, Montefiori DC, Mascola JR, Robb ML, Haynes BF, Ngauy V, Michael NL, Kim JH, de Souza MS, Collaboration MT. The Thai Phase III HIV Type 1 Vaccine Trial (RV144) Regimen Induces Antibodies That Target Conserved Regions Within the V2 Loop of gp120. *Aids Res Hum Retrovir* 2012 Nov;28(11):1444-57.

13. Kattipathanapong P, Akaraphanth R, Krudsood S, Riganti M, Viriyavejakul P*. Case report. The first reported case of autochthonous cutaneous leishmaniasis in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):17-20.

14. Khamsiriwatchara A, Sudathip P, Sawang S, Vijakadge S, Potithavoranan T, Sangvichean A, Satimai W, Delacollette C, Singhasivanon P, Lawpoolsri S, Kaewkungwal J*. Artemisinin resistance containment project in Thailand. (I): Implementation of electronic-based malaria information system for early case detection and individual case management in provinces along the Thai-Cambodian border. *Malar J* 2012 Jul;11:247.

15. Limmathurotsakul D*, Thammasart S, Warrasuth N, Thapanagulsak P, Jatapai A, Pengreungrojanachai V, Anun S, Joraka W, Thongkamkoon P, Saiyen P, Wongratanacheewin S, Day NPJ, Peacock SJ. Melioidosis in animals, Thailand, 2006-2010. *Emerg Infect Dis* 2012 Feb;18(2):325-7.

16. Limmathurotsakul D*, Turner EL, Wuthiekanun V, Thaipadungpanit J, Suputtamongkol Y, Chierakul W, Smythe LD, Day NPJ, Cooper B, Peacock SJ. Fool's gold: Why imperfect reference tests are undermining the evaluation of novel diagnostics: A reevaluation of 5 diagnostic tests for leptospirosis. *Clin Infect Dis* 2012 Aug;55(3):322-31.

17. Limmathurotsakul D*, Wuthiekanun V, Amornchai P, Wongsuwan G, Day NPJ, Peacock SJ. Effectiveness of a simplified method for isolation of *Burkholderia pseudomallei* from soil. *Appl Environ Microb* 2012 Feb;78(3):876-7.

17. Lojindarat S, Luengmettakul J, Puangsa-art S. Clinical significance of atypical glandular cells in cervical Papanicolaou smears. *J Med Assoc Thai* 2012 Aug;95(8):975-82. (Review)

18. Lwin KM, Phyo AP, Tarning J, Hanpithakpong W, Ashley EA, Lee SJ, Cheah P, Singhasivanon P, White NJ, Lindegårdh N, Nosten F*. Randomized, Double-Blind, Placebo-Controlled Trial of Monthly versus Bimonthly Dihydroartemisinin-Piperaquine Chemoprevention in Adults at High Risk of Malaria. *Antimicrob Agents Chemother* 2012 Mar;56(3):1571-7.

19. Mahavanakul W, Nickerson EK, Srisomang P, Teparrukkul P, Lorvinitnun P, Wongyingsinn M, Chierakul W, Hongsuwan M, West TE, Day NP, Limmathurotsakul D, Peacock SJ. Feasibility of Modified Surviving Sepsis Campaign Guidelines in a Resource-Restricted Setting Based on a Cohort Study of Severe S. Aureus Sepsis. *PLoS One* 2012 Feb;7(2):e29858.

20. Maipanich W, Yoonuan T, Thaenkham U, Komalamisra C, Singhasivanon P, Adams PR. Houseflies: a Possible Transport Host of *Angiostrongylus* sp. *J Trop Med Parasitol* 2012 Jun;35(1):22-6.

21. Maude RR*, Vatcharapreechasakul T, Ariyaprasert P, Maude RJ, Hongsuwan M, Yuentrakul P, Limmathurotsakul D, Koh GCKW, Chaowagul W, Day NPJ, Peacock SJ. Prospective observational study of the frequency and features of intra-abdominal abscesses in patients with melioidosis in northeast Thailand. *Trans Roy Soc Trop Med Hyg* 2012 Oct;106(10):629-31.

Department of Tropical Hygiene *(Continued)*

22. McGready R*, Boel M, Rijken MJ, Ashley EA, Cho T, Moo O, Paw MK, Pimanpanarak M, Hkirijareon L, Carrara VI, Lwin KM, Phyo AP, Turner C, Chu CS, van Vugt M, Price RN, Luxemburger C, ter Kuile FO, Tan SO, Proux S, Singhasivanon P, White NJ, Nosten FH. Effect of early detection and treatment on malaria related maternal mortality on the north-western border of Thailand 1986-2010. *LoS One* 2012 May;7(7):e40244.McGready R*, Lee SJ, Wiladphaingern J, Ashley EA, Rijken MJ, Boel M, Simpson JA, Paw MK, Pimanpanarak M, Mu O, Singhasivanon P, White NJ, Nosten FH. Adverse effects of falciparum and vivax malaria and the safety of antimalarial treatment in early pregnancy: a population-based study. *Lancet Infect Dis* 2012 May;12(5):388-96.

23. McGready R, Phyo AP, Rijken MJ, Tarning J, Lindegardh N, Hanpithakpon W, Than HH, Hlaing N, Zin NT, Singhasivanon P, White NJ, Nosten F*. Artesunate/dihydroartemisinin pharmacokinetics in acute falciparum malaria in pregnancy: absorption, bioavailability, disposition and disease effects. *Br J Clin Pharmacol* 2012 Mar;73(3):467-77.

24. Montefiori DC, Karnasuta C, Huang Y, Ahmed H, Gilbert P, de Souza MS, McLinden R, Tovanabutra S, Laurence-Chenine A, Sanders-Buell E, Moody MA, Bonsignori M, Ochsenbauer C, Kappes J, Tang HL, Greene K, Gao HM, LaBranche CC, Andrews C, Polonis VR, Rerks-Ngarm S, Pitisuttithum P, Nitayaphan S, Kaewkungwal J, Self SG, Berman PW, Francis D, Sinangil F, Lee C, Tartaglia J, Robb ML, Haynes BF, Michael NL, Kim JH. Magnitude and Breadth of the Neutralizing Antibody Response in the RV144 and Vax003 HIV-1 Vaccine Efficacy Trials. *J Infect Dis* 2012 Aug;206(3):431-41.

25. Peacock SJ, Limmathurotsakul D*, Lubell Y, Koh GCKW, White LJ, Day NPJ, Titball RW. Melioidosis vaccines: A systematic review and appraisal of the potential to exploit biodefense vaccines for public health purposes. *PLoS Negl Trop Dis* 2012 Jan;6(1):e1488.

26. Phyo AP, Nkhoma S, Stepniewska K, Ashley EA, Nair S, McGready R, Moo CL, Al-Saai S, Dondorp AM, Lwin KM, Singhasivanon P, Day NPJ, White NJ, Anderson TJC, Nosten F*. Emergence of artemisinin-resistant malaria on the western border of Thailand: A longitudinal study. *The Lancet* 2012 May;379(9830):1960-6.

27. Piyaphanee W*, Kittitrakul C, Lawpoolsri S, Gautret P, Kashino W, Tangkanakul W, Charoenpong P, Ponam T, Sibunruang S, Phumratanaprapin W, Tantawichien T. Risk of Potentially Rabid Animal Exposure among Foreign Travelers in Southeast Asia. *PLoS Neglect Trop Dis* 2012 Sep;6(9):1852.

28. Price EP, Dale JL, Cook JM, Sarovich DS, Seymour ML, Ginther JL, Kaufman EL, Beckstrom-Sternberg SM, Mayo M, Kaestli M, Glass MB, Gee JE, Wuthiekanun V, Warner JM, Baker A, Foster JT, Tan P, Tuanyok A, Limmathurotsakul D, Peacock SJ, Currie BJ, Wagner DM, Keim P, Pearson T. Development and validation of burkholderia pseudomallei-specific real-time pcr assays for clinical, environmental or forensic detection applications. *PLoS One* 2012 May;7(5):e37723.

29. Punsawad C, Krudsood S, Maneerat Y, Chaisri U, Tangpukdee N, Pongponratn E, Nantavisai K, Udomsangpetch R, Viriyavejakul P*. Activation of nuclear factor kappa B in peripheral blood mononuclear cells from malaria patients. *Malar J* 2012 Jun;11:191.

30. Rob Taal H, St Pourcain B, Thiering E, Das S, Mook-Kanamori DO, Warrington NM, Kaakinen M, Kreiner-Møller E, Bradfield JP, Freathy RM, Geller F, Guxens M, Cousminer DL, Kerkhof M, Timpson NJ, Ikram MA, Beilin LJ, Bønnelykke K, Buxton JL, Charoen P, Chawes BLK, Eriksson J, Evans DM, Hofman A, Kemp JP, Kim CE, Klopp N, Lahti J, Lye SJ, McMahon G, Mentch FD, Müller-Nurasyid M, O'Reilly PF, Prokopenko I, Rivadeneira F, Steegers EAP, Sunyer J, Tiesler C, Yaghootkar H, Fornage M, Smith AV, Seshadri S, Schmidt R, Debette S, Vrooman HA, Sigurdsson S, Ropele S, Coker LH, Longstreth WT, Niessen WJ, Destefano AL, Beiser A, Zijdenbos AP, Struchalin M, Jack Jr CR, Nalls MA, Au R, Gudnason H, Van Der Lugt A, Harris TB, Meeks WM, Vernooij MW, Van Buchem MA, Catellier D, Gudnason V, Windham BG, Wolf PA, Van Duijn CM, Mosley Jr TH, Schmidt H, Launer LJ, Breteler MMB, Ang W, Van Beijsterveldt T, Bergen N, Benke K, Berry D, Coin L, Elliott P, Frayling T, Gaillard R, Groen-Blokhuis M, Hadley D, Hottenga JJ, Huikari V, Hypponen E, Kowgier M, Lawlor DA, Lewin A, Lindgren C, Marsh J, Middeldorp C, Millwood I, Nivard M, Palmer LJ, Rodriguez A, Sebert S, Sovio U, Standl M, Strachan DP, Uitterlinden AG, Valcárcel B, White S, Willemsen G, Boomsma DI, Estivill X, Grant SFA, Hattersley AT, Heinrich J, Jaddoe VWV, Jarvelin MR, McCarthy MI, Pennell CE, Power C, Widen E, Blakemore AIF, Chiavacci RM, Feenstra B, Fernandez-Banet J, Hartikainen AL, Van Der Heijden AJ, Iñiguez C, Lathrop M, McArdle WL, Mølgaard A, Newnham JP, Palotie A, Pouta A, Ring SM, Wichmann HE, Vissing NH, Decarli C, Koppelman GH, Melbye M, Bisgaard H, Hakonarson H, Smith GD, Adair LS, Atalay M, Davis OSP, Flexeder C, Goh LK, Haworth CMA, Hedebrand J, Hinney A, Hirschhorn JN, Holloway JW, Holst C, Horikoshi M, Kilpeläinen TO, Kirin M, Lakka HM, Lange LA, Lehtimäki T, Lindi V, Maggi R, Murray JC, Nohr EA, Ntalla I, Oken E, Panoutsopoulou K, Pararajasingham J, Salem RM, Siitonen N, Teo YY, Zeggini E, Cooper C, Gillman M, Hocher B, Lakka TA, Mohlke KL, Dedoussis GV, Ong KK, Pearson ER, Price TS, Raitakari OT, Saw SM, Scherag A, Simell O, Sørensen TIA, Wilson JF. Common variants at 12q15 and 12q24 are associated with infant head circumference. *Nature Genet* 2012 May;44(5):532-8.

31. Robb ML, Rerks-Ngarm S, Nitayaphan S, Pitisuttithum P, Kaewkungwal J, Kunasol P, Khamboonruang C, Thongcharoen P, Morgan P, Benenson M, Paris RM, Chiu J, Adams E, Francis D, Gurunathan S, Tartaglia J, Gilbert P, Stablein D, Michael NL, Kim JH. Risk behaviour and time as covariates for efficacy of the HIV vaccine regimen ALVAC-HIV (vCP1521) and AIDSVAX B/E: A post-hoc analysis of the Thai phase 3 efficacy trial RV 144. *Lancet Infect Dis* 2012 Jul;12(7):531-7.

Department of Tropical Hygiene *(Continued)*

32. Rudge JW, Hanvoravongchai P, Krumkamp R, Chavez I, Adisasmito W, Chau PN, Phommasak B, Putthasri W, Shih CS, Stein M, Timen A, Touch S, Reintjes R, Coker R, AsiaFluCap Project C. Health System Resource Gaps and Associated Mortality from Pandemic Influenza across Six Asian Territories. *Plos One* 2012 Feb;7(2):e31800.

33. Sangpring P, Vongsirinavarat M, Hiengkaew V, Kaewkungwal J. Development of a geriatric fear of falling questionnaire for assessing the fear of falling of thai elders. *J Phys Ther Sci* 2012 Jul;24(4):359-64.

34. Satimai W, Sudathip P, Vijaykadga S, Khamsiriwatchara A, Sawang S, Potithavoranan T, Sangvichean A, Delacollette C, Singhasivanon P, Kaewkungwal J, Lawpoolsri S*. Artemisinin resistance containment project in Thailand. II: Responses to mefloquine-artesunate combination therapy among falciparum malaria patients in provinces bordering Cambodia. *Malar J* 2012 Aug;11:300.

35. Songthap A, Pitisuttithum P*, Kaewkungwal J, Fungladda W, Bussaratid V. Knowledge, attitudes, and acceptability of a human papilloma virus vaccine among students, parents and teachers in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Mar;43(2):340-53.

36. Stein ML, Rudge JW, Coker R, van der Weijden C, Krumkamp R, Hanvoravongchai P, Chavez I, Putthasri W, Phommasack B, Adisasmito W, Touch S, Sat LM, Hsu YC, Kretzschmar M, Timen A. Development of a resource modelling tool to support decision makers in pandemic influenza preparedness: The AsiaFluCap Simulator. *BMC Public Health* 2012 Oct;12:870.

37. Stoesser N, Pocock J, Moore CE, Soeng S, Chhat HP, Sar P, Limmathurotsakul D, Day N, Thy V, Sar V, Parry CM. Pediatric suppurative parotitis in cambodia between 2007 and 2011. *Pediatr Infect Dis J* 2012 Aug;31(8):865-8.

38. Surasombatpattana P, Patramool S, Luplertlop N, Yssel H, Missé D. *Aedes aegypti* saliva enhances Dengue virus infection of human keratinocytes by suppressing innate immune responses. *J Invest Dermatol* 2012 Aug;132(8):2103-5.

39. Tangpukdee N, Krudsood S, Kano S, Wilairatana P*. Falciparum malaria parasitemia index for predicting severe malaria. *Int J Lab Hematol* 2012 Jun;34(3):320-7.

40 Tarning J*, Chotsiri P, Jullien V, Rijken MJ, Bergstrand M, Cammas M, McGready R, Singhasivanon P, Day NPJ, White NJ, Nosten F, Lindegardh N. Population pharmacokinetic and pharmacodynamic modeling of amodiaquine and desethylamodiaquine in women with *Plasmodium vivax* Malaria during and after pregnancy. *Antimicrob Agents Chemother* 2012 Nov;56(11):5764-73.

41. Than NN, Sungkanuparph S, Maek-A-Nantawat W, Kaewkungwal J, Pitisuttithum P. Comparison of clinical outcomes between HIV-infected patients with and without HCV co-infection in a resource-limited setting. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):646-51.

42. Thongrungkiat S*, Wasinpiyamongkol L, Maneekan P, Prummongkol P, Samung Y. Research note. Natural transovarial dengue virus infection rate in both sexes of dark and pale forms of *Aedes aegypti* from an urban area of Bangkok, Thailand. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1146-52.

43. Valecha N, Krudsood S, Tangpukdee N, Mohanty S, Sharma SK, Tyagi PK, Anvikar A, Mohanty R, Rao BS, Jha AC, Shahi B, Singh JPN, Roy A, Kaur P, Kothari M, Mehta S, Gautam A, Paliwal JK, Arora S, Saha N. Arterolane maleate plus piperaquine phosphate for treatment of uncomplicated *plasmodium falciparum* malaria: A comparative, multicenter, randomized clinical trial. *Clin Infect Dis* 2012 Sep;55(5):663-71.

44. Velapatiño B, Limmathurotsakul D, Peacock SJ, Speert DP. Identification of differentially expressed proteins from Burkholderia pseudomallei isolated during primary and relapsing melioidosis. *Microbes Infect* 2012 Apr;14(4):335-40.

45. Viriyavejakul P*, Krudsood S, Monkhonmu S, Punsawad C, Riganti M, Radomyos P. Case report. *Thelazia callipaeda:* a human case report. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):851-7.

46. Wasinpiyamongkol L, Patramool S, Thongrungkiat S, Maneekan P, Sangmukdanan S, Missé D, Luplertlop N*. Protein expression in the salivary glands of dengue-infected *Aedes aegypti* mosquitoes and blood-feeding success. *Southeast Asian J Trop Med Public Health* 2012 Nov;43(6):1346-57.

47. West TE, Chierakul W, Chantratita N, Limmathurotsakul D, Wuthiekanun V, Emond MJ, Hawn TR, Peacock SJ, Skerrett SJ. Toll-like receptor 4 region genetic variants are associated with susceptibility to melioidosis. *Genes Immun* 2012 Jan;13(1):38-46.

48. White LJ*, Lee SJ, Stepniewska K, Simpson JA, Dwell SLM, Arunjerdja R, Singhasivanon P, White NJ, Nosten F, McGready R. Estimation of gestational age from fundal height: a solution for resource-poor settings. *J R Soc Interface* 2012 Mar;9(68):503-10.

49. White LJ*, Newton PN, Maude RJ, Pan-ngum W, Fried JR, Mayxay M, Maude RR, Day NPJ. Defining Disease Heterogeneity to Guide the Empirical Treatment of Febrile Illness in Resource Poor Settings. *Plos One* 2012 Sep;7(9):e44545.

50. Wilairatana P, Krudsood S, Tangpukdee N. Liver profile changes in patients with ovale malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):222. (Meeting abstract)

51. Wilairatana P, Tangpukdee N, Krudsood S. Bilirubin cut-off level to predict fatal outcome of severe falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)

Department of Tropical Hygiene *(Continued)*

52. Wilairatana P, Tangpukdee N, Krudsood S. Gastritis: common finding in dyspeptic patients with falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):406. (Meeting abstract)
53. Wilairatana P, Tangpukdee N, Krudsood S. Gastrointestinal manifestations of falciparum malaria patients. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):141. (Meeting abstract)
54. Wilairatana P, Tangpukdee N, Krudsood S. Liver function tests in patients with malariae malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)
55. Wilairatana P, Tangpukdee N, Krudsood S. Liver function tests in fatal patients with severe falciparum malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):222. (Meeting abstract)
56. Wilairatana P, Tangpukdee N, Krudsood S. Liver function tests in patients with vivax malaria. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)
57. Wilairatana P, Tangpukdee N, Krudsood S. Retrograding of intestinal ascariasis in cerebral malaria: A case report. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):387. (Meeting abstract)

Department of Tropical Nutrition & Food Science

1. Chupeerach C, Tungtrongchitr A, Phonrat B, Schweigert FJ, Tungtrongchitr R*, Preutthipan S. Association of Thr420Lys polymorphism in DBP gene with fat-soluble vitamins and low radial bone mineral density in postmenopausal Thai women. *Biomarkers Med* 2012 Feb;6(1):103-8.
2. Harnroongroj T, Leelaporn A, Limsrivanichayakorn S, Kaewdaeng S, Harnroongroj T. Comparison of bacterial count in tap water between first burst and running tap water. *J Med Assoc Thai* 2012 May;95(5):712-5.
3. Huff K, Aroonnual A, Littlejohn AE, Rajwa B, Bae E, Banada PP, Patsekin V, Hirleman ED, Robinson JP, Richards GP, Bhunia AK. Light-scattering sensor for real-time identification of Vibrio parahaemolyticus, Vibrio vulnificus and Vibrio cholerae colonies on solid agar plate. *Microb Biotechnol* 2012 Sep;5(5):607-20.
4. Rodbumrer P, Arthan D, Uyen U, Yuvaniyama J, Svasti J, Wongsaengchantra PY. Functional expression of a Bombyx mori cocoonase: Potential application for silk degumming. *Acta Biochim Biophys Sin* 2012 Dec;44(12):974-83.
5. Suriyaprom K, Phonrat B, Chuensumran U, Tungtrongchitr A, Tungtrongchitr R*. Association of *HTTLPR* and *5-HT*(2A) T102C polymorphisms with smoking characteristics and anthropometric profiles of Thai males. *Genet Mol Res* 2012 Oct;11(4):4360-9.
6. Utennam D, Tungtrongchitr A, Phonrat B, Tungtrongchitr R*, Preutthipan S. Association of T869C gene polymorphism of transforming growth factor-β1 with low protein levels and anthropometric indices in osteopenia/osteoporosis postmenopausal Thai women. *Genet Mol Res* 2012 Jan;11(1):87-99.

Department of Tropical Pathology

1. Boonsriwong W, Sukontason KL, Chaiwong T, Chaisri U, Vogtsberger RC, Sukontason K. Alimentary Canal of the Adult Blow Fly, Chrysomya megacephala (F.) (Diptera: Calliphoridae)-Part I: Ultrastructure of Salivary Glands. *J Parasitol Res* 2012 May;2012:382917.
2. Chaiwong T, Sukontason K, Chaisri U, Kuntalue B, Vogtsberger RC, Sukontason LK*. Ovarian ultrastructure and development of the blow fly, Chrysomya megacephala (Diptera; Calliphoridae). *International Journal of Parasitology Research* 2012 May;4(1):65-70.
3. Kattipathanapong P, Akaraphanth R, Krudsood S, Riganti M, Viriyavejakul P*. Case report. The first reported case of autochthonous cutaneous leishmaniasis in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):17-20.
4. Nintasen R, Riches K, Mughal RS, Viriyavejakul P, Chaisri U, Maneerat Y, Turner NA, Porter KE. Divergent effects of 17-β-estradiol on human vascular smooth muscle and endothelial cell function diminishes TNF-α-induced neointima formation. *Biochem Biophys Res Commun* 2012 Apr;420(4):828-33.
5. Pongponratn E, Ponmmano O, Chaisri U, Viriyavejakul P, Wilairatana P*. *Plasmodium malariae*-infected erythrocytes in the peripheral blood, liver, stomach and duodenum: an ultrastructural study. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1080-6.
6. Ponsford MJ, Medana IM, Prapansilp P, Hien TT, Lee SJ, Dondorp AM, Esiri MM, Day NPJ, White NJ, Turner GDH*. Sequestration and microvascular congestion are associated with coma in human cerebral malaria. *J Infect Dis* 2012 Feb;205(4):663-71.
7. Punsawad C, Krudsood S, Maneerat Y, Chaisri U, Tangpukdee N, Pongponratn E, Nantavisai K, Udomsangpetch R, Viriyavejakul P*. Activation of nuclear factor kappa B in peripheral blood mononuclear cells from malaria patients. *Malar J* 2012 Jun;11:191.

Department of Tropical Pathology *(Continued)*

8. Viriyavejakul P*, Krudsood S, Monkhonmu S, Punsawad C, Riganti M, Radomyos P. Case report. *Thelazia callipaeda:* a human case report. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):851-7.
9. Wilairatana P, Pongponratn E. Liver in scrub typhus. *J Gastroenterol Hepatol* 2012 Dec;27(Suppl. 5):221. (Meeting abstract)
10. Wongtanachai J, Silamut K, Day NPJ, Dondorp A*, Chaisri U. Effects of antimalarial drugs on movement of *Plasmodium falciparum*. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):1-9.

Department of Tropical Pediatrics

1. Reiling L, Richards JS, Fowkes FJI, Wilson DW, Chokejindachai W, Barry AE, Tham WH, Stubbs J, Langer C, Donelson J, Michon P, Tavul L, Crabb BS, Siba PM, Cowman AF, Mueller I, Beeson JG. The *Plasmodium falciparum* Erythrocyte Invasion Ligand Pfrh4 as a Target of Functional and Protective Human Antibodies against Malaria. *Plos One* 2012 Sep;7(9):e45253.
2. Sabchareon A*, Sirivichayakul C, Limkittikul K, Chanthavanich P, Suvannadabba S, Jiwariyavej V, Dulyachai W, Pengsaa K, Margolis HS, Letson GW. Dengue infection in children in Ratchaburi, Thailand: A cohort study. I. Epidemiology of symptomatic acute dengue infection in children, 2006-2009. *PLoS Neglect Trop Dis* 2012 Jul;6(7):e1732.
3. Sabchareon A, Wallace D, Sirivichayakul C, Limkittikul K, Chanthavanich P, Suvannadabba S, Jiwariyavej V, Dulyachai W, Pengsaa K, Wartel TA, Moureau A, Saville M, Bouckenooghe A, Viviani S, Tornieporth NG, Lang J. Protective efficacy of the recombinant, live-attenuated, CYD tetravalent dengue vaccine in Thai schoolchildren: a randomised, controlled phase 2b trial. *Lancet* 2012 Nov;380(9853):1559-67.
4. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon P, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P*, Ikuta K*. Human monoclonal antibodies to neutralize all dengue-virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul;423(4):867-72.
5. Sirivichayakul C*, Limkittikul K, Chanthavanich P, Jiwariyavej V, Chokejindachai W, Pengsaa K, Suvannadabba S, Dulyachai W, Letson GW, Sabchareon A. Dengue Infection in Children in Ratchaburi, Thailand: A Cohort Study. II. Clinical Manifestations. *PLoS Neglect Trop Dis* 2012 Feb;6(2):e1520.
6. Sitcharungsi R, Ananworanich J, Pornvoranunt A, Apornpong T, Bunupuradah T, Khupulsup K, Nouanthong P, Vilaiyuk S, Phasomsap C, Kamchaisatian W, Pancharoen C, Puthanakit T, Sirivichayakul C, Benjaponpitak S. Serum Immunoglobulin Levels in Healthy Thai Infants and Children Aged 0-2 Years Determined by Nephelometry. *J Allergy Clin Immunol* 2012 Feb;129(2):AB86.
7. Sitcharungsi R, Ananworanich J, Vilaiyuk S, Apornpong T, Bunupuradah T, Pornvoranunt A, Nouanthong P, Phasomsap C, Khupulsup K, Pancharoen C, Puthanakit T, Shearer WT, Benjaponpitak S. Nephelometry determined serum immunoglobulin isotypes in healthy Thai children aged 2-15 years. *Microbiol Immunol* 2012 Feb;56(2):117-22.
8. Son HN, Pitaksajjakul P*, Limkittikul K, Boonha K, Puiprom O, Kurosu T, Ikuta K, Ramasoota P. Three genotype groups of Dengue virus serotype 2 infected among Thai patients. *JITMM Proceedings* 2012;1:26-34.
9. Teerasut C, Lei H-Y, Natthakorn K, Jittmittraphap A, Thammapalo S, Witayathawornwong P, Lin Y-T, Jarman Y-T, Sawanpanyalert P, Jampangern W, Limkittikul K*.The serotype-independent but concentration-dependent enhancing antibodies among Thai dengue patients. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):624-33.
10. Teerasut C, Petphuwadee U, Thammapalo S, Jampangern W, Limkittikul K*. Research note. Identification of dengue virus in *Aedes* mosquitoes and patients' sera from Si Sa Ket Province, Thailand. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):641-5.

CENTERS / UNITS

BIKEN-Endowed Department of Dengue Vaccine Development (BIKEN)

1. Konishi E, Kitai Y, Nishimura K, Harada S. Follow-up survey of Japanese encephalitis virus infection in Kumamoto Prefecture, South-West Japan: status during 2009-2011. *Jpn J Infect Dis* 2012;65(5):448-50.
2. Kuwahara M, Kitai Y, Kondo T, Konishi E. Survey on antibodies specific for west nile virus in horses from 2006 to 2010 in Japan. *Jpn J Infect Dis* 2012;65(6):553-5. Mulyatno KC, Susilowati H, Yamanaka A, Soegijanto S, Konishi E. Primary isolation and phylogenetic studies of Chikungunya virus from Surabaya, Indonesia. *Jpn J Infect Dis* 2012;65(1):92-4.
3. Mulyatno KC, Yamanaka A, Ngadino, Konishi E. Resistance of *Aedes aegypti* (L.) larvae to temephos in Surabaya, Indonesia. *Southeast Asian J Trop Med Public Health* 2012 Jan;43(1):29-33.

BIKEN-Endowed Department of Dengue Vaccine Development (BIKEN) *(Continued)*

4. Mulyatno KC, Yamanaka A, Yotopranoto S, Konishi E. Vertical transmission of dengue virus in *Aedes aegypti* collected in Surabaya, Indonesia, during 2008-2011. *Jpn J Infect Dis* 2012;65(3):274-6.
5. Sjatha F, Takizawa Y, Yamanaka A, Konishi E. Phylogenetic analysis of dengue virus types 1 and 3 isolated in Jakarta, Indonesia in 1988. *Infect Genet Evol* 2012 Dec;12(8):1938-43.
6. Yamaji H, Segawa M, Nakamura M, Katsuda T, Kuwahara M, Konishi E. Production of Japanese encephalitis virus-like particles using the baculovirus-insect cell system. *J Biosci Bioeng* 2012 Dec;114(6):657-62.
7. Yamanaka A, Tabuchi Y, Mulyatno KC, Susilowati H, Hendrianto E, Soegijanto S, Konishi E. Dengue virus infection-enhancing and neutralizing antibody balance in children of the Philippines and Indonesia. *Microbes Infect* 2012 Nov;14(13):1152-9.

Center of Excellence for Antibody Research (CEAR)

1. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon P, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P*, Ikuta K*. Human monoclonal antibodies to neutralize all dengue-virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul;423(4):867-72.
2. Son HN, Pitaksajjakul P*, Limkittikul K, Boonha K, Puiprom O, Kurosu T, Ikuta K, Ramasoota P. Three genotype groups of Dengue virus serotype 2 infected among Thai patients. *JITMM Proceedings* 2012;1:26-34.
3. Tewawong N, Pitaksajjakul P, Dekumyoy P, Ramasoota P. Mimotope identification using phage displayed random peptide libraries against monoclonal antibodies specific to house dust mite. *Southeast Asian J Trop Med Public Health* 2012 May; 43(3):614-8.
4. Tipkrua N, Pitaksajjakul P, Suksamrarn S, Ramasoota P*. Mangosteen extract coated pre-filter can inhibit *Mycobacterium tuberculosis in vitro*. *JITMM Proceedings* 2012;1:35-45.
5. Tohmee N, Thongkamkoon P, Kalambaheti T, Sonthayanon P, Ramasoota P*. Production of recombinant *Bacillus anthracis* lethal factor for antibody detection in vaccinated cattle. *JITMM Proceedings* 2012;1:17-25.
6. Noda M, Masrinoul P, Punkum C, Pipattanaboon C, Ramasoota P, Setthapramote C, Sasaki T, Sasayama M, Yamashita A, Kurosu T, Ikuta K, Okabayashi T*. Limited cross-reactivity of mouse monoclonal antibodies against Dengue virus capsid protein among four serotypes. *Biologics* 2012 Nov;6:409-16.

Mahidol-Osaka Center for Infectious Diseases (MOCID)

1. Kan Y, Okabayashi T, Yokota S, Yamamoto S, Fujii N, Yamashita T. Imiquimod suppresses propagation of herpes simplex virus 1 by upregulation of cystatin A via the adenosine receptor A1 pathway. *J Virol* 2012 Oct;86(19):10338-46.
2. Kuwahara M, Kitai Y, Kondo T, Konishi E. Survey on antibodies specific for West Nile virus in horses from 2006 to 2010 in Japan. *Jpn J Infect Dis* 2012;65(6):553-5.
3. Noda M, Masrinoul P, Punkum C, Pipattanaboon C, Ramasoota P, Setthapramote C, Sasaki T, Sasayama M, Yamashita A, Kurosu T, Ikuta K, Okabayashi T. Limited cross-reactivity of mouse monoclonal antibodies against Dengue virus capsid protein among four serotypes. *Biologics* 2012;6:409-16.
4. Sasayama M, Shoji I, Adianti M, Jiang DP, Deng L, Saito T, Watanabe H, Kawata S, Aoki C, Hotta H. A point mutation at Asn-534 that disrupts a conserved N-glycosylation motif of the E2 glycoprotein of hepatitis C virus markedly enhances the sensitivity to antibody neutralization. *J Med Virol* 2012 Feb;84(2):229-34.
5. Setthapramote C, Sasaki T, Puiprom O, Limkittikul K, Pitaksajjakul P, Pipattanaboon C, Sasayama M, Leuangwutiwong P, Phumratanaprapin W, Chamnachanan S, Kusolsuk T, Jittmittraphap A, Asai A, Arias JF, Hirai I, Kuhara M, Okuno Y, Kurosu T, Ramasoota P, Ikuta K. Human monoclonal antibodies to neutralize all dengue virus serotypes using lymphocytes from patients at acute phase of the secondary infection. *Biochem Biophys Res Commun* 2012 Jul 13;423(4):867-72.
6. Yokota S, Okabayashi T, Hirakawa S, Tsutsumi H, Himi T, Fujii N. Clarithromycin suppresses human respiratory syncytial virus infection-induced *Streptococcus pneumoniae* adhesion and cytokine production in a pulmonary epithelial cell line. *Mediators Inflamm* 2012;2012:528568.
7. Yokota S, Sato T, Okubo T, Ohkoshi Y, Okabayashi T, Kuwahara O, Tamura Y, Fujii N. Prevalence of fluoroquinolone-resistant Escherichia coli O25:H4-ST131 (CTX-M-15-nonproducing) strains isolated in Japan. *Chemotherapy* 2012;58(1):52-9.

Mahidol Oxford Tropical Medicine Research Unit (MORU)

1. Adam I, Tarning J, Lindegardh N, Mahgoub H, McGready R, Nosten F. Pharmacokinetics of Piperaquine in Pregnant Women in Sudan with Uncomplicated *Plasmodium falciparum* Malaria. *Am J Trop Med Hyg* 2012;87:35-40.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

2. Amaratunga C, Sreng S, Suon S, Phelps ES, Stepniewska K, Lim P, Zhou C, Mao S, Anderson JM, Lindegardh N, Jiang H, Song J, Su XZ, White NJ, Dondorp AM, Anderson TJ, Fay MP, Mu J, Duong S, Fairhurst RM. Artemisinin-resistant *Plasmodium falciparum* in Pursat province, western Cambodia: a parasite clearance rate study. *Lancet Infect Dis* 2012;**12**:851-8.
3. Arrow KJ, Danzon PM, Gelband H, Jamison D, Laxminarayan R, Mills A, Mwabu G, Panosian C, Peto R, White NJ. The Affordable Medicines Facility--malaria: killing it slowly. *Lancet* 2012;**380**:1889-90.
4. Attaran A, Barry D, Basheer S, Bate R, Benton D, Chauvin J, Garrett L, Kickbusch I, Kohler JC, Midha K, Newton PN, Nishtar S, Orhii P, McKee M. How to achieve international action on falsified and substandard medicines. *BMJ* 2012;**345**:e7381.
5. Auburn S, Campino S, Miotto O, Djimde AA, Zongo I, Manske M, Maslen G, Mangano V, Alcock D, Macinnis B, Rockett KA, Clark TG, Doumbo OK, Ouedraogo JB, Kwiatkowski DP. Characterization of Within-Host Plasmodium falciparum Diversity Using Next-Generation Sequence Data. *PLoS One*2012;**7**:e32891.
6. Blacksell SD, Jarman RG, Gibbons RV, Tanganuchitcharnchai A, Mammen MP, Jr., Nisalak A, Kalayanarooj S, Bailey MS, Premaratna R, de Silva HJ, Day NP, Lalloo DG. Comparison of seven commercial antigen and antibody detection ELISAs for acute dengue infection. *Clin Vaccine Immunol*2012;19(5):804-10.
7. Blacksell SD, Lee SJ, Chanthongthip A, Taojaikong T, Thongpaseuth S, Hubscher T, Newton PN. Comparison of Performance of Serum and Plasma in Panbio Dengue and Japanese Encephalitis Virus Enzyme-Linked Immunosorbent Assays. *Am J Trop Med Hyg* 2012;87(3):573-5.
8. Blacksell SD, Paris DH, Chierakul W, Wuthiekanun V, Teeratakul A, Kantipong P, Day NP. Prospective evaluation of commercial antibody-based rapid tests in combination with a loop-mediated isothermal amplification PCR assay for detection of Orientia tsutsugamushi during the acute phase of scrub typhus infection. *Clin Vaccine Immunol* 2012;**19**:391-5.
9. Boel ME, Rijken MJ, Brabin BJ, Nosten F, McGready R. The epidemiology of postpartum malaria: a systematic review. *Malar J* 2012;**11**:114.
10. Boel ME, Rijken MJ, Pimanpanarak M, Keereecharoen NL, Proux S, Nosten F, McGready R. No association of phenotypic ABO blood group and malaria during pregnancy. *Am J Trop Med Hyg*2012;**87**:447-9.
11. Borlon C, Russell B, Sriprawat K, Suwanarusk R, Erhart A, Renia L, Nosten F, D'Alessandro U. Cryopreserved Plasmodium vivax and cord blood reticulocytes can be used for invasion and short term culture. *Int J Parasitol* 2012;**42**:155-60.
12. Boyer C, Gaudin K, Kauss T, Gaubert A, Boudis A, Verschelden J, Franc M, Roussille J, Boucher J, Olliaro P, White NJ, Millet P, Dubost JP. Development of NIRS method for quality control of drug combination artesunate-azithromycin for the treatment of severe malaria. *J Pharm Biomed Anal* 2012;**67-68**:10-5.
13. Byakika-Kibwika P, Lamorde M, Mayito J, Nabukeera L, Mayanja-Kizza H, Katabira E, Hanpithakpong W, Obua C, Pakker N, Lindegardh N, Tarning J, de Vries PJ, Merry C. Pharmacokinetics and pharmacodynamics of intravenous artesunate during severe malaria treatment in Ugandan adults. *Malar J*2012;**11**:132.
14. Byakika-Kibwika P, Lamorde M, Mayito J, Nabukeera L, Namakula R, Mayanja-Kizza H, Katabira E, Ntale M, Pakker N, Ryan M, Hanpithakpong W, Tarning J, Lindegardh N, de Vries PJ, Khoo S, Back D, Merry C. Significant pharmacokinetic interactions between artemether/lumefantrine and efavirenz or nevirapine in HIV-infected Ugandan adults. *J Antimicrob Chemother* 2012;**67**:2213-21.
15. Byakika-Kibwika P, Lamorde M, Okaba-Kayom V, Mayanja-Kizza H, Katabira E, Hanpithakpong W, Pakker N, Dorlo TP, Tarning J, Lindegardh N, de Vries PJ, Back D, Khoo S, Merry C. Lopinavir/ritonavir significantly influences pharmacokinetic exposure of artemether/lumefantrine in HIV-infected Ugandan adults. *J Antimicrob Chemother* 2012;**67**:1217-23.
16. Ch'ng JH, Renia L, Nosten F, Tan KS. Can we teach an old drug new tricks? *Trends Parasitol*2012;**28**:220-4.
17. Chantratita N, Tandhavanant S, Wikraiphat C, Trunck LA, Rholl DA, Thanwisai A, Saiprom N, Limmathurotsakul D, Korbsrisate S, Day NP, Schweizer HP, Peacock SJ. Proteomic analysis of colony morphology variants of Burkholderia pseudomallei defines a role for the arginine deiminase system in bacterial survival. *J Proteomics* 2012;**75**:1031-42.
18. Cheeseman IH, Miller BA, Nair S, Nkhoma S, Tan A, Tan JC, Al Saai S, Phyo AP, Moo CL, Lwin KM, McGready R, Ashley E, Imwong M, Stepniewska K, Yi P, Dondorp AM, Mayxay M, Newton PN, White NJ, Nosten F, Ferdig MT, Anderson TJ. A major genome region underlying artemisinin resistance in malaria. *Science*. 2012;**336**:79-82.
19. Chotivanich K, Mungthin M, Ruengweerayuth R, Udomsangpetch R, Dondorp AM, Singhasivanon P, Pukrittayakamee S, White NJ. The effects of serum lipids on the in vitro activity of lumefantrine and atovaquone against Plasmodium falciparum. *Malar J* 2012;**11**:177.
20. Chotivanich K, Udomsangpetch R, Suwanarusk R, Pukrittayakamee S, Wilairatana P, Beeson JG, Day NP, White NJ. Plasmodium vivax Adherence to Placental Glycosaminoglycans. *PLoS One* 2012;**7**:e34509.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

21. Chue AL, Carrara VI, Paw MK, Pimanpanarak M, Wiladphaingern J, van Vugt M, Lee SJ, Nosten F, McGready R. Is areca innocent? The effect of areca (betel) nut chewing in a population of pregnant women on the Thai-Myanmar border. *Int Health* 2012;**4(3)**:204-9.

2.2 Chue AL, Moore RL, Cavey A, Ashley EA, Stepniewska K, Nosten F, McGready R. Comparability of tympanic and oral mercury thermometers at high ambient temperatures. *BMC Res Notes* 2012;**5**:356.

23. Cooper BS, Kypraios T, Batra R, Wyncoll D, Tosas O, Edgeworth JD. Quantifying type-specific reproduction numbers for nosocomial pathogens: evidence for heightened transmission of an Asian sequence type 239 MRSA clone. *PLoS Comput Biol* 2012;**8**:e1002454.

24. Craig AG, Grau GE, Janse C, Kazura JW, Milner D, Barnwell JW, Turner G, Langhorne J. The role of animal models for research on severe malaria. *PLoS Pathog*. 2012;**8**:e1002401.

25 Deen J, von Seidlein L, Andersen F, Elle N, White NJ, Lubell Y. Community-acquired bacterial bloodstream infections in developing countries in south and southeast Asia: a systematic review. *Lancet Infect Dis* 2012;**12**:480-7.

26. Desakorn V, Wuthiekanun V, Thanachartwet V, Sahassananda D, Chierakul W, Apiwattanaporn A, Day NP, Limmathurotsakul D, Peacock SJ. Accuracy of a commercial IgM ELISA for the diagnosis of human leptospirosis in Thailand. *Am J Trop Med Hyg* 2012;**86**:524-7.

27. Dondorp AM, Maude RJ, Hendriksen IC, Day NP, White NJ. Artesunate dosing in severe falciparum malaria. *J Infect Dis* 2012;**206**:618-9.

28. Douglas NM, Anstey NM, Buffet PA, Poespoprodjo JR, Yeo TW, White NJ, Price RN. The anaemia of Plasmodium vivax malaria. *Malar J* 2012;**11**:135.

29. Dunser MW, Festic E, Dondorp A, Kissoon N, Ganbat T, Kwizera A, Haniffa R, Baker T, Schultz MJ. Recommendations for sepsis management in resource-limited settings. *Intensive Care Med* 2012;**38**:557-74.

30 Dunstan SJ, Rockett KA, Quyen NT, Teo YY, Thai CQ, Hang NT, Jeffreys A, Clark TG, Small KS, Simmons CP, Day N, O'Riordan SE, Kwiatkowski DP, Farrar J, Phu NH, Hien TT. Variation in human genes encoding adhesion and proinflammatory molecules are associated with severe malaria in the Vietnamese. *Genes Immun* 2012;**13**:503-8.

31. Durier N, Nguyen C, White LJ. Treatment of hepatitis C as prevention: a modeling case study in Vietnam. *PLoS One* 2012;**7**:e34548.

32. Emary K, Moore CE, Chanpheaktra N, An KP, Chheng K, Sona S, Duy PT, Nga TV, Wuthiekanun V, Amornchai P, Kumar V, Wijedoru L, Stoesser NE, Carter MJ, Baker S, Day NP, Parry CM. Enteric fever in Cambodian children is dominated by multidrug-resistant H58 Salmonella enterica serovar Typhi with intermediate susceptibility to ciprofloxacin. *Trans R Soc Trop Med Hyg* 2012;**106**:718-24.

33. Ezard N, Thiptharakun S, Rhodes T, Nosten F, McGready R. Risky alcohol use among reproductive-age men, not women, in Mae La refugee camp, Thailand, 2009. *Confl Health* 2012;**6**:7.

34. Fairhurst RM, Nayyar GM, Breman JG, Hallett R, Vennerstrom JL, Duong S, Ringwald P, Wellems TE, Plowe CV, Dondorp AM. Artemisinin-Resistant Malaria: Research Challenges, Opportunities, and Public Health Implications. *Am J Trop Med Hyg* 2012;**87**:231-41.

35. Fowkes FJ, McGready R, Cross NJ, Hommel M, Simpson JA, Elliott SR, Richards JS, Lackovic K, Viladpai-Nguen J, Narum D, Tsuboi T, Anders RF, Nosten F, Beeson JG. New insights into acquisition, boosting, and longevity of immunity to malaria in pregnant women. *J Infect Dis* 2012;**206**:1612-21.

36. Frickmann H, Chantratita N, Gauthier YP, Neubauer H, Hagen RM. Discrimination of Burkholderia mallei/pseudomallei from Burkholderia thailandensis by sequence comparison of a fragment of the ribosomal protein S21 (rpsU) gene. *Eur J Microbiol Immunol (Bp)*. 2012;**2**:148-56.

37. Gillrie MR, Lee K, Gowda DC, Davis SP, Monestier M, Cui L, Hien TT, Day NP, Ho M. Plasmodium falciparum Histones Induce Endothelial Proinflammatory Response and Barrier Dysfunction. *Am J Pathol* 2012;**180**:1028-39.

38. Grundmann F, Dill V, Dowling A, Thanwisai A, Bode E, Chantratita N, Ffrench-Constant R, Bode HB. Identification and isolation of insecticidal oxazoles from Pseudomonas spp. *Beilstein J Org Chem*2012;**8**:749-52.

39. Hanson J, Lam SW, Mahanta KC, Pattnaik R, Alam S, Mohanty S, Hasan MU, Hossain A, Charunwatthana P, Chotivanich K, Maude RJ, Kingston H, Day NP, Mishra S, White NJ, Dondorp AM. Relative contributions of macrovascular and microvascular dysfunction to disease severity in falciparum malaria. *J Infect Dis* 2012;**206**:571-9.

40. Harrington W, McGready R, Muehlenbachs A, Fried M, Nosten F, Duffy P. Intermittent preventive treatment in pregnancy with sulfadoxine-pyrimethamine: the times they are a-changin'. *Clin Infect Dis*. 2012;**55**:1025-6.

41. Hayden HS, Lim R, Brittnacher MJ, Sims EH, Ramage ER, Fong C, Wu Z, Crist E, Chang J, Zhou Y, Radey M, Rohmer L, Haugen E, Gillett W, Wuthiekanun V, Peacock SJ, Kaul R, Miller SI, Manoil C, Jacobs MA. Evolution of Burkholderia pseudomallei in recurrent melioidosis. *PLoS One* 2012;**7**:e36507.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

42. Hendriksen IC, Ferro J, Montoya P, Chhaganlal KD, Seni A, Gomes E, Silamut K, Lee SJ, Lucas M, Chotivanich K, Fanello CI, Day NP, White NJ, von Seidlein L, Dondorp AM. Diagnosis, Clinical Presentation, and In-Hospital Mortality of Severe Malaria in HIV-Coinfected Children and Adults in Mozambique. *Clin Infect Dis* 2012;55(8):1144-53.

43. Hendriksen IC, Mwanga-Amumpaire J, von Seidlein L, Mtove G, White LJ, Olaosebikan R, Lee SJ, Tshefu AK, Woodrow C, Amos B, Karema C, Saiwaew S, Maitland K, Gomes E, Pan-Ngum W, Gesase S, Silamut K, Reyburn H, Joseph S, Chotivanich K, Fanello CI, Day NP, White NJ, Dondorp AM. Diagnosing Severe Falciparum Malaria in Parasitaemic African Children: A Prospective Evaluation of Plasma PfHRP2 Measurement. *PLoS Med*. 2012;**9**:e1001297.

44. Hien TT, Thuy-Nhien NT, Phu NH, Boni MF, Thanh NV, Nha-Ca NT, Thai le H, Thai CQ, Van Toi P, Thuan PD, Long le T, Dong le T, Merson L, Dolecek C, Stepniewska K, Ringwald P, White NJ, Farrar J, Wolbers M. In vivo susceptibility of Plasmodium falciparum to artesunate in Binh Phuoc Province, Vietnam. *Malar J* 2012;**11**:355.

45. Hoglund RM, Adam I, Hanpithakpong W, Ashton M, Lindegardh N, Day NP, White NJ, Nosten F, Tarning J. A population pharmacokinetic model of piperaquine in pregnant and non-pregnant women with uncomplicated Plasmodium falciparum malaria in Sudan. *Malar J* 2012;**11**:398.

46. Hwang J, Jaroensuk J, Leimanis ML, Russell B, McGready R, Day N, Snounou G, Nosten F, Imwong M. Long-term storage limits PCR-based analyses of malaria parasites in archival dried blood spots. *Malar J*2012;**11**:339.

47 Imwong M, Boel ME, Pagornrat W, Pimanpanarak M, McGready R, Day NP, Nosten F, White NJ. The first Plasmodium vivax relapses of life are usually genetically homologous. *J Infect Dis* 2012;**205**:680-3.

48. Jamsen KM, Duffull SB, Tarning J, Lindegardh N, White NJ, Simpson JA. Optimal designs for population pharmacokinetic studies of the partner drugs co-administered with artemisinin derivatives in patients with uncomplicated falciparum malaria. *Malar J* 2012;**11**:143.

49. John GK, Douglas NM, von Seidlein L, Nosten F, Baird JK, White NJ, Price RN. Primaquine radical cure of *Plasmodium vivax*: a critical review of the literature. *Malar J* 2012;**11**:280.

50. Joshi VS, Maude RJ, Reinhardt JM, Tang L, Garvin MK, Sayeed AA, Ghose A, Hassan MU, Abramoff MD. Automated Detection Of Malarial Retinopathy Associated Retinal Hemorrhages. *Invest Ophthalmol Vis Sci* 2012;53(10):6582-8

51 Kauss T, Gaudin K, Gaubert A, Ba B, Tagliaferri S, Fawaz F, Fabre JL, Boiron JM, Lafarge X, White NJ, Olliaro PL, Millet P. Screening paediatric rectal forms of azithromycin as an alternative to oral or injectable treatment. *Int J Pharm* 2012;**436**:624-30.

52 Kim JR, Nandy A, Maji AK, Addy M, Dondorp AM, Day NP, Pukrittayakamee S, White NJ, Imwong M. Genotyping of Plasmodium vivax reveals both short and long latency relapse patterns in Kolkata. *PLoS One* 2012;**7**:e39645.

53. Klein K, Aarons L, Ter Kuile FO, Nosten F, White NJ, Edstein MD, Teja-Isavadharm P. Population pharmacokinetics of halofantrine in healthy volunteers and patients with symptomatic falciparum malaria. *J Pharm Pharmacol* 2012;**64**:1603-13.

54. Kosaisavee V, Lek-Uthai U, Suwanarusk R, Gruner AC, Russell B, Nosten F, Renia L, Snounou G. Genetic diversity in new members of the reticulocyte binding protein family in Thai Plasmodium vivax isolates. *PLoS One* 2012;**7**:e32105.

55. Lee SJ, Newton PN. Use of the correlation coefficient to compare a point-of-care antigen test against a quantitative sandwich enzyme-linked immunosorbent assay for the detection of cryptococcal meningitis. *Clin Infect Dis* 2012;**55**:1744-5.

56. Limmathurotsakul D, Thammasart S, Warrasuth N, Thapanagulsak P, Jatapai A, Pengreungrojanachai V, Anun S, Joraka W, Thongkamkoon P, Saiyen P, Wongratanacheewin S, Day NP, Peacock SJ. Melioidosis in animals, Thailand, 2006-2010. *Emerg Infect Dis* 2012;**18**:325-7.

57. Limmathurotsakul D, Turner EL, Wuthiekanun V, Thaipadungpanit J, Suputtamongkol Y, Chierakul W, Smythe LD, Day NP, Cooper B, Peacock SJ. Fool's Gold: Why Imperfect Reference Tests Are Undermining the Evaluation of Novel Diagnostics: A Reevaluation of 5 Diagnostic Tests for Leptospirosis. *Clin Infect Dis* 2012;55(3):322-31.

58. Limmathurotsakul D, Wuthiekanun V, Amornchai P, Wongsuwan G, Day NP, Peacock SJ. Effectiveness of a simplified method for isolation of Burkholderia pseudomallei from soil. *Appl Environ Microbiol*. 2012;**78**:876-7.

59. Lipsitz R, Garges S, Aurigemma R, Baccam P, Blaney DD, Cheng AC, Currie BJ, Dance D, Gee JE, Larsen J, Limmathurotsakul D, Morrow MG, Norton R, O'Mara E, Peacock SJ, Pesik N, Rogers LP, Schweizer HP, Steinmetz I, Tan G, Tan P, Wiersinga WJ, Wuthiekanun V, Smith TL. Workshop on Treatment of and Postexposure Prophylaxis for Burkholderia pseudomallei and B. mallei Infection, 2010. *Emerg Infect Dis* 2012;**18**:e2.

60. Lwin KM, Phyo AP, Tarning J, Hanpithakpong W, Ashley EA, Lee SJ, Cheah P, Singhasivanon P, White NJ, Lindegardh N, Nosten F. Randomized, Double-Blind, Placebo-Controlled Trial of Monthly versus Bimonthly Dihydroartemisinin-Piperaquine Chemoprevention in Adults at High Risk of Malaria. *Antimicrob Agents Chemother*. 2012;**56**:1571-7.

61. Mahavanakul W, Nickerson EK, Srisomang P, Teparrukkul P, Lorvinitnun P, Wongyingsinn M, Chierakul W, Hongsuwan M, West TE, Day NP, Limmathurotsakul D, Peacock SJ. Feasibility of modified surviving sepsis campaign guidelines in a resource-restricted setting based on a cohort study of severe s. Aureus sepsis. *PLoS One* 2012;**7**:e29858.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

62. Manske M, Miotto O, Campino S, Auburn S, Almagro-Garcia J, Maslen G, O'Brien J, Djimde A, Doumbo O, Zongo I, Ouedraogo JB, Michon P, Mueller I, Siba P, Nzila A, Borrmann S, Kiara SM, Marsh K, Jiang H, Su XZ, Amaratunga C, Fairhurst R, Socheat D, Nosten F, Imwong M, White NJ, Sanders M, Anastasi E, Alcock D, Drury E, Oyola S, Quail MA, Turner DJ, Ruano-Rubio V, Jyothi D, Amenga-Etego L, Hubbart C, Jeffreys A, Rowlands K, Sutherland C, Roper C, Mangano V, Modiano D, Tan JC, Ferdig MT, Amambua-Ngwa A, Conway DJ, Takala-Harrison S, Plowe CV, Rayner JC, Rockett KA, Clark TG, Newbold CI, Berriman M, MacInnis B, Kwiatkowski DP. Analysis of Plasmodium falciparum diversity in natural infections by deep sequencing. *Nature* 2012;**487**:375-9.

63 Maude RJ, Hasan MU, Hossain MA, Abu Sayeed A, Paul SK, Rahman W, Maude RR, Vaid N, Ghose A, Amin R, Samad R, Bin Yunus E, Rahman MR, Bengali AM, Hoque MG, Day NP, White NJ, White LJ, Dondorp AM, Faiz MA. Temporal trends in severe malaria in Chittagong, Bangladesh. *Malar J* 2012;**11**:323.

64. Maude RJ, Socheat D, Nguon C, Saroth P, Dara P, Li G, Song J, Yeung S, Dondorp AM, Day NP, White NJ, White LJ. Optimising strategies for Plasmodium falciparum malaria elimination in Cambodia: primaquine, mass drug administration and artemisinin resistance. *PLoS One* 2012;**7**:e37166.

65. Maude RR, Maude RJ, Ghose A, Amin MR, Islam MB, Ali M, Bari MS, Majumder MI, Wuthiekanan V, Dondorp AM, Bailey RL, Day NP, Faiz MA. Seroepidemiological surveillance of Burkholderia pseudomallei in Bangladesh. *Trans R Soc Trop Med Hyg* 2012;**106**:576-8.

66. Maude RR, Vatcharapreechasakul T, Ariyaprasert P, Maude RJ, Hongsuwan M, Yuentrakul P, Limmathurotsakul D, Koh GC, Chaowagul W, Day NP, Peacock SJ. Prospective observational study of the frequency and features of intra-abdominal abscesses in patients with melioidosis in northeast Thailand. *Trans R Soc Trop Med Hyg* 2012;**106**:629-31.

67. Mayxay M, Khanthavong M, Chanthongthip O, Imwong M, Lee SJ, Stepniewska K, Soonthornsata B, Pongvongsa T, Phompida S, Hongvanthong B, Ringwald P, White NJ, Newton PN. No Evidence for Spread of *Plasmodium falciparum* Artemisinin Resistance to Savannakhet Province, Southern Laos. *Am J Trop Med Hyg* 2012;**86**:403-8.

68. Mayxay M, Khanthavong M, Chanthongthip O, Imwong M, Pongvongsa T, Hongvanthong B, Phompida S, Vanisaveth V, White NJ, Newton PN. Efficacy of artemether-lumefantrine, the nationally-recommended artemisinin combination for the treatment of uncomplicated falciparum malaria, in southern Laos. *Malar J* 2012;**11**:184.

69. McGready R, Boel M, Rijken MJ, Ashley EA, Cho T, Moo O, Paw MK, Pimanpanarak M, Hkirijareon L, Carrara VI, Lwin KM, Phyo AP, Turner C, Chu CS, van Vugt M, Price RN, Luxemburger C, ter Kuile FO, Tan SO, Proux S, Singhasivanon P, White NJ, Nosten FH. Effect of early detection and treatment on malaria related maternal mortality on the north-western border of Thailand 1986-2010. *PLoS One* 2012;**7**:e40244.

70. McGready R, Phyo AP, Rijken MJ, Tarning J, Lindegardh N, Hanpithakpon W, Than HH, Hlaing N, Zin NT, Singhasivanon P, White NJ, Nosten F. Artesunate/dihydroartemisinin pharmacokinetics in acute falciparum malaria in pregnancy: absorption, bioavailability, disposition and disease effects. *Br J Clin Pharmacol* 2012;**73**:467-77.

71. Mens PF, de Bes HM, Sondo P, Laochan N, Keereecharoen L, van Amerongen A, Flint J, Sak JR, Proux S, Tinto H, Schallig HD. Direct blood PCR in combination with Nucleic Acid Lateral Flow Immuno-Assay for the detection of Plasmodium species in malaria endemic settings. *J Clin Microbiol* 2012;50(11):3520-5.

72. Mens PF, Moers AP, de Bes LM, Flint J, Sak JR, Keereecharoen L, van Overmeir C, Verweij JJ, Hallett RL, Wihokhoen B, Proux S, Schallig HD, van Amerongen A. Development, validation and evaluation of a rapid PCR-nucleic acid lateral flow immuno-assay for the detection of Plasmodium and the differentiation between Plasmodium falciparum and Plasmodium vivax. *Malar J* 2012;**11**:279.

73. Moore CE, Blacksell SD, Taojaikong T, Jarman RG, Gibbons RV, Lee SJ, Chansamouth V, Thongpaseuth S, Mayxay M, Newton PN. A Prospective Assessment of the Accuracy of Commercial IgM ELISAs in Diagnosis of Japanese Encephalitis Virus Infections in Patients with Suspected Central Nervous System Infections in Laos. *Am J Trop Med Hyg* 2012;**87**:171-8.

74. Moore CE, Hennig BJ, Perrett KP, Hoe JC, Lee SJ, Fletcher H, Brocklebank D, O'Connor D, Snape MD, Hall AJ, Segal S, Hill AV, Pollard AJ. Single nucleotide polymorphisms in the Toll-like receptor 3 and CD44 genes are associated with persistence of vaccine-induced immunity to the serogroup C meningococcal conjugate vaccine. *Clin Vaccine Immunol* 2012;**19**:295-303.

75. Moore CE, Hor PC, Soeng S, Sun S, Lee SJ, Parry CM, Day NP, Stoesser N. Changing patterns of gastrointestinal parasite infections in Cambodian children: 2006-2011. *J Trop Pediatr* 2012;**58**:509-12.

76. Muehlenbachs A, Nabasumba C, McGready R, Turyakira E, Tumwebaze B, Dhorda M, Nyehangane D, Nalusaji A, Nosten F, Guerin PJ, Piola P. Artemether-lumefantrine to treat malaria in pregnancy is associated with reduced placental haemozoin deposition compared to quinine in a randomized controlled trial. *Malar J* 2012;**11**:150.

77. Nkhoma SC, Nair S, Cheeseman IH, Rohr-Allegrini C, Singlam S, Nosten F, Anderson TJ. Close kinship within multiple-genotype malaria parasite infections. *Proc Biol Sci* 2012;**279**:2589-98.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

78. Nosten F, Phillips-Howard P, ter Kuiile F. Other 4-Methanolquinolines, Amyl Alcohols and Phentathrenes: Mefloquine, Lumefantrine and Halofantrine. In: Staines HM, Krishna S, editors. Treatment and Prevention of Malaria: Antimalarial Drug Chemistry, Action and Use. Basel: Springer; 2012. p. 95-111.

79. Paris DH, Chansamouth V, Nawtaisong P, Lowenberg EC, Phetsouvanh R, Blacksell SD, Lee SJ, Dondorp AM, van der Poll T, Newton PN, Levi M, Day NP. Coagulation and inflammation in scrub typhus and murine typhus--a prospective comparative study from Laos. *Clin Microbiol Infect* 2012;**18**:1221-8.

80. Paris DH, Phetsouvanh R, Tanganuchitcharnchai A, Jones M, Jenjaroen K, Vongsouvath M, Ferguson DP, Blacksell SD, Newton PN, Day NP, Turner GD. Orientia tsutsugamushi in human scrub typhus eschars shows tropism for dendritic cells and monocytes rather than endothelium. *PLoS Negl Trop Dis* 2012;**6**:e1466.

81. Peacock SJ, Limmathurotsakul D, Lubell Y, Koh GC, White LJ, Day NP, Titball RW. Melioidosis vaccines: a systematic review and appraisal of the potential to exploit biodefense vaccines for public health purposes. *PLoS Negl Trop Dis* 2012;**6**:e1488.

82. Phyo AP, Nkhoma S, Stepniewska K, Ashley EA, Nair S, McGready R, Ler Moo C, Al-Saai S, Dondorp AM, Lwin KM, Singhasivanon P, Day NP, White NJ, Anderson TJ, Nosten F. Emergence of artemisinin-resistant malaria on the western border of Thailand: a longitudinal study. *Lancet* 2012;379(9830):1960-6.

83. Ponsford MJ, Medana IM, Prapansilp P, Hien TT, Lee SJ, Dondorp AM, Esiri MM, Day NP, White NJ, Turner GD. Sequestration and microvascular congestion are associated with coma in human cerebral malaria. *J Infect Dis* 2012;**205**:663-71.

84. Pratt B, Zion D, Lwin KM, Cheah PY, Nosten F, Loff B. Closing the translation gap for justice requirements in international research. *J Med Ethics* 2012;**38**:552-8.

85. Preston MD, Manske M, Horner N, Assefa S, Campino S, Auburn S, Zongo I, Ouedraogo JB, Nosten F, Anderson T, Clark TG. VarB: a variation browsing and analysis tool for variants derived from next-generation sequencing data. *Bioinformatics* 2012;**28**:2983-5.

86. Price EP, Dale JL, Cook JM, Sarovich DS, Seymour ML, Ginther JL, Kaufman EL, Beckstrom-Sternberg SM, Mayo M, Kaestli M, Glass MB, Gee JE, Wuthiekanun V, Warner JM, Baker A, Foster JT, Tan P, Tuanyok A, Limmathurotsakul D, Peacock SJ, Currie BJ, Wagner DM, Keim P, Pearson T. Development and validation of Burkholderia pseudomallei-specific real-time PCR assays for clinical, environmental or forensic detection applications. *PLoS One*2012;**7**:e37723.

87. Ramutton T, Hendriksen IC, Mwanga-Amumpaire J, Mtove G, Olaosebikan R, Tshefu AK, Onyamboko MA, Karema C, Maitland K, Gomes E, Gesase S, Reyburn H, Silamut K, Chotivanich K, Promnares K, Fanello CI, von Seidlein L, Day NP, White NJ, Dondorp AM, Imwong M, Woodrow CJ. Sequence variation does not confound the measurement of plasma PfHRP2 concentration in African children presenting with severe malaria. *Malar J* 2012;**11**:276.

88. Rijken MJ, de Wit MC, Mulder EJ, Kiricharoen S, Karunkonkowit N, Paw T, Visser GH, McGready R, Nosten FH, Pistorius LR. Effect of malaria in pregnancy on foetal cortical brain development: a longitudinal observational study. *Malar J* 2012;**11**:222.

89. Rijken MJ, Gilder ME, Thwin MM, Ladda Kajeechewa HM, Wiladphaingern J, Lwin KM, Jones C, Nosten F, McGready R. Refugee and migrant women's views of antenatal ultrasound on the Thai Burmese border: a mixed methods study. *PLoS One* 2012;**7**:e34018.

90. Rijken MJ, McGready R, Boel ME, Poespoprodjo R, Singh N, Syafruddin D, Rogerson S, Nosten F. Malaria in pregnancy in the Asia-Pacific region. *Lancet Infect Dis* 2012;**12**:75-88.

91. Rijken MJ, Moroski WE, Kiricharoen S, Karunkonkowit N, Stevenson G, Ohuma EO, Noble JA, Kennedy SH, McGready R, Papageorghiou AT, Nosten FH. Effect of malaria on placental volume measured using three-dimensional ultrasound: a pilot study. *Malar J* 2012;**11**:5.

92. Rijken MJ, Mulder EJ, Papageorghiou AT, Thiptharakun S, Wah N, Paw TK, Dwell SL, Visser GH, Nosten FH, McGready R. Quality of ultrasound biometry obtained by local health workers in a refugee camp on the Thai-Burmese Border. *Ultrasound Obstet Gynecol* 2012;40(2):151-7.

93. Rijken MJ, Papageorghiou AT, Thiptharakun S, Kiricharoen S, Dwell SL, Wiladphaingern J, Pimanpanarak M, Kennedy SH, Nosten F, McGready R. Ultrasound evidence of early fetal growth restriction after maternal malaria infection. *PLoS One* 2012;**7**:e31411.

94. Rueangweerayut R, Phyo AP, Uthaisin C, Poravuth Y, Binh TQ, Tinto H, Penali LK, Valecha N, Tien NT, Abdulla S, Borghini-Fuhrer I, Duparc S, Shin CS, Fleckenstein L. Pyronaridine-artesunate versus mefloquine plus artesunate for malaria. *N Engl J Med* 2012;**366**:1298-309.

95. Russell B, Suwanarusk R, Malleret B, Costa FT, Snounou G, Kevin Baird J, Nosten F, Renia L. Human ex vivo studies on asexual *Plasmodium vivax*: The best way forward. *Int J Parasitol* 2012;42(12):1063-70.

96. Salter SJ, Hinds J, Gould KA, Lambertsen L, Hanage WP, Antonio M, Turner P, Hermans PW, Bootsma HJ, O'Brien KL, Bentley SD. Variation at the capsule locus, cps, of mistyped and non-typable Streptococcus pneumoniae isolates. *Microbiology* 2012;**158**:1560-9.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

97. Sarovich DS, Price EP, Von Schulze AT, Cook JM, Mayo M, Watson LM, Richardson L, Seymour ML, Tuanyok A, Engelthaler DM, Pearson T, Peacock SJ, Currie BJ, Keim P, Wagner DM. Characterization of ceftazidime resistance mechanisms in clinical isolates of Burkholderia pseudomallei from Australia. *PLoS One* 2012;**7**:e30789.

98. Stoesser N, Crook DW, Moore CE, Phetsouvanh R, Chansamouth V, Newton PN, Jones N. Characteristics of CTX-M ESBL-producing Escherichia coli isolates from the Lao People's Democratic Republic, 2004-09. *J Antimicrob Chemother* 2012;**67**:240-2.

99. Stoesser N, Pocock J, Moore CE, Soeng S, Chhat HP, Sar P, Limmathurotsakul D, Day N, Thy V, Sar V, Parry CM. Pediatric suppurative parotitis in Cambodia between 2007 and 2011. *Pediatr Infect Dis J* 2012;**31**:865-8.

100. Stuetz W, Carrara VI, McGready R, Lee SJ, Biesalski HK, Nosten FH. Thiamine diphosphate in whole blood, thiamine and thiamine monophosphate in breast-milk in a refugee population. *PLoS One* 2012;**7**:e36280.

101. Stuetz W, Carrara VI, McGready R, Lee SJ, Erhardt JG, Breuer J, Biesalski HK, Nosten FH. Micronutrient status in lactating mothers before and after introduction of fortified flour: cross-sectional surveys in Maela refugee camp. *Eur J Nutr* 2012;**51**:425-34.

102. Tanganuchitcharnchai A, Smythe L, Dohnt M, Hartskeerl R, Vongsouvath M, Davong V, Lattana O, Newton PN, Blacksell SD. Evaluation of the Standard Diagnostics Leptospira IgM ELISA for diagnosis of acute leptospirosis in Lao PDR. *Trans R Soc Trop Med Hyg* 2012;**106**:563-6.

103. Tarning J, Chotsiri P, Jullien V, Rijken MJ, Bergstrand M, Cammas M, McGready R, Singhasivanon P, Day NP, White NJ, Nosten F, Lindegardh N. Population pharmacokinetic and pharmacodynamic modeling of amodiaquine and desethylamodiaquine in women with Plasmodium vivax malaria during and after pregnancy. *Antimicrob Agents Chemother* 2012;56(11):5764-73.

104. Tarning J, Kloprogge F, Piola P, Dhorda M, Muwanga S, Turyakira E, Nuengchamnong N, Nosten F, Day NP, White NJ, Guerin PJ, Lindegardh N. Population pharmacokinetics of Artemether and dihydroartemisinin in pregnant women with uncomplicated Plasmodium falciparum malaria in Uganda. *Malar J* 2012;**11**:293.

105. Tarning J, Rijken MJ, McGready R, Phyo AP, Hanpithakpong W, Day NP, White NJ, Nosten F, Lindegardh N. Population pharmacokinetics of dihydroartemisinin and piperaquine in pregnant and nonpregnant women with uncomplicated malaria. *Antimicrob Agents Chemother* 2012;**56**:1997-2007.

106. Tarning J, Zongo I, Some FA, Rouamba N, Parikh S, Rosenthal PJ, Hanpithakpong W, Jongrak N, Day NP, White NJ, Nosten F, Ouedraogo JB, Lindegardh N. Population pharmacokinetics and pharmacodynamics of piperaquine in children with uncomplicated falciparum malaria. *Clin Pharmacol Ther* 2012;**91**:497-505.

107. Taylor WR, Hanson J, Turner GD, White NJ, Dondorp AM. Respiratory manifestations of malaria.*Chest*. 2012;**142**:492-505.

108. Thanwisai A, Tandhavanant S, Saiprom N, Waterfield NR, Ke Long P, Bode HB, Peacock SJ, Chantratita N. Diversity of Xenorhabdus and Photorhabdus spp. and their symbiotic entomopathogenic nematodes from Thailand. *PLoS One* 2012;**7**:e43835.

109. Tirakarn S, Riangrungroj P, Kongsaeree P, Imwong M, Yuthavong Y, Leartsakulpanich U. Cloning and heterologous expression of Plasmodium ovale dihydrofolate reductase-thymidylate synthase gene. *Parasitol Int* 2012;**61**:324-32.

110. Torok M, Chantratita N, Peacock S. Bacterial gene loss as a mechanism for gain of antimicrobial resistance. *Curr Opin Microbiol* 2012;**15**:583-7.

111. Tuanyok A, Stone JK, Mayo M, Kaestli M, Gruendike J, Georgia S, Warrington S, Mullins T, Allender CJ, Wagner DM, Chantratita N, Peacock SJ, Currie BJ, Keim P. The genetic and molecular basis of O-antigenic diversity in Burkholderia pseudomallei lipopolysaccharide.*PLoS Negl Trop Dis* 2012;**6**:e1453.

112. Turner C, Aye Mya Thein N, Turner P, Nosten F, White NJ. Rectal pH in Well and Unwell Infants.*J Trop Pediatr* 2012;**58**:311-3.

113. Turner C, Turner P, Cararra V, Eh Lwe N, Watthanaworawit W, Day NP, White NJ, Goldblatt D, Nosten F. A high burden of respiratory syncytial virus associated pneumonia in children less than two years of age in a South East asian refugee population. *PLoS One* 2012;**7**:e50100.

114. Turner C, Turner P, Po L, Maner N, De Zoysa A, Afshar B, Efstratiou A, Heath PT, Nosten F. Group B streptococcal carriage, serotype distribution and antibiotic susceptibilities in pregnant women at the time of delivery in a refugee population on the Thai-Myanmar border. *BMC Infect Dis*. 2012;**12**:34.

115. Turner GD, Bunthi C, Wonodi CB, Morpeth SC, Molyneux CS, Zaki SR, Levine OS, Murdoch DR, Scott JA. The role of postmortem studies in pneumonia etiology research.*Clin Infect Dis* 2012;**54 Suppl 2**:S165-71.

116. Turner P, Melchiorre S, Moschioni M, Barocchi MA, Turner C, Watthanaworawit W, Kaewcharernnet N, Nosten F, Goldblatt D. Assessment of Streptococcus pneumoniae pilus islet-1 prevalence in carried and transmitted isolates from mother-infant pairs on the Thailand-Burma border. *Clin Microbiol Infect*. 2012;**18**:970-5.

117. Turner P, Turner C, Jankhot A, Helen N, Lee SJ, Day NP, White NJ, Nosten F, Goldblatt D. A longitudinal study of Streptococcus pneumoniae carriage in a cohort of infants and their mothers on the Thailand-Myanmar border.*PLoS One*. 2012;**7**:e38271.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

118. Turner P, Willemse C, Phakaudom K, Zin TW, Nosten F, McGready R. Aeromonas spp. Bacteremia in Pregnant Women, Thailand-Myanmar Border, 2011. *Emerg Infect Dis* 2012;**18**:1522-3.

119. van Hasselt JG, Andrew MA, Hebert MF, Tarning J, Vicini P, Mattison DR. The Status of Pharmacometrics in Pregnancy: Highlights from the 3(rd) American Conference on Pharmacometrics. *Br J Clin Pharmacol* 2012;74(6):932-9.

120. Veiga MI, Ferreira PE, Malmberg M, Jornhagen L, Bjorkman A, Nosten F, Gil JP. pfmdr1 amplification is related to increased Plasmodium falciparum in vitro sensitivity to the bisquinoline piperaquine. *Antimicrob Agents Chemother* 2012;**56**:3615-9.

121. Velapatino B, Limmathurotsakul D, Peacock SJ, Speert DP. Identification of differentially expressed proteins from *Burkholderia pseudomallei* isolated during primary and relapsing melioidosis. *Microbes Infect* 2012;**14**:335-40.

122. Venkatesan M, Amaratunga C, Campino S, Auburn S, Koch O, Lim P, Uk S, Socheat D, Kwiatkowski DP, Fairhurst RM, Plowe CV. Using CF11 cellulose columns to inexpensively and effectively remove human DNA from Plasmodium falciparum-infected whole blood samples. *Malar J* 2012;**11**:41.

123. von Seidlein L, Olaosebikan R, Hendriksen IC, Lee SJ, Adedoyin OT, Agbenyega T, Nguah SB, Bojang K, Deen JL, Evans J, Fanello CI, Gomes E, Pedro AJ, Kahabuka C, Karema C, Kivaya E, Maitland K, Mokuolu OA, Mtove G, Mwanga-Amumpaire J, Nadjm B, Nansumba M, Ngum WP, Onyamboko MA, Reyburn H, Sakulthaew T, Silamut K, Tshefu AK, Umulisa N, Gesase S, Day NP, White NJ, Dondorp AM. Predicting the clinical outcome of severe falciparum malaria in african children: findings from a large randomized trial. *Clin Infect Dis* 2012;**54**:1080-90.

124. Weehuizen TA, Wieland CW, van der Windt GJ, Duitman JW, Boon L, Day NP, Peacock SJ, van der Poll T, Wiersinga WJ. Expression and Function of Transforming Growth Factor-Beta in Melioidosis.*Infect Immun* 2012;80(5):1853-7.

125. Weerasuriya CK, Tan SO, Alexakis LC, Set AK, Rijken MJ, Martyn P, Nosten F, McGready R. Evaluation of a surgical service in the chronic phase of a refugee camp: an example from the Thai-Myanmar border. *Confl Health* 2012;**6**:5.

126. West TE, Chierakul W, Chantratita N, Limmathurotsakul D, Wuthiekanun V, Emond MJ, Hawn TR, Peacock SJ, Skerrett SJ. Toll-like receptor 4 region genetic variants are associated with susceptibility to melioidosis. *Genes Immun* 2012;**13**:38-46.

127. White AL, Carrara VI, Paw MK, Malika, Dahbu C, Gross MM, Stuetz W, Nosten FH, McGready R. High initiation and long duration of breastfeeding despite absence of early skin-to-skin contact in Karen refugees on the Thai-Myanmar border: a mixed methods study. *Int Breastfeed J* 2012;**7**:19.

128. White LJ, Lee SJ, Stepniewska K, Simpson JA, Dwell SL, Arunjerdja R, Singhasivanon P, White NJ, Nosten F, McGready R. Estimation of gestational age from fundal height: a solution for resource-poor settings. *J R Soc Interface* 2012;**9**:503-10.

129. White LJ, Newton PN, Maude RJ, Pan-ngum W, Fried JR, Mayxay M, Maude RR, Day NP. Defining disease heterogeneity to guide the empirical treatment of febrile illness in resource poor settings.*PLoS One*. 2012;**7**:e44545.

130. White NJ. Counter perspective: artemisinin resistance: facts, fears, and fables. *Am J Trop Med Hyg* 2012;**87**:785.

131. White NJ, Imwong M. Relapse. *Adv Parasitol* 2012;**80**:113-50.

132. White NJ, Qiao LG, Qi G, Luzzatto L. Rationale for recommending a lower dose of primaquine as a Plasmodium falciparum gametocytocide in populations where G6PD deficiency is common. *Malar J*. 2012;**11**:418.

133. Wijedoru LP, Kumar V, Chanpheaktra N, Chheng K, Smits HL, Pastoor R, Nga TV, Baker S, Wuthiekanun V, Peacock SJ, Putchhat H, Parry CM. Typhoid fever among hospitalized febrile children in Siem Reap, Cambodia. *J Trop Pediatr* 2012;**58**:68-70.

134. Williams AR, Douglas AD, Miura K, Illingworth JJ, Choudhary P, Murungi LM, Furze JM, Diouf A, Miotto O, Crosnier C, Wright GJ, Kwiatkowski DP, Fairhurst RM, Long CA, Draper SJ. Enhancing Blockade of Plasmodium falciparum Erythrocyte Invasion: Assessing Combinations of Antibodies against PfRH5 and Other Merozoite Antigens.*PLoS Pathog* 2012;**8**:e1002991.

135. Wongtanachai J, Silamut K, Day NP, Dondorp A, Chaisri U. Effects of antimalarial drugs on movement of Plasmodium falciparum. *Southeast Asian J Trop Med Public Health* 2012;**43**:1-9.

Mahidol Vivax Research Unit (MVRU)

1. Alexandre JSF, Xangsayarath P, Kaewthamasorn M, Yahata K, Sattabongkot J, Udomsangpetch R, Kaneko O. Stable allele frequency distribution of the *plasmodium falciparum* clag genes encoding components of the high molecular weight rhoptry protein complex. *Trop Med Health* 2012 Dec;40(3):71-7.

2. Chansamut N, Buates S, Takhampunya R, Udomsangpetch R, Bantuchai S, Sattabongkot J. Correlation of Pfg377 ortholog gene expression of *Plasmodium vivax* and mosquito infection. *Trop Med Int Health* 2012 Apr;17(4):414-22.

Mahidol Vivax Research Unit (MVRU) *(Continued)*

3. Eksi S, Morahan BJ, Haile Y, Furuya T, Jiang H, Ali O, Xu H, Kiattibutr K, Suri A, Czesny B, Adeyemo A, Myers TG, Sattabongkot J, Su Xz, Williamson KC. *Plasmodium falciparum* Gametocyte Development 1 (*Pfgdv1*) and Gametocytogenesis Early Gene Identification and Commitment to Sexual Development. *Plos Pathog* 2012 Oct;8(10):e1002964.
4. Jangpatarapongsa K, Xia H, Fang Q, Hu K, Yuan Y, Peng M, Gao Q, Sattabongkot J, Cui L, Li B, Udomsangpetch R. Immunity to Malaria in *Plasmodium vivax* Infection: A Study in Central China. *Plos One* 2012 Sep;7(9):e45971.
5. Kaewthamasorn M, Yahata K, Alexandre JSF, Xangsayarath P, Nakazawa S, Torii M, Sattabongkot J, Udomsangpetch R, Kaneko O. Stable allele frequency distribution of the polymorphic region of SURFIN 4.2 in *Plasmodium falciparum* isolates from Thailand. *Parasitol Int* 2012 Jun;61(2):317-23.
6. Kennedy M, Fishbaugher ME, Vaughan AM, Patrapuvich R, Boonhok R, Yimamnuaychok N, Rezakhani N, Metzger P, Ponpuak M, Sattabongkot J, Kappe SH, Hume JC, Lindner SE. A rapid and scalable density gradient purification method for *Plasmodium* sporozoites. *Malar J* 2012 Dec;11:421.
7. Krairojananan P, Sattabongkot J, Chavalitshewinkoon-Petmitr P. Effect of peritrophic matrix C-lectin(AdPMCTL) on blood-meal size in Anolpheles dirus. *Southeast Asian J Trop Med Public Health* 2012 Sep;43(5):1134-45.
8. Lapcharoen P, Komalamisra N, Rongsriyam Y, Wangsuphachart V, Dekumyoy P, Prachumsri J, Kajla MK, Paskewitz SM. Investigations on the role of a lysozyme from the malaria vector Anopheles dirus during malaria parasite development. *Dev Comp Immunol* 2012 Jan;36(1):104-11.
9. Li J, Ito D, Chen JH, Lu F, Cheng Y, Wang B, Ha KS, Cao J, Torii M, Sattabongkot J, Tsuboi T, Han ET. Pv12, a 6-Cys antigen of *Plasmodium vivax*, is localized to the merozoite rhoptry. *Parasitol Int* 2012 Sep;61(3):443-9.
10. Lu F, Wang B, Cao J, Sattabongkot J, Zhou H, Zhu G, Kim K, Gao Q, Han ET. Prevalence of drug resistance-associated gene mutations in plasmodium vivax in central china. *Korean J Parasitol* 2012 Dec;50(4):379-84.
11. Lumsden JM, Nurmukhambetova S, Klein JH, Sattabongkot J, Bennett JW, Reed SG, Ockenhouse CF, Howard RF, Polhemus ME, Yadava A. Evaluation of immune responses to a Plasmodium vivax CSP-based recombinant vaccine candidate in combination with second-generation adjuvants in mice. *Vaccine* 2012 May;30(22):3311-9.
12. Lurchachaiwong W, Monkanna T, Leepitakrat S, Ponlawat A, Sattabongkot J, Schuster AL, McCardle PW, Richards AL. Variable clinical responses of a scrub typhus outbred mouse model to feeding by Orientia tsutsugamushi infected mites. *Exp Appl Acarol* 2012 Sep;58(1):23-34.
13. Parker D, Lerdprom R, Srisatjarak W, Yan G, Sattabongkot J, Wood J, Sirichaisinthop J, Cui L. Longitudinal in vitro surveillance of *Plasmodium falciparum* sensitivity to common anti-malarials in Thailand between 1994 and 2010. *Malar J* 2012 Aug;11:290.
14. Sakamoto H, Takeo S, Maier AG, Sattabongkot J, Cowman AF, Tsuboi T. Antibodies against a *Plasmodium falciparum* antigen PfMSPDBL1 inhibit merozoite invasion into human erythrocytes. *Vaccine* 2012 Mar;30(11):1972-80.
15. Sriwichai P, Rongsiryam Y, Jariyapan N, Sattabongkot J, Apiwathnasorn C, Nacapunchai D, Paskewitz S. Cloning of a trypsin-like serine protease and expression patterns during plasmodium falciparum invasion in the mosquito, anopheles dirus (peyton and harrison). *Arch Insect Biochem Physiol* 2012 Aug;80(3):151-65.
16. Tachibana M, Sato C, Otsuki H, Sattabongkot J, Kaneko O, Torii M, Tsuboi T. *Plasmodium vivax* gametocyte protein Pvs230 is a transmission-blocking vaccine candidate. *Vaccine* 2012 Feb;30(10):1807-12.
17. Takahashi N, Tanabe K, Tsukahara T, Dzodzomenyo M, Dysoley L, Khamlome B, Sattabongkot J, Nakamura M, Sakurai M, Kobayashi J, Kaneko A, Endo H, Hombhanje F, Tsuboi T, Mita T. Large-scale survey for novel genotypes of *Plasmodium falciparum* chloroquine-resistance gene pfcrt. *Malar J* 2012 Mar;11:92.
18. Tonwong N, Sattabongkot J, Tsuboi T, Iriko H, Takeo S, Sirichaisinthop J, Udomsangpetch R. 2012. Natural Infection of *Plasmodium falciparum* Induces Inhibitory Antibodies against Gametocyte Development in Human Hosts. *Jpn J Infect Dis* 2012 Mar;65(2):152-6.
19. Xangsayarath P, Kaewthamasorn M, Yahata K, Nakazawa S, Sattabongkot J, Udomsangpetch R, Kaneko O. Positive diversifying selection on the *plasmodium falciparum* surf4.1 gene in Thailand. *Trop Med Health* 2012 Dec;40(3):79-87.

Vaccine Trial Centre (VTC)

1. Bodhidatta L, Pitisuttithum P, Chamnanchanant S, Chang KT, Islam D, Bussaratid V, Venkatesan MM, Hale TL, Mason CJ. Establishment of a Shigella sonnei human challenge model in Thailand. *Vaccine* 2012 Nov 19;30(49):7040-5.

Vaccine Trial Centre (VTC) *(Continued)*

2. Bonsignori M, Pollara J, Moody MA, Alpert MD, Chen X, Hwang KK, Gilbert PB, Huang Y, Gurley TC, Kozink DM, Marshall DJ, Whitesides JF, Tsao CY, Kaewkungwal J, Nitayaphan S, Pitisuttithum P, Rerks-Ngarm S, Kim JH, Michael NL, Tomaras GD, Montefiori DC, Lewis GK, DeVico A, Evans DT, Ferrari G, Liao HX, Haynes BF.Antibody-dependent cellular cytotoxicity-mediating antibodies from an HIV-1 vaccine efficacy trial target multiple epitopes and preferentially use the VH1 gene family. *J Virol* 2012 Nov;86(21):11521-32.

3. de Souza MS, Ratto-Kim S, Chuenarom W, Schuetz A, Chantakulkij S, Nuntapinit B, Valencia-Micolta A, Thelian D, Nitayaphan S, Pitisuttithum P, Paris RM, Kaewkungwal J, Michael NL, Rerks-Ngarm S, Mathieson B, Marovich M, Currier JR, Kim JH; Ministry of Public Health–Thai AIDS Vaccine Evaluation Group Collaborators.The Thai phase III trial (RV144) vaccine regimen induces T cell responses that preferentially target epitopes within the V2 region of HIV-1 envelope. *J Immunol* 2012 May 15;188(10):5166-76.

4. Haynes BF, Gilbert PB, McElrath MJ, Zolla-Pazner S, Tomaras GD, Alam SM, Evans DT, Montefiori DC, Karnasuta C, Sutthent R, Liao HX, DeVico AL, Lewis GK, Williams C, Pinter A, Fong Y, Janes H, DeCamp A, Huang Y, Rao M, Billings E, Karasavvas N, Robb ML, Ngauy V, de Souza MS, Paris R, Ferrari G, Bailer RT, Soderberg KA, Andrews C, Berman PW, Frahm N, De Rosa SC, Alpert MD, Yates NL, Shen X, Koup RA, Pitisuttithum P, Kaewkungwal J, Nitayaphan S, Rerks-Ngarm S, Michael NL, Kim JH.Immune-correlates analysis of an HIV-1 vaccine efficacy trial. *N Engl J Med* 2012 Apr 5;366(14):1275-86.

5. Htun WL, Bowonwatanuwong C, Phonrat B, Pitisuttithum P. Long term outcomes of nevirapine containing antiretroviral therapy at a center in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Jul;43(4):860-70.

6. Karasavvas N, Billings E, Rao M, Williams C, Zolla-Pazner S, Bailer RT, Koup RA, Madnote S, Arworn D, Shen X, Tomaras GD, Currier JR, Jiang M, Magaret C, Andrews C, Gottardo R, Gilbert P, Cardozo TJ, Rerks-Ngarm S, Nitayaphan S, Pitisuttithum P, Kaewkungwal J, Paris R, Greene K, Gao H, Gurunathan S, Tartaglia J, Sinangil F, Korber BT, Montefiori DC, Mascola JR, Robb ML, Haynes BF, Ngauy V, Michael NL, Kim JH, de Souza MS; MOPH TAVEG Collaboration.The Thai Phase III HIV Type 1 Vaccine trial (RV144) regimen induces antibodies that target conserved regions within the V2 loop of gp120. *AIDS Res Hum Retroviruses* 2012 Nov;28(11):1444-57.

7. Matys K, Mallary S, Bautista O, Vuocolo S, Manalastas R, Pitisuttithum P, Saah A. Mother-infant transfer of anti-human papillomavirus (HPV) antibodies following vaccination with the quadrivalent HPV (type 6/11/16/18) virus-like particle vaccine. *Clin Vaccine Immunol* 2012 Jun;19(6):881-5.

8. Montefiori DC, Karnasuta C, Huang Y, Ahmed H, Gilbert P, de Souza MS, McLinden R, Tovanabutra S, Laurence-Chenine A, Sanders-Buell E, Moody MA, Bonsignori M, Ochsenbauer C, Kappes J, Tang H, Greene K, Gao H, LaBranche CC, Andrews C, Polonis VR, Rerks-Ngarm S, Pitisuttithum P, Nitayaphan S, Kaewkungwal J, Self SG, Berman PW, Francis D, Sinangil F, Lee C, Tartaglia J, Robb ML, Haynes BF, Michael NL, Kim JH. Magnitude and breadth of the neutralizing antibody response in the RV144 and Vax003 HIV-1 vaccine efficacy trials. *J Infect Dis* 2012 Aug 1;206(3):431-41.

9. Paris R, Bejrachandra S, Thongcharoen P, Nitayaphan S, Pitisuttithum P, Sambor A, Gurunathan S, Francis D, Ratto-Kim S, Karnasuta C, de Souza MS, Polonis VR, Brown AE, Kim JH, Stephens HA. HLA class II restriction of HIV-1 clade-specific neutralizing antibody responses in ethnic Thai recipients of the RV144 prime-boost vaccine combination of ALVAC-HIV and AIDSVAX ® B/E. *Vaccine* 2012 Jan;30(5):832-6.

10. Robb ML, Rerks-Ngarm S, Nitayaphan S, Pitisuttithum P, Kaewkungwal J, Kunasol P, Khamboonruang C, Thongcharoen P, Morgan P, Benenson M, Paris RM, Chiu J, Adams E, Francis D, Gurunathan S, Tartaglia J, Gilbert P, Stablein D, Michael NL, Kim JH. Risk behaviour and time as covariates for efficacy of the HIV vaccine regimen ALVAC-HIV (vCP1521) and AIDSVAX B/E: a post-hoc analysis of the Thai phase 3 efficacy trial RV 144. *Lancet Infect Dis* 2012 Jul;12(7):531-7.

11. Songthap A, Pitisuttithum P, Kaewkungwal J, Fungladda W, Bussaratid V. Knowledge, attitudes, and acceptability of a human papilloma virus vaccine among students, parents and teachers in Thailand. *Southeast Asian J Trop Med Public Health* 2012 Mar;43(2):340-53.

12. Than NN, Sungkanuparph S, Maek-A-Nantawat W, Kaewkungwal J, Pitisuttithum P. Comparison of clinical outcomes between HIV-infected patients with and without HCV co-infection in a resource-limited setting. *Southeast Asian J Trop Med Public Health* 2012 May;43(3):646-51.

Presentations 2012

DEPARTMENTS

Clinical Tropical Medicine

1. Chotivanich K, Udomsangpetch R, Pukrittayakamee S, Wilairatana P, Dondorp AM, Day NP, White NJ. Cytoadherence of *P. vivax*-infected red cells. Joint International Tropical Medicine Meeting 2012, (JITMM 2012), Bangkok, Thailand, Dec 12-14, 2012.
2. Chierakul W, Silachamroon U, Phumratanaprapin W, Kittitrakul C. Management of leptospirosis and complications (TropMed experience). Joint International Tropical Medicine Meeting 2012, (JITMM 2012), Bangkok, Thailand, Dec 12-14, 2012.
3. Tangpukdee N, Duangdee C, Wilairatana P, Krudsood S. High frequency malaria parasite detection by buffy-coat smear among patients with negative thick blood film tests. American Society of Tropical Medicine and Hygiene 61st Annual Meeting, Atlanta, USA, Nov 10-15, 2012.
4. Gherardin T, Newton P, Piyaphanee W. Country reports, Thailand and Indochina. 9th Asia Pacific Travel Health Conference (APTHC 2012) Singapore, May 2-5, 2012.
5. Chotivanich K, Sritabal J, Hanpitakpong W, Tarning J, Day NP, Ashley E, Prachumsri J, Pukrittayakamee S, White NJ. Assessment of transmission blocking activity. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, Dec 12-14, 2012.
6. Luvira V, Dekumyoy P, Chantawat N, Mungthin M, Trakulhun K. Strongyloidiasis detection in immunocompromised patients. ID Week 2012, San Diego, CA, USA, Oct 17-21, 2012.
7. Sritabal J, Nudsuporn C, Tharaphan P, Setaphan S, Day NP, White NJ, Pukrittayakamee S, Dondorp AM, Chotivanich K. Optimization and validation technique for the enrichment of *Plasmodium falciparum*-infected red cells using automatic magnetic separation. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, Dec 12-14, 2012.
8. Chotivanich K, Sritabal J, Tipura R, Das D, Day NP, Singhasivanon P, Pukrittayakamee S, Kyle DE, Yi P, Socheat D, Dondorp AM, White NJ. Assessing artemisinin resistance parasite in vitro. American Society of Tropical Medicine and Hygiene 61st Annual Meeting, Atlanta, USA, Nov 10-15, 2012.
9. Charunwatthana P, Rueangweerayut K, Rueangweerayut R, Chotivanich K, Rivetz B, Dondorp AM, Pukritayakamee S. Evaluation of a rapid diagnostic pldh test for malaria infection in Thailand. 9th Asia Pacific Travel Health Conference, Singapore, May 2-5, 2012.
10. Yoonuan T, Maipanich W, Kusolsuk T, Charunwatthana P, Tripura R, Eder M, Faiz MA, Dondorp AM, Komalamisra C. Preliminary study of helminth infection among children and villagers in Bairag Village, Chittagong, Bangladesh. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, Dec 12-14, 2012.

Helminthology

Poster Presentations (International)

1. Tippayarat Y, Maipanich W, Kusolsuk T, Charunwatthana P, Tripura R, Eder M, Faiz MA, Dondorp AM, Komalamisra C. A preliminary survey for helminth infections in children and villagers at Bairag Village, Chittagong, Bangladesh. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
2. Nuamtanong S, Dekumyoy P, Adisakwattana P. Evaluation of recombinant serine protease inhibitor from *Trichinella spiralis* for immunodiagnosis of swine trichinosis. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
3. Dekumyoy P, Pakdee W, Nuamtanong S, Maipanich W, Pubampen S, Sa-nguankiat S, Yoonuan T, Komalamisra C. Investigation of biochemical and antigenic extracts of *Angiostrongylus cantonensis* adult worms by genetic differentiation. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
4. Kusolsuk T, Supaporn Nuamtanong, Chaisiri K, Sa-nguankiat S, Maipanich W, Dusitsittipon S, Thaenkham U, Komalamisra C. Species genetically related to *angiostrongylus vasorum* in the natural paratenic host, *varanus bengalensis* (yellow tree monitor), in Thailand: a case report. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7) , Bangkok, Thailand, 12-14 Dec 2012.
5. Maipanich W, Yoonuan T, Thaenkham U, Komalamisra C, Singhasivanon P, Adams PR. Houseflies: a possible transport host of *Angiostrongylus* sp. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Helminthology *(Continued)*

Poster Presentations (International)

6. Pakdee W, Thaenkham U, Dekumyoy P, Sa-nguankiat S, Maipanich W, Pubampen S. Different climate zones: different genetic of *Strongyloides stercoralis*. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
7. Pothong K, Yoonuan T, Dekumyoy P, Waikagul J. *Paragonimus pseudoheterotremus* (Waikagul, 2007): experimental rodent hosts and worm recovery. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
8. Pothong K, Yoonuan T, Dekumyoy P, Waikagul J. Development of *Paragonimus heterotremus* in experimental mature rodents. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
9. Pakdeenarong N, Siribat P, Chaisiri K, Douangboupha B, Ribas A, Chaval Y, Herbreteau V, Morand S. Helminth communities of murid rodents in two localities of Lao PDR: the role of habitats and season. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
10. Chumsang N, Sato M, Waikagul J, Watthanakulpanich D, Dekumyoy P. Diagnosis of sparganosis using IGE, IGG, and IGG1-4 ELISA: a pilot study. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
11. Payapvipapong K, Pakdee W, Kusolsuk T, Na Ayuthaya PK, Dekumyoy P. Detection of IGG in a patient infected with multiple calcified *Taenia solium* metacestodes. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
12. Sahaisook P, Chamavit P, Panraksa P, Thaweesuk P, Koonthong J, Sukkesa B, Churassamee W, Dekumyoy P, Rojekittikhun W. *Gnathostoma* in swamp eels and the first report of Capillaria sp. in eel's liver in Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
13. Maneewatch S, Adisakwattana P, Saengjaruk P, Srimanote P, Chaisri U, Sakolvaree Y, Poungpan P, Chaicumpa W. Therapeutic epitopes of leptospira lipl32 protein and their characteristics. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
14. Thawornkuno C, Adisakwattana P, Ngaosuwankul N, Wongkham S, Asano K, Petmitr S. The effect of soy isoflavones and its derivative on the growth of cholangiocarcinoma cell lines. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
15. Buchachart K, Wuthisen P, Rukmanee P, Rukmanee N, Thanyavanich N, Maneekarn P, Kusolsuk T. A clue to intestinal parasitic infection and its association with risk factors in the northeast of Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Oral Presentations (International)

1. Dekumyoy P, Kusolsuk T, Pakdee W, Sa-nguankiat S, Chaisiri K, Homsuwan N, Yanagida T, Sako Y, Nakao M, Okamoto M, Ito A. Joint projects on taeniasis and cysticercosis in Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
2. Thaenkham U, Komalamisra C, Pham ND, Nawa Y, Horii Y. Biodiversity of *Paragonimus heterotremus* species complex. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Medical Entomology

Poster Presentations (International)

1. Maneethep S, Yatmark P, Morales Vargus RE, Sanvarinda Y, Phumala Morales N. Effect of iron chelator on intracellular ros production in iron overloaded microglia cells. Poster presentation at the "The Oxidative Stress in Congenital and Acquired Hemolytic Anemia Conference, Pattaya, Thailand, 22-23 March, 2012.
2. Prummongkol S. Effectiveness of *Azadirachta indica var. sidmensis valeton* crude extract against *Aedes aegypti* mosquito to larvae. Poster Presentation at the Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
3. Ruangsittichai J. Surveillance of the parasitic flies, Stoxyini flies (Diptera: Mucidae), from natural sources in Thailand. Poster Presentation at the Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Medical Entomology *(Continued)*

Poster Presentations (International)

4. Sriwichai P. Studies on larvicidal effect of the indigenous plant extracts against *Aedes aegypti*, dengue vector. Poster Presentation at the Joint International Tropical Medicine Meeting 2012, Bangkok, Thailand, 12-14 Dec 2012.
5. Thongrungkiat S, Wasinpiyamongkol L, Maneekan P, Prummongkol S. Natural transovarial dengue virus infection in two different forms of *Aedes aegypti* in an urban area of Bangkok, Thailand. Poster Presentation at the International 18th ESOVE Conference, Montpellier 2012, The Corum, Montpellier, France.

Oral Presentations (International)

1. Attrapadung S. Microencapsulation of cuis pepper oil (*Zanthoxylum limonella)* for developing mosquito repellent. Oral Presentation at the Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
2. Potiwat R. New approach for screening and distinguishing Arbovirus in mosquito. Oral Presentation at the Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
3. Morales Vargas R. S/S: One Health: human risk at the trans-institution post natural disaster pest control in Thailand: on academia-private-public-N606 fort. Oral Presentation at the Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Microbiology & Immunology

1. Uttayamakul S, Manosuthi W, Likanonsakul S, Shioda T, Khusmith S. *CYP2B6 G516T* and *ABCB-1 C3435T* polymorphisms: implications for efavirenz-associated liver toxicity in HIV/tuberculosis co-infected Thai adults receiving rifampicin. 11th Congress on Drug Therapy in HIV Infection, Glasgow, UK, 11-15 Nov 2012.
2. Adams P, Pengsaa K, Khusmith S, Fungladda W, Wongwit W, Chaiyaphant W, Limphattaracharoen C, Prakobtham S, Kaewkungwal J. Ethical considerations for research involving minority populations in Thailand: lessons learnt from the Ethics Committee of the Faculty of Tropical Medicine. Poster Presentation at the Annual FERCAP Conference and General Assembly, Colombo, Sri Lanka, 18-21 Nov 2012.
3. Loharungsikul S, Onlamoon N, Pattanapanyasat K, Troye-Blomberg M, Khusmith S. *In vitro* activation of human blood myeloid dendritic cells (DC) through *tlr2* signaling pathway. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
4. Ridruechai C, Sakurada S, Khusmith S, Keicho N. Increased osteopontin levels in plasma of patients with tuberculosis and HIV/TB co-infection and in M-CSF-induced monocyte derived macrophage *in vitro.* Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
5. Pitabut N, Sakurada S, Dhepakson P, Keicho N, Okada M, Khusmith S. *In vitro* stimulation of granulysin and IFN-γ in patients with tuberculosis and HIV/TB coinfection before and after completion of anti-TB therapy. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
6. Uttayamakul S, Mahasirimongkol S, Likanonsakul S, Manosuthi W, Chantratita W, Shioda T, Khusmith S. Influence of CYP2B6 haplotype on plasma efavirenz and nevirapine levels when co-administered with rifampicin in HIV/TB co-infected Thai adults. RGJ Congress XII, RGJ Congress IX, Jomtien, Pattaya, Chonburi, Thailand, 6-8 Apr 2012.
7. Uttayamakul S, Mahasirimongkol S, Likanonsakul S, Manosuthi W, Chantratita W, Shioda T, Khusmith S. Association of single nucleotide gene polymorphism of CYP2B6 on plasma efavirenz and nevirapine levels when co-administered with rifampicin in HIV/TB co-infected patients (Thai Abstract). Annual Meeting, Ministry of Public Health, Impact Muangthong Thani, Nonthaburi, Thailand, 23-25 May 2012.
8. Khusmith S, Wilairatana P, Krudsood S, Petmitr P, Pongponratn E, Viriyavejakul P, Chotivanich K, Imwong M, Patarapotikul J, Maneerat Y, Chokejindachai W, Muangnoicharoen S, Sakuntabhai A, Sirawaraporn W, Udomsangpetch R. Holistic approaches to malaria prevention and management: from bio-molecular to community research. Queen Sri Savarindira and Prince Mahidol Adulayadej Commemoration Conference and Mahidol University Research Expo 2012: Mahidol University Research Toward ASEAN Community. Salaya, Thailand, 31 Oct-1 Nov 2012.
9. Dept. of Entomology, Dept. of Helminthology, Dept. of Microbiology & Immunology, Dept. of Protozoology, Dept. of Social & Environmental Medicine, and Dept. of Tropical Hygiene, Faculty of Tropical Medicine, Mahidol University, Thailand. Presented by Dr. Saengduen Moonsom. Multidisciplinary public health survey in Salaya, Nakhon Pathom Province, during the 2011 floods. Bali, Indonesia, 1-2 Dec 2012.
10. Choolue T, Hirunpetcharat C, Mahakunkijcharoen Y, Mahannop P. A potential of 39.6 kda blood stage *Plasmodium yoelii* antigen in induction of protective immunity against malaria infection in mice. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Microbiology & Immunology *(Continued)*

11. Paksanont S, Hirunpetcharat C, Eampokalap B, Mahakunkijaroen Y. Characteristics of *Aeromonas*-specific monoclonal antibody, 23E3-B9. 7th International Symposium of the Protein Society of Thailand, Chulaporn Research Institute Convention Center, Thailand, 29-30 Aug 2012.

12. Chantratita N, West TE, Tandhavanant S, Myers ND, Day NP, Peacock SJ. Innate immune responses to *Burkholderia pseudomallei* and *Staphylococcus aureus* in healthy Thai subjects. European Melioidosis Network 2012, Royal Netherlands Academy of Arts and Sciences, Amsterdam, The Netherlands, 24 Feb 2012.

13. Chantratita N, West TE, Tandhavanant S, Myers ND, Day NP, Peacock SJ. Activation of the inflammatory cytokines by bacterial pathogens in healthy Thai subjects. 5th FIMSA Congress, New Delhi, India, 14-17 March 2012.

14. Thaipadungpanit J, Wuthiekanun V, Yimsamran S, Maneeboonyang W, Tharnpoophasiam P, Chantratita N, Piyaphanee W, Amornchai P, Boonsilp S, Saiprom N, Mahakunkijcharoen Y, Day NP, Singhasivanon P, Peacock SJ, Limmathurotsakul D. Leptospirosis and presence of pathogenic leptospira in floodwater, Thailand, 2011. 15th International Congress on Infectious Diseases, Bangkok, Thailand, 13-16 Jun 2012.

15. Tandhavanant S, Wongsuwan G, Wuthiekanun V, Teerawatanasuk N, Limmathurotsakul D, Day NP, Peacock SJ, Chantratita N. Prospective evaluation of monoclonal antibody-based immunofluorescent assay for the rapid identification of *Burkholderia pseudomallei*. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

16. Ngamdee W, Tandhavanant S, Wikraiphat C, Peacock SJ, Chantratita N. Evidence for competition between *Burkholderia pseudomallei* and *B. thailandensis*. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

17. Suntornsut P, Phiphitaporn S, Wikraiphat C, Tandhavanant S, Jutrakul Y, Limmathurotsakul D, West TE, Peacock SJ, Chantratita N. Outcomes of patients with sepsis from community-acquired *Staphylococcus aureus* infections in Udon Thani Regional Hospital, Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

18. Indrawattana N, Sungkhachat O, Sookrung N, Chongsa-nguan M, Tungtongchitr A, Voravuthikunchai SP, Kong-ngoen T, Kurazono H, Chaicumpa W. *Staphylococcus aureus* clinical isolates in Thailand: antibiotic susceptibility and molecular characteristics. 4th ASIAHORCs Joint Symposium on Biomedical Research, Bu-Yeo, South Korea, 11-14 Nov 2012.

19. Sookrung_N, Wongdindam S, Indrawattana N, Tungtrongchitr A, Manuyakorn W, Pattanapanyasat K, Chaicumpa W. Allergenome of *Vespa affinis*. International Conference Molecular Medicine Conference MMC 2012, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

20. Meechan T, Tungtrongchitr A, Chaisri U, Maklon K, Indrawattana N, Chaicumpa W, Sookrung N. Cockroach allergy and therapeutic vaccines. Molecular Medicine Conference MMC 2012, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

21. Mooksombat T, Sookrung N, Indrawattana N, Louisirirotchanakul S, Onlamoon N, Patanapanyasat K, Chaicumpa W. Human SCFV that neutralizes biological activity of HIV-1 VPU protein. Molecular Medicine Conference MMC 2012, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

22. Danpaiboon W, Reamtong O, Chavanayarn C, Sookrung N, Tungtrongchitr A, Indrawattana N, Srimanote P, Thanongsaksrikul J, Chaicumpa W. Venomic proteome of the king cobra, *Ophiophagus hannah*. Molecular Medicine Conference MMC 2012, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

23. Nuanla-ong C, Tungtrongchitr A, Sookrung N, Sakolvaree Y, Indrawattana N, Chaicumpa W. Allergenome of house dust mite, *Dermatophagoides pteronyssinus*, among atopic Thais. Molecular Medicine Conference MMC 2012, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

24. Leaungwutiwong P, Ngaosuwankul N, Thippornchai N, Yamashita A, Morales Vargas RE, Ikuta K, Tunyong W, Mahakunkijareon Y, Singhasivanon P, Okabayashi T. Assessing the risk of transmission of viral diseases in flood water of 2011 Thai flooding. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

25. Pumirat P, Boonyuen U, Vanaporn M, Pinweha P, Tandhavanant S, Korbsrisate S, Chantratita N. Characterization of *Burkholderia pseudomallei* oxidoreductase under salt stress. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

26. Thawornkuno C, Adisakwattana P, Ngaosuwankul N, Wongkham S, Asano K, Petmitr S. The effect of soy isoflavones and its derivative on the growth of cholangiocarcinoma cell lines. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

27. Sookrung N, Wongdindam S, Indrawattana N, Tungtrongchitr A, Manuyakorn W, Pattanapanyasat K, Chaicumpa W. Venomics and allergenomics of paper wasp, *Vespa affinis*, among Thais. A constructive relationship between young and senior researcher 2012, Cha-am, Petchaburi, Thailand, 10-12 Oct 2012.

28. Singchai P, Jittmittraphap A, Luplertlop N, Kalambaheti T, Wongchotigul V, Pongsuwanna Y, Leaungwutiwong P. Comparison of a simple restriction fragment length polymorphism assay and neutralization for subtyping of coxsackie b viruses. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Molecular Tropical Medicine & Genetics

No Presentations

Protozoology

Oral Presentations (International)

1. Suksangpleng T, Leartsakulpanich U, Moonsom S, Wright G, Chavalitshewinkoon-Petmitr P. Exploring of *Plasmodium falciparum* uracil- DNA glycosylase as a new drug target. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
2. Moonsom S, Khomkhume N, Leetachewa S, Roytrakul S, Kobayashi S, Nozaki T, Petmitr Chavalitshewinkoon P. Searching of a target for development of a specific diagnosis of *Entamoeba histolytica* and *E. moshkovskii* using proteomic approaches. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Poster Presentations (International)

1. Udonsom R, Sukthana Y, Popruk S, Wiengcharoen J, Buddhirongawatr R, Mahittikorn A. The detection and quantification of *Toxoplasma gondii* among captive wildlife in Thailand. 5th ASEAN Congress of Tropical Medicine and Parasitology, The Philippines, 15-17 May 2012.
2. Moonsom S, Thima K, Khomkhum N, Leetachewa S, Roytrakul S, Kobayashi S, Nozaki T, Petmitr P. Subcellular protein profiles of *Entamoeba histolytica* compared to *Entamoeba moshkovskii*. Amoebiasis 2012 "EMBO Global Lecture Course and Symposium on Amoebiasis: Exploring the Biology and the Pathogenesis of Entamoeba", Delhi and Khajuraho, India, 2-7 March 2012.
3. Prasertbun R, Mahittikorn A, Sukthana Y, Tungtrongchitr R, Harnroongraj T, Popruk S. Relationship between intestinal parasitic infection, nutritional status, and antioxidant enzymes in Thai children and adolescents living in orphanage. MU Grad Research Expo 2012, 30 Nov 30-1 Dec 2013.
4. Khomkhume N, Leetachewa S, Moonsom S. Application of SDS-PAGE analysis for prediction of protein conformational change related to biological activity of the *Bacillus thuringiensis* Cry4Ba toxin. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
5. Popruk S, Chiabchalard R, Udonsom R, Thima K, Rattaprssert P, Suttikornchai C, Lekkla A, Tungtrongchitr R. Relationship between superoxide dismutase enzyme and intestinal protozoa infection in underweight Thai boy orphans. Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Social & Environmental Medicine

Oral Presentations

1. Wangsuphachart V. Curbing Japanese encephalitis: a linked to One Health Research and Eco-Epidemiology. Oral Presentation, Joint International Tropical Medicine Meeting; 12-14 December, 2012; Centara Grand Bangkok at Central World, Bangkok Thailand.

Poster Presentations

1. Dept. of Entomology, Dept. of Helminthology, Dept. of Microbiology & Immunology, Dept. of Protozoology, Dept. of Social & Enviornmental Medicine, and Dept of Tropical Hygiene. Faculty of Tropical Medicine, Mahidol University, Thailand. Presented by Saengduen Moonsom. Multidisciplinary public health survey in Salaya, Nakhon Pathom Province during the 2011 Floods. Bali, Indonesia, 1-2 Dec 2012.
2. Chusongsang P, Sri-aroon P, Chusongsang Y, Charoenjai P, Kiatsiri S, Phadungcheep S, Butraporn P. Surveillance of *Neotricula aperta* (beta race), snail intermediate host of *Schistosoma mekongi*, in the Mun River, Ubon Ratchathani Province, Thailand. Poster Presentation, Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.
3. Chusongsang Y, Chusongsang P, Worakhunpiset S, Charoenjai P, Limsomboon J, Sri-aroon P. Infection-rate variations among *Bithynia (Digoniostoma) siamensis siamensis*, the 1st intermediate host of *Opisthorchis viverrini*, in endemic areas of Chachoengsao Province, Central Thailand. Poster Presentation, Joint International Tropical Medicine Meeting 2012 (JITMM 2012), Bangkok, Thailand, 12-14 Dec 2012.

Tropical Hygiene

Poster Presentations (International)

1. Buchachart K, Wuthisen P, Rukmanee P, Rukmanee N, Thanyavanich N, Maneekarn P, Kusolsuk T. A clue to intestinal parasitic infection and its association with risk factors in the northeast of Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) "Emergence of Tropical Diseases: trans-disciplinary strategies" and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Tropical Hygiene *(Continued)*

Poster Presentations (International)

2. Rukmanee N. Study of knowledge, attitudes and practices (kap) related to influenza a (H1N1) among a rural population living on the Thai-Myanmar border, Ratchaburi Province, Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
3. Kulrat C, Yimsamran S, Sa-Angchai P, Rukmanee N. Application of geoinformatics technology in the assessment of malaria risk areas in ratchaburi province. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
4. Yimsamran S, Sa-Angchai P, Kulrat C, Maneeboonyang W, Chaimoongkun W, Singhasivanon P. Application of desire-line analysis to visualize the patterns of imported malaria. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
5. Supalarp Puangsa-art, Yimsamran S, Thanyavanich N, Wuthisen P, Rukmanee P, Maneeboonyang W, Sutthiporn Prommongkol, Rukmanee N. Malaria surveillance in endemic area by participation of tropical disease surveillance volunteers. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Tropical Nutrition & Food Science

1. Jintaridth P, Wanichnopparat W, Mutirangura A. Distinctive line-1 methylation pattern in aging. Mahidol International Conference on Infections and Cancer 2012, Bangkok, Thailand, 6-8 Feb, 2012.
2. Panprathip P, Sappajit T, Anannamcharoen S, Ngamsirimas B, Nakosiri W, Chantaranipapong Y, Kwanbunjan K. Red cell folate level and the risk of colorectal cancer in Thais. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
3. Songmuaeng K, Nontprasert A, Chaisri U, Sutthisai N, Arthan D. Cytotoxic effect of heme on mouse macrophage raw264.7. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
4. Sujitwanich N, Bausri J, Tantiveas M, Leelayuwatanakul S, Kocthanan A, Jintaridth P. The effectiveness of diabetic mellitus diet-counseling to monks with type 2 diabetes mellitus in Priest Hospital. National Congress of Nutrition, Convention Hall Bitek/Bangkok, Thailand, 10-12 Sep 2012.

Tropical Pathology

Oral Presentations

1. Viriyavejakul P. Host cell reponse in malaria infection. Joint International Tropical Medicine Meeting and 7th Seminar on Food- and Water-Borne Parasitic Zoonoses, Bangkok, Thailand, 12-14 Dec 2012.
2. Meechan T, Tungtrongchitr A, Chaisri U, Maklon K, Indrawattana N, Chaicumpa W, Sookrung N. Cockroach allergy and therapeutic vaccines. Molecular Medicine Conference 2012, Alternative Strategies Against Cancer and Inflammation, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

Poster Presentations

1. Punsawad C, Krudsood, Maneerat Y, Chaisri U, Tangpukdee N, Srivilairit S, Phophak N, Pongponratn E, Udomsangpetch R, Viriyavejakul P. The response of *Plasmodium falciparum* infection on nuclear factor kappa B in peripheral blood mononuclear cells. Presented at Focus on Microscopy 2012 (FOM 2012), Singapore, 1-4 Apr 2012.
2. Maneerat Y, Prasongsukarn K, Chaisri U, Benjathaummarak S, Wetchabut K, Khachansaksumeth V, Praditsuwan C. Expression profile of atherosclerosis in TNF-alpha and native LDL stimulated human saphenous vein culture in a simple perfusion system. 80th European Atherosclerosis Society Congress, Milan, Italy, 25-28 May 2012.
3. Khachonsaksumet V, Punsawad C, Nantavisai K, Wichapoon B, Wilainam P, Riganti M, Viriyavejakul P. Expression of caspase 3 in Kupffer cell of severe malaria. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
4. Nintasen R, Punsawad C, Khachonsaksumet V, Chaisri U, Nantavisai K, Riganti M, Vinyavejakul P. Expression of sphingosine-1- in the brain of fatal cerebral malaria. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
5. Chaikitgosiyakul S, McGreadyb R, Rijken M, Muehlenbachs A, Lee LS, Chaisri U, Turner G, Pongponratn E, Nosten F. Image analysis shows significant villous architectural alterations in acute placental malaria infection which are reversible following treatment. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Tropical Pathology *(Continued)*

Poster Presentations

6. Punsawad C, Krudsood S, Maneerat Y, Chaisri U, Pongponratn E, Riganti M, Viriyavejakul P. Nuclear factor kappa B regulates apoptosis in the brain endothelial cells of cerebral malaria. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
7. Wichapoon B, Punsawad C, Nantavisai K, Riganti M and Viriyavejakul P. P-Cadherin expression is increased in the glomeruli of acute renal failure in severe malaria. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
8. Tasaniyananda N, Sabsonpong R, Sookrung N, Chaisri U, Tungtrongchitr A, Chaicumpa W. Mouse models of allergies to cat and dog allergens. Molecular Medicine Conference 2012, Alternative Strategies Against Cancer and Inflammation, Siriraj Hospital, Mahidol University, Bangkok, Thailand, 19-22 Dec 2012.

Tropical Pediatrics

1. Sitcharungsi R, Ananworanich J, Pornvoranunt A, Apornpong T, Bunupuradah T, Khupulsup K, Nouanthong P, Vilaiyuk S, Phasomsap C, Kamchaisatian W, Pancharoen C, Puthanakit T, Sirivichayakul C, Benjaponpitak S. Serum immunoglobulin levels in healthy Thai infants and children aged 0-2 years determined by nephelometry. *J Allergy Clin Immunol* 2012 Feb;129(2): AB86. American Academy of Allergy Asthma & Immunology Annual Meeting, Orlando, Florida, USA, 2-6 March 2012.
2. Sitcharungsi R, Vilaiyuk S, Rerkpattanapipat T, Kamchaisatian W, Ngamjanyaporn P, Khupulsup K, Srisala S, Sasisakulporn C, Teawsomboonkit W, Benjaponpitak S. The *in vivo* and *in vitro* diagnosis of β-lactam hypersensitivity in Thai patients. Drug Hypersensitivity Meeting 2012 (DHM5 2012), Faculty of Medicine, Munich Technical University, Munich, Germany, 11-14 Apr 2012.
3. Chanthavanich P, Sirivichayakul C, Limkittikul K, Riewpaiboon A, Sabchareon A, Kyung Jin Lee Lim, Maskery B, Amarasinghe A, Jacintho Da Silva L. Burden of dengue infection in children and adults of Bang Phae District, Ratchaburi Province: the DVI project in Thailand. Poster Presentation, 15th International Congress on Infectious Disease (ICID), Bangkok, Thailand, 13-16 Jun 2012.
4. Hattasingh W[1], Younis Mohammed BM, Kosalaraksa P[2], Limkittikul K[1]. Characteristics of opportunistic infections in HIV-infected children during pre-HAART and HAART era in Srinagarind Hospital, Thailand. Poster Presentation, 15th International Congress on Infectious Disease (ICID), Bangkok, Thailand, 13-16 Jun 2012.
5. Chanthavanich P, Limkittikul K, Sirivichayakul C, Chokejindachai W, Hattasingh W, Surangsrirat S, Srisuwanporn T, Kaewma B, Pengsaa K, Gao J, Bai Z. Immunogenicity and safety of inactivated chromatographically purified vero cell-derived Japanese encephalitis vaccine in children. Poster Presentation, 61st Annual Meeting of the American Society of Tropical Medicine and Hygiene, Atlanta, Georgia, USA, 11-15 Nov 2012.
6. Osman AH, Hattasingh W, Wisetsing P, Limkittikul K, Traivaree C, Watanaveeradej V. Comparison of erythrocyte sedimentation rate (ESR) by micro-ESR to macro-ESR in children in the Hospital for Tropical Diseases, Bangkok, Thailand. Poster Presentation at the 6th Asian Congress of Pediatric Infectious Diseases (ACPID 2012), Colombo, Sri Lanka, 28 Nov-1 Dec 2012.

CENTERS / UNITS

Center of Excellence for Antibody Research (CEAR)

1. Ramasoota P. Development of monoclonal antibodies specific to foot-and-mouth disease virus using phage display and hybridoma techniques. International Congress on Veterinary Sciences (ICVS 2013). Impact Forum: Mueng Thong, Thailand, 16-18 Jan 2013.
2. Pitaksajjakul P, Benjathummarak S, Hananatachai H, Fujiyama K, Misaki R, Sasaki T, Ikuta K, Ramasoota P. Cloning and expression of recombinant IgG of neutralizing human monoclonal antibody against dengue virus. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 13 Dec 2012. P.79
3. Benjathummarak S, Setthapramote C, Sasaki T, Ikuta K, Ramasoota P, Pitaksajjakul P. Cloning and expression of a scFv antibody generated from neutralizing human monoclonal antibody against dengue virus. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 13 Dec 2012. P.79
4. Keadsanti S, Setthapramote C, Pitaksajjakul P, Sasaki T, Ikuta K, Yamanaka A, Konishi E, Ramasoota P. Epitope mapping of neutralizing human monoclonal antibody against dengue virus using escape mutant strategy. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 13 Dec 2012. P.80

Center of Excellence for Antibody Research (CEAR) *(Continued)*

5. Sariya L, Masrinoul P, Pitaksajjakul P, Keadsanti S, Lekcharoensuk P, Barbas CF, Ramasoota P. Production of scFv and IgM monoclonal antibodies specific to 3ABC nonstructural protein of foot-and-mouth disease virus using phage display and hybridoma techniques. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 13 Dec 2012. P.80-81.
6. Setthapramote C, Pitaksajjakul P, Sasaki T, Ikuta K, Ramasoota P. Validation of neutralizing human monoclonal antibodies against all four dengue virus serotype of clinical isolates. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 13 Dec 2012. P.81.
7. Pitaksajjakul P, Setthapramote C, Puiprom O, Okabayashi T, Sasaki T, Ikuta K, Yamanaka A, Konishi E, Ramasoota P. Characterization of human monoclonal antibodies (HuMAbs) with neutralizing and enhancing activities to four serotypes of dengue virus. Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha), Surabaya, Indonesia, 3 Dec 2012. P.9.
8. Setthapramote C, Pitaksajjakul P, Puiprom O, Okabayashi T, Yamanaka A, Konishi E, Ramasoota P. Enhancing activities contained in plasma derived from convalescent patients with secondary dengue virus infection. Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha), Surabaya, Indonesia, 3 Dec 2012. P.10.
9. Kurosu T, Masrinoul P, Magot D, Omokoko MD, Setthapramote C, Sasaki T, Kuhara M, Ramasoota P, Ikuta K. Analysis of antibodies against dengue virus NS1 derived from mouse and dengue virus-infected patients. Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha), Surabaya, Indonesia, 3 Dec 2012. P.8.
10. Okabayashi T, Sasaki T, Masrinoul P, Kurosu T, Ramasoota P, Kato S, Kosaka M, Ikuta K. Development of immunochromatography diagnostic kits for mosquito-borne infections with dengue virus and chikungunya virus. Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha), Surabaya, Indonesia, 3 Dec 2012. P.12.
11. Pitaksajjakul P, Benjathummarak S, Harnanantachai H, Setthapramote C, Fujiyama K, Misaki R, Sasaki T, Ikuta K, Ramasoota P. Cloning and expression of recombinant IgG of neutralizing human monoclonal antibody against dengue virus. The 60th Annual Meeting of the Japanese Society for Virology, Osaka, Japan, 13-15 Nov 2012. P.366-8.
12. Setthapramote C, Sasaki T, Pitaksajjakul P, Leaungwutiwong P, Ikuta K, Ramasoota P. Human monoclonal antibodies that neutralize all four dengue serotypes: candidates for dengue therapy. Focus on Microscopy 2012 – Singapore, Suntec Singapore International Convention & Exhibition Centre, Singapore, 1-4 Apr 2012.
13. Puiprom O, Setthapramote C, Sasaki T, Limkittikul K, Pitaksajjakul P, Pipattanaboon C, Sasayama M, Leuangwutiwong P, Kurosu T, Ramasoota P, Ikuta K. The preparation of human monoclonal antibody using peripheral blood lymphocytes from dengue patients in Thailand. Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha), Surabaya, Indonesia, 23 Nov 2011. P.10.
14. Pitaksajjakul P, Fujiyama K, Ikuta K, Ramasoota P. IgG gene cloning and characterization of human hybridoma cell lines producing monoclonal antibodies specific to dengue virus. Indonesia-Japan-Thailand Joint Forum on Infectious Diseases (INiTha), Surabaya, Indonesia, 23 Nov 2011. P.11.
15. Pitaksajjakul P, Lekcharoensuk P, Upparagarin N, Barbas CF, Ibrahim MS, Ikuta K, Ramasoota P. Fab monoclonal antibodies specific to hemagglutinin of H5N1 influenza virus with neutralizing activity developed using phage display technique. BIT Life Sciences' 2nd Annual International Congress of Antibodies 2010 (ICA-2010), International Convention Center, Beijing, China, 24-26 March 2010. P.306.

Mahidol-Osaka Center for Infectious Diseases (MOCID)

Oral Presentations (International)

1. Okabayashi T. Chikungunya virus: infectivity of human keratinocyte and Aedes mosquito salivary gland proteins. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) & 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, Dec 2012.
2. Puiprom O, Okabayashi T. Technical transfer for generation of human monoclonal antibody against dengue virus from MOCID to Airlangga University. Airlangga University, Indonesia, 15-29 Jul 2012.

Poster Presentations (International)

3. Okabayashi T, Puiprom O, Ikuta K. Chikungunya virus replicates in human keratinocytes. Africa-Asia Research Forum, Kobe, Japan, Jan 2012.
4. Puiprom O, Masrinoul P, Chaichana P, Ikuta K, Ramasoota P, Matsuura Y, Okabayashi T. Post-entry neutralization of Chikungunya virus by a monoclonal antibody. The 11th Awaji International Forum on Infection & Immunity, Awaji, Japan, Sep 2012.

Mahidol Oxford Tropical Medicine Research Unit (MORU)

Oral Presentations

1. Tarning J. Pharmacokinetics-pharmacodynamics of antimalarials in children and pregnant women. Population Approach Group in Australia and New Zeeland (PAGANZ), Melbourne, Australia, 2012.
2. Tarning J. WWARN pooled amodiaquine pharmacokinetic analysis. Side session on ASTMH. American Society of Tropical Medicine and Hygiene, Atlanta, USA, 2012.
3. Maude RJ, Silamut K, Plewes K, Charunwatthana P, Mae Ho, Faiz MA, Rahman MR, Hossain MA, Hasan MU, Bin Yunus E, Hoque MG, Islam F, Hanson J, Schlatter J, Tarning J, Lee S, White NJ, Day NP, Dondorp AM. Randomized controlled trial of levamisole hydrochloride as adjunctive therapy in severe falciparum malaria with high parasitemia. American Society of Tropical Medicine and Hygiene, Atlanta, USA, 2012.
4. Chotsiri P, Zongo I, Milligan P, Chandramohan D, Greenwood B, Rosenthal P, Hanpithakpong W, Lindegardh N, White NJ, Nosten F, Ouédraogo J-B, Tarning J. Pharmacokinetic-pharmacodynamic modeling of dihydroartemisinin-piperaquine for seasonal intermittent preventive treatment in young children. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
5. Pouplin T, Lindegardh N, White NJ, Day NP, Farrar J. Simultaneous quantification of the first-line antituberculous drugs pyrazinamide, isoniazid, rifampicin and ethambutol from plasma and cerebrospinal fluids by hydrophilic interaction liquid chromatography coupled with tandem mass spectrometry. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
6. Instiaty, Pukrittayakamee S, Lindegardh N, Jittmala P, Imwong M, Hanpithakpong W, Blessborn D, Day NP, White NJ, Tarning J. A sensitive bioanalytical method for quantification of oseltamivir in dried blood spot samples and clinical differences between different sampling strategies. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
7. Blessborn D, Kaewkhao K, White NJ. Development of a quantification method for the antimalarial drug pyronaridine. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
8. Hanpithakpong W, Tarning J, Phakdeeraj A, Kamanikom B, White NJ, Day NP, Lindegardh N. Determination of enantiomeric primaquine and carboxyprimaquine in plasma using SPE and LC-MS/MS. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
9. Sriboonvorakul N, Leepipatpiboon N, Dondorp AM, White NJ, Pouplin T, Blessborn D, Hanpithakpong W, Tarning J, Day NP, Lindegardh N. Liquid chromatographic-mass spectrometric method for simultaneous determination of plausible small organic acids biomarkers in biological fluids of patients suffering with metabolic acidosis in severe malaria. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
10. Sriboonvorakul N, Leepipatpiboon N, Dondorp AM, White NJ, Lindegardh N. High throughput liquid chromatographic-mass spectrometric method for quantification of small organic acids in human biological fluids.The 29th Montreux Symposium on LC/MS, Montreux, Switzerland, 2012.
11. Lorens C. Practical implementation of statistical approach for proficiency testing in medical testing field. Thailand Department of Science Service, 2012.
12. Chantratita N. Activation of the inflammatory cytokines by bacterial pathogens in healthy Thai subjects. 5th FIMSA Congress, New Delhi, India, 14-17 March 2012.
13. Chantratita N. Innate immune responses to *Burkholderia pseudomallei* and *Staphylococcus aureus* in healthy Thai subjects. European Melioidosis Network 2012, Royal Netherlands Academy of Arts and Sciences, Amsterdam, The Netherlands, 24 Feb 2012.
14. Soontarawirat I. Genotyping of individual *Plasmodium vivax* oocyst. Academic student forum at Tropical Disease Research Center Kanchanaburi, Faculty of Tropical Medicine, Mahidol University, Thailand, 24-25 Nov 2012.
15. Tandhavanant S, Wongsuwan G, Wuthiekanun V, Teerawatanasuk N, Limmathurotsakul D, Day NP, Peacock SJ, Chantratita N. Prospective evaluation of monoclonal antibody based immunofluorescent assay for the rapid identification of *Burkholderia pseudomallei*. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.
16. Ngamdee W, Tandhavanant S, Wikraiphat C, Peacock SJ, Chantratita N. Evidence for competition between *Burkholderia pseudomallei* and *B. thailandensis*. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Mahidol Oxford Tropical Medicine Research Unit (MORU) *(Continued)*

Oral Presentations

17. Suntornsut P, Phiphitaporn S, Wikraiphat C, Tandhavanant S, Jutrakul Y, Limmathurotsakul D, West TE, Peacock SJ, Chantratita N. Outcomes of patients with sepsis from community-acquired *Staphylococcus aureus* infections in Udon Thani Regional Hospital, Thailand. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

18. Peto TJ, Mendy ME, Lowe Y, Webb EL, Whittle HC, Hall AJ. Efficacy of infant vaccination against hepatitis b in the Gambia Hepatitis Intervention Study (1986-90) and the subsequent nationwide immunization program. Joint International Tropical Medicine Meeting 2012 (JITMM 2012) and 7th Seminar on Food- and Water-borne Parasitic Zoonoses (FBPZ7), Bangkok, Thailand, 12-14 Dec 2012.

Poster Presentations

1. Lourens C, Venkatesan M, Smith JJ, Dahlstrom S, Tabernero P, Tarning J, Fernandes P, Dhorda M, Sadomthian P, Plowe C, Barnes K, Sibley C, White NJ, Guerin P, Lindegardh N. Improving antimalarial drug resistance surveillance through external quality assessment and proficiency testing programs. American Society of Tropical Medicine and Hygiene, Atlanta, USA, 2012.

2. Hendriksen IC, Maiga D, Lemnge MM, Mtove G, Gesase S, Reyburn H, Lindegardh N, Day NP, von Seidlein L, Dondorp AM, White NJ, Tarning J. The population pharmacokinetic and pharmacodynamic properties of intramuscular artesunate and quinine in Tanzanian children with severe falciparum malaria; implications for a practical dosing regimen. World Conference on Pharmacometrics, Seoul, South Korea, 2012.

3. Tarning J, Chotsiri P, Jullien V, Rijken MJ, Bergstrand M, Cammas M, McGready R, Singhasivanon P, Day NP, White NJ, Nosten F, Lindegardh N. Population pharmacokinetic and pharmacodynamic modeling of amodiaquine and desethylamodiaquine in women with *Plasmodium vivax* malaria during and after pregnancy. World Conference on Pharmacometrics, Seoul, South Korea, 2012.

4. Chotsiri P, Tarning J, Bergstrand M. Application of the Berkeley MADONNA software to nonlinear mixed-effects models – possibilities and limitations. World Conference on Pharmacometrics, Seoul, South Korea, 2012.

5. Bergstrand M, Nosten F, Karlsson MO, White NJ, Tarning J. Establishment and utilization of an *in vivo* concentration-effect relationship for piperaquine in preventive treatment of malaria. World Conference on Pharmacometrics, Seoul, South Korea, 2012.

6. Hoglund R, Adam I, Hanpithakpong W, Ashton M, Day NP, White NJ, Lindegardh N, Nosten F, Tarning J. A population pharmacokinetic model of piperaquine in pregnant and non-pregnant women with uncomplicated *P. falciparum* malaria in Sudan. Population Approach Group Europe (PAGE), Venice, Italy, 2012.

7. Kloprogge F, Guerin P, Dhorda M, Muwanga S, Turyakira E, Hanpithakpong W, Day NP, White NJ, Lindegardh N, Nosten F, Piola P, Tarning J. Population pharmacokinetics of lumefantrine in pregnant and non-pregnant women with uncomplicated *Plasmodium falciparum* malaria in Uganda. Population Approach Group Europe (PAGE), Venice, Italy, 2012.

8. Blessborn D, Kaewkhao K, Hempen C. Analysis of antimalarial drugs in DBS by flow-through desorption coupled online to SPE-LC-MS/MS. European Bioanalysis Forum, Barcelona, Spain, 2012.

9. Lourens C, Venkatesan M, Dahlstrom S, Smith J. Improving antimalarial drug resistance surveillance through external quality assessment and proficiency testing programs. American Society of Tropical Medicine and Hygiene, Atlanta, USA, 2012.

10. Thanapongpichat S, Imwong M, McGready R, Day NP, Nosten F, Snounou G, White NJ. Microsatellite characterization of *Plasmodium vivax* in pregnant women. Thai-Myanmar border, Basel, Switzerland, 10-12 Oct 2012.

Vaccine Trial Centre (VTC)

1. Liao L, Bonsignori M, Hwang K, Moody AM, Park R, Crawford S, Chen H, Jeffries TL, Cooper M, Lu X, De R, Karasavvas N, Rerks-Ngarm S, Nitayaphan S, Kaewkungwal J, Tovanabutra S, Pitisuttithum P, Tartaglia J, Sinangil F, Kim J, Michael NL, Tomaras GD, Yang Z, Dai K, Pancera M, Nabel GJ, Mascola JR, Kwong PD, Pinter A, Zolla-Pazner S, Alam MS, Haynes BF. Design of an HIV env antigen that binds with high affinity to antibodies against linear, conformational and broadly neutralizing epitopes within v1/v2. AIDS Vaccine 2012, Boston, USA, 9-12 Sep 2012.

2. Pollara J, Bonsignori M, Moody M, Alam M, Liao H, Hwang K, Pickeral J, Kappes J, Ochsenbauer c, Soderberg K, Gurley TC, Kozink DM, Marshall DJ, Whitesdies JF, Montefiori D, Robinson JE, Kaewkungwal J, Nitayaphan S, Pitisuttithum P, Rerks-Ngarm S, Kim J, Michael N, Tomaras G, Haynes BF, Ferrari G. Vaccine-induced ADCC-mediating antibodies target unique and overlapping envelope epitopes. AIDS Vaccine 2012, Boston, USA, 9-12 Sep 2012.

3. Bonsignori M, Pollara J, Moody MA, Kepler TB, Chen X, Gurley TC, Kozink DM, Marshall DJ, Whitesides JF, Kaewkungwal J, Nitayaphan S, Pitisuttithum P, Rerks-Ngarm S, Kim JH, Michael NL, Montefiori DC, Liao H, Ferrari G, Haynes BF. Antibody-dependent cellular cytotoxicity-mediating antibodies from an HIV-1 vaccine efficacy trial preferentially use the VH1 gene family. AIDS Vaccine 2012, Boston, USA, 9-12 Sep 2012.

Research in Progress

FACULTY OF TROPICAL MEDICINE RESEARCH PROJECTS 2012

(1 October 2011 - 30 September 2012)

No.	Research Title	Grant	Principal investigator
	Department of Clinical Tropical Medicine		
1***	A Phase III Trial of Aventis Pasteur Live Recombinant ALVAC-HIV (vCP1521) Priming with VaxGen gp120 B/E (AIDSVAX B/E) Boosting in HIV-uninfected Thai Adults (Clinic)	The Henry M. Jackson Foundation for The Advancement of Military Medicine, Inc. and The Government of Thailand Ministry of Public Health	Prof. Punnee Pitisuttithum
2***	A worldwide, phase I, dose-escalating study of the safety, tolerability, and immunogenicity of a three-dose regimen of MRKAd5HIV-1 gag vaccine in healthy adults	Merck & Co., Inc	Prof. Punnee Pitisuttithum
3***	Measurement of anogenital wart burden, and cost of illnesses in Bangkok	Merck Research Foundation	Prof. Punnee Pitisuttithum
4***	The Research Project for Technology Transfer of Chronic Lymphede Treatment Targeting at Medical, Public Health, and Community Personnel in Thailand Southern Border Regions	Government Budget	Dr. Wichai Ekataksin
5**	Comparison of the safety and efficacy of a Unique Intravenous Iron Preparation (VIT-45) versus oral iron in the treatment of Anemia in non-dialysis dependent chronic kidney diseases	Luitpold Pharmaceutical, Inc, USA	Assoc. Prof. Yupaporn Wattanagoon
6**	Bioequivalence study of genetic Glimepiride tablets to innovator Amary® (Glimepiride 2 mg) in healthy Thai volunteers	International Bio Service Co., Ltd	Assoc. Prof. Yupaporn Wattanagoon
7**	Pharmacologic study of Oseltamivir in healthy volunteers	National Institutes of Health, USA	Assoc. Prof. Yupaporn Wattanagoon
8***	Effect of primaquine and its metabolite on the infectivity Of *P. falciparum* gametocyte	Wellcome Trust of Great Britain	Assist. Prof. Kesinee Chotivanich
9***	Bioequivalence study of 4 mg Perindopril tablets preparations in healthy Thai male volunteers	International Bio Service Co., Ltd	Assist. Prof. Weerapong Phumratanaprapin
10**	Evaluation of genetic susceptibility to meliodosis	The US National Institute of Health	Dr. Wirongrong Chierakul
11**	Abnormalities of coagulation and the immune response in diabetic patients with melioidosis	MORU, the Faculty of Tropical Medicine and Amsterdum Medical Centre, Netherlands	Dr. Wirongrong Chierakul
12	In Vivo bioequivalence study of 160 mg Fenofibrate film-coated tablet preparation in healthy Thai male volunteers	International Bio Service Co., Ltd	Asst. Prof. Weerapong Phumratanaprapin
13	Rabies exposure risk among foreign backpackers from non-ASEAN countries traveling in Southeast Asia	N/A	Dr. Watcharapong Piyaphanee
14	VNTR-based PCR (VNTR Typing for *Plasmodium falciparum* and *Plasmodium vivax*	Biotech	Assist. Prof. Mallika Imwong
15	Molecular characterization of drug resistance in the Human malarias	Intermediate level fellowship, Welcome Trust of Great Britain	Assist. Prof. Mallika Imwong

No.	Research Title	Grant	Principal investigator
	Department of Clinical Tropical Medicine *(Continued)*		
16**	Pathology of mouse vital organs after injection with Artemisinin derivatives	Mahidol-Oxford Tropical Medicine Research Unit	Assist. Prof. Apichart Nontprasert
17**	Rapid diagnosis of leptospirosis by loop-mediated isothermal amplification	The Thailand Research Fund	Dr.Piengchan Sonthayanon
18***	Safety and efficacy study of *Impomea pes-caprae ointment* produced by Faculty of Tropical Medicine	Faculty of Tropical Medicine, Mahidol University	Dr. Watcharapong Piyaphanee
19**	Development of PCR-based detection for *Leptospira* spp. And *Orientia tsutsugamushi* in patients with coinfection of leptospirosis and scrub typhus	Faculty of Tropical Medicine, Mahidol University	Dr. Piengchan Sonthayanon
20***	A Randomized, international, Double-Blinded (With In-House Blinding), Controlled With GARDASILTM,Dose-Ranging, Tolerability, Immunogenicity, and Efficacy Study of a Multivalent Human Papillomavirus (HPV) L1 Virus-Like Particle (VLP) Vaccine Administered to 16 to 26 Year Old Women	MSD (Thailand)	Prof. Punnee Pitisuttithum
21**	Travelers' diarrhea among foreign travelers in Southeast Asia based on surveillance data at Suvarnabhumi Airport	Faculty of Tropical Medicine, Mahidol University	Dr. Chatporn Kittitrakul
22***	Detection of artemisinin resistance *P. falciparum* : in vitro	Mahidol-Oxford Tropical Medicine Research Unit	Assoc. Prof. Kesinee Chotivanich
23***	A Phase III Clinical Trial to Study the Immunogenicity, Tolerability, and Manufacturing Consistency of V503 (A multivalent Human Papillomavirus [HPV] L1 Virus-Like Particle [VLP] Vaccine) in Preadolscents and Adolescents (9 to 15 year olds) with a Comparison to Young Woman (6 to 26 year olds)	Merck & Co., Inc	Prof. Punnee Pitisuttithum
24***	Safety, Immunogenicity and Efficacy Studies of WRSS1, a Live Attenuated *Shigella sonnei* Vaccine Candidate, in Healthy Thai Adults	Merck & Co., Inc	Prof. Punnee Pitisuttithum
25*	Novel invention of induced pluripotent stem cells for prediction of drug toxicity in human	Government Budget	Assist. Prof. Apichart Nontprasert
26***	The efficacy of Moisturizing Lotion with Lichochalcone in treatment of Dryskin and Pmritus in End-Stage renal disease patients	Department of Clinical Tropical Medicine, Faculty of Tropical Medicine	Dr. Vorada Choovichian
27***	Incidence and spectrum of health problems among travels to Lao PDR	Department of Clinical Tropical Medicine and Travel Medicine Unit	Dr. Watcharapong Piyaphanee
28***	The efficacy of antimalarial treatment for Plasmodium vivax at Thai -Cambodia border, Thailand.	Faculty of Tropical Medicine (Dean's Reseasrch Fund 2011)	Dr. Prakaykaew Charunwatthana
29*	Efficacy of moisturizing lotion containing Licochalcone for xerosis in chronic hemodialysis [HD] patients: a double blinded randomized- intra-individual comparator controlled study: a pilot study	Department of Clinical Tropical Medicine and DKSH	Dr. Vorada Choovichian
30*	Etiology and outcome of acute fever cases attending Hospital for Tropical Diseases	Faculty of Tropical Medicine, Mahidol University	Dr. Viravarn Luvira
31*	Plasma antioxidant power and vitamin C level in patients with dengue infection	Faculty of Tropical Medicine, Mahidol University	Dr. Borimas Hanboonkunupakarn

No.	Research Title	Grant	Principal investigator
	Department of Helminthology		
1***	Study on Paragonimus population: morphology, molecular biology, enzymology and epidemiology aspects	Ministry of Foreign Affairs	Assoc. Prof. Jitra Waikagul
2***	Genetic variation and population structure studies of fish-borne trematodes for increasing control impact of opisthorchiasis and chlolangiocarcinoma	The Thailand Research Fund	Assoc. Prof. Jitra Waikagul
3**	The study on life cycle and antiginicity of *Paragonimus pseudoheterotremus waikagul*, 2007	Faculty of Tropical Medicine, Mahidol University	Mrs. Tippayarat Yoonuan
4***	*Angiostrongylus cantonensis* in freshwater snails collected from 18 different localities of Thailand: prevalence and parasitic burden, biochemical components, antigenicity and population genetics	Government Budget	Assoc. Prof. Chalit Komalamisra
5***	Study on the recombinant proteins expressed from Mucin-1 gene of *Toxocara canis* in Prokaryotic and Eukaryotic cells for diagnosis of human toxocariasis	Faculty of Tropical Medicine, Mahidol University	Dr. Dorn Watthanakulpanich
6**	Genetic variation and DNA sequences of *Taenia asiatica*	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Malinee Thairungroj
7***	Analysis of an electro-eluted antigen (< 30 kDa) of *Strongyloides stercoralis* infective larvae using IgG1-4 – ELISA for diagnosis of strongyloidiasis	Faculty of Tropical Medicine, Mahidol University	Mr. Wallop Pakdee
8***	Health status of immigrant children and environmental survey of the children day care centre in Samutsakorn province	Faculty of Tropical Medicine, Mahidol University	Mr. Surapol Sa-nguankiat
9***	Identification and characterization of Trichinella spiralis-derived immunomodulatory molecules for novel therapies of inflammatory diseases	Faculty of Tropical Medicine, Mahidol University	Dr. Poom Adisakwattana
10***	Experimental Co-infection study of high virulence pathogenic Leptospira in Helminth infected Hamster	Faculty of Tropical Medicine, Mahidol University	Mr. Kittipong Chaisiri
11***	Development of effective immunodiagnosis for detection gnathostomiasis by using recombinant cathepsin L.	Faculty of Tropical Medicine, Mahidol University	Mrs. Supaporn Nuamtanong
12*	Proteomics studies of cytoplasmic membrane proteins expressed on TNF-a induced cholangiocarcinoma cell line	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Poom Adisakwattana
13*	Development of technique ofr discriminating species and estimating numbers of metacercariae of fish-borne trematodes in an area of mixed infection between Opisthorchiid liver flukes and Heterophyid intestinal flukes by using multiplex real-time PCR	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Urusa Thaenkham
14*	Production of recombinant Cathepsin L from *Paragonimus pseudoheterotremus* for diagnostic development of paragonimiasis	The Thailand Research Fund and Mahidol University	Dr. Tippayarat Yoonuan
15***	Separation of *Toxocara* excretory-secretory antigens as a diagnostic antigens for human toxocariasis	National Science and Technology Development Agency	Dr. Dorn Watthanakulpanich
16*	Development of multiplex PCR for detection of soil-transmitted helminthes in human stool samples	Faculty of Tropical Medicine, Mahidol University	Ms. Orawan Phuphisut

No.	Research Title	Grant	Principal investigator
	Department of Medical Entomology		
1**	Molecular identification of *Anopheles sundaicus* In natural breeding sources, the coastal area of Andaman and the Gulf of Thailand	Faculty of Tropical Medicine, Mahidol University	Dr. Jiraporn Ruangsittichai
2***	Feeding behavior, ecological studies, and molecular identification of Anopheles dirus complex in man-habitat	Faculty of Tropical Medicine, Mahidol University	Mr. Sungsit Sungwornyothin
3***	Classification of medical arthropod vectors in Thailand by DNA barcode	Government Budget	Dr. Jiraporn Ruangsittichai
4***	Study of genetic variation for identification of mosquitoes in Thailand by malecular techniques	The Thailand Research Fund	Dr. Jiraporn Ruangsittichai
5**	DNA barcoding of medically entomological ectoparasites	Government Budget	Dr. Sungsit Sungwornyothin
6***	Tropic bebavior and ecological characteristics of *Anopheles dirus* complex in man-made habitat	The Thailand Research Fund	Dr. Sungsit Sungwornyothin
7**	Study on larvicidal activity of *Azadirachta indica* Extracts and formulate as a product for the control *Acedes aegypti* mosquito larvae	Faculty of Tropical Medicine, Mahidol University	Mr. Samrerng Prummongkol
8**	Comparative linoleic, calcium and protein in sesame oil and sesame meal by using hydraulic press and cultural press machine	Faculty of Tropical Medicine, Mahidol University	Mrs. Keawmala Palakul
9***	DNA barcode: the technical challenge for Anopheles mosquito blood meal identification to reverse host from laboratory model versus field.	Faculty of Tropical Medicine, Mahidol University	Dr. Patchara Srivichai
10***	Climate changes effects on mosquito-borne viruses maintenance : Dynamic population of the Vectors of Dengue and Chikungunya viruses	Faculty of Tropical Medicine, Mahidol University	Dr. Ronald Enrique Morales Vargas
11***	Effect of temperature on development and insecticide susceptibility of dengue vectors.	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Narumon Komalamisra
12***	Comparison and evaluation of Loop-mediated isothermal amplification (LAMP) and RT-PCR as diagnostic tool for dengue virus detection in Aedes among epidemic area	Faculty of Tropical Medicine, Mahidol University	Dr. Rawewan Srisawat
13***	Application of morphometrics and molecular biology to identify *Ae. scutellaris* in Thailand	Faculty of Tropical Medicine, Mahidol University	Dr. Suchada Samruaypol
14***	Quantitative transovarial tranmission to dengue-2 virus in both sexes of dark- and pale-form *Ae. Aegypti*	Faculty of Tropical Medicine, Mahidol University	Mr. Teerawit Panpoowong
15*	Proteomic profile associated with pyrethroid resistance in *Ades aegypti*	The Thailand Research Fund and Mahidol University	Dr. Raweewan Srisawat
16***	The effects of different temperatures on the interaction between Aedes Mosquitoes and Dengue Virus especially Viral Susceptibility, Dissemination, Transmission and Disease Pathogenesis.	Faculty of Tropical Medicine (Dean's Reseasrch Fund 2011)	Assoc. Prof. Supatra Thongrungkiat
17*	*Plasmodium knowlesi* the fifth species of human malaria : investigaton for mosquito vector in Thailand	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Patchara Srivichai
18*	Exploring transmission-blocking vaccine target in *Anopheles dirus* for inhibition of malaria transmission	Faculty of Tropical Meidicine (Dean's Research Fund 2011 round 2)	Dr. Patchara Srivichai
19*	Production and characterization of rhamnolipid, biosurfactant, trom *Pseudomonas aeruginosa* B189 for mosquitoes control	Faculty of Tropical Mecicine, Mahidol University	Dr. Siriluck Attrapadung

No.	Research Title	Grant	Principal investigator
	Department of Medical Entomology *(Continued)*		
20*	Molecular identification of Endosymbiotic bacteria from Bat Bugs (*Leptocimex inordinatus*)	Faculty of Tropical Mecicine, Mahidol University	Dr. Rutcharin Potiwat
21*	The study of mosquito vectors emphasis on Lorrainea, Sukusea and Stegomyia inhabiting mangrove forest of Thailand by morphometrics and molecular biology	Mahidol University	Dr. Suchada Sumruaypol
	Department of Microbiology & Immunology		
1**	Role of NK cells, NKT cells and T cell subpopulations through granule exocytosis in response to *M. tuberculosis* infection	The Thailand Research Fund	Prof. Srisin Khusmith
2**	Clinical and immunological study on difficulty treatment TB in Chiang Rai, Thailand	Japan Health Science Fundation	Prof. Srisin Khusmith
3***	Genetic polymorphisms in HIV infected patients receiving antiretrovaral therapy	The Thailand Research Fund	Prof. Srisin Khusmith
4***	Genotypic Diversity and the ability to invade host cell among environmental Legionella isolates in Thailand	Government Budget	Assist. Prof. Tareerat Kalambaheti
5*	Genetic diversity of Brucella strains isolated from cow and goat farm	Government Budget	Assist. Prof. Tareerat Kalambaheti
6**	Role and significance of arginine deiminase (ADS) in adaptation of *Burknolderia pseudomallei*	The Thailand Research Fund	Dr. Narisara Chantratita
7*	Associations between genetic polymorphisms, innate immune responses and outcomes from sepsis in Thai patients with melioisosis and *S. aureus* infection	Welcome Trust of Great Britain	Dr. Narisara Chantratita
8**	The effects of Thai medicinal plants for the protection of Influenza virus	Faculty of Tropical Medicine, Mahidol University	Dr. Pornsawan Leangwutiwong
9**	Determination of Dengue neutralizing antibodies using micro-neutralization test	Faculty of Tropical Medicine, Mahidol University	Ms. Siriporn Chattanadee
10**	Detection of influenza A 2009 H1N1 virus by real - time RT – PCR	Faculty of Tropical Medicine, Mahidol University	Ms. Akanitt Jittmittraphap
11***	Gemomic approaches to metabolite exploitation from Xenorhabdus, Photorhabdus	Johann Wolfgang Goetite Universtitaet Frankfurt Am Main	Dr. Narisara Chantratita
12**	Characterization of monoclonal antibodies specific to *Aeromonas sobria*	Faculty of Tropical Medicine, Mahidol University	Mrs. Suporn Paksanont
13*	Holistic approach to malaria prevention and management: from bio-molecular to community research	The Commission on Higher Education (National Research University)	Prof. Srisin Khusmith
14***	Roles of the secreted Twin-arginine translocation (TAT) protein and oxidoreductase of *Burkholderia pseudomallei* under salt stress.	Faculty of Tropical Medicine, Mahidol University	Dr. Pornpan Pumirat
15***	Inhibiton of Aeromonas hemolysin by monoclonal antibodies	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Yuwadee Mahakunkijjaroen
16*	The role of treahalase in stress response and virulence of *Burkholderia pseudomallei*	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Muthita Vanaporn

No.	Research Title	Grant	Principal investigator
	Department of Microbiology & Immunology *(Continued)*		
17*	Preparation of fully human monoclonal antibodiy to enterotoxin A (SEA) of *Staphylococcus aureus* by using phage display technology for further developmetn to therapuetic antibody	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Nitaya Indrawattana
18*	Role of cycle inhibiting factor (Cif) in host protein expression and prevalence of Cif in *Burkholderia pseudomallei*	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Pornpan Pumirat
19*	Surveillance of emerging and re-emerging aoonotic diseases in wildlife and domestic animals in the areas of forest, residences, and agricultures interface in Thailand	Faculty of Tropical Mecicine, Mahidol University	Dr. Nathamon Ngaosuwankul
20*	*In vitro* activity of *Psidium guajava* crude extracts against clinically isolated pathogenic fungi	Faculty of Tropical Mecicine, Mahidol University	Assist. Prof. Natthanej Luplertlop
	Department of Molecular Tropical Medicine & Genetics		
1***	The qualification and quantification of proteins of mefloquine-sensitive and mefloquine-resistant *Plasmodium falciparum* using mass spectrometry.	Faculty of Tropical Medicine, Mahidol University	Dr. Onrapak Riumthong
2***	Optimization of protein sample preparation techniques for proteomic study of *Plasmodium vivax* in liver stage	Faculty of Tropical Medicine, Mahidol University	Dr. Supachai Topanurak
3***	The study of biotransformation of oseltamivir analogue by Carboxylesterase 1 (CES1).	Faculty of Tropical Medicine, Mahidol University	Dr. Usa Dokprom
4***	Proteomics profile of cholangiocarcinoma cell line treated with isoflavones and its derivatives	Mahidol University	Dr. Charin Thawornkuno
5*	Molecular study of *dhps* and *crt* genes in *P. malariae* and *P. ovale*	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Naowarat Tanomsing
6***	Molecular detection of *Burkholderia pseudomallei* in crude soil sample for environmental survey	Li Ka Shing Foundation - University of Oxford Global Health Foundation	Dr. Piengchan Sonthayanon
7***	The qualification and quantification of proteins of mefloquine resistant *Plasmodium falciparum*	Mahidol-Oxford Tropical Medicine Research Unit	Dr. Onrapak Riumthong
8***	Molecular characterization of drug resistance in P. vivax.	Faculty of Tropical Medicine (Dean's Research Fund 2011)	Assist. Prof. Mallika Imwong
9***	Development of Antigens-base immunodiagnosis test for acute febrile illness caused by *Leptospira* spp.	Faculty of Tropical Medicine (Dean's Research Fund 2011)	Dr. Santi Maneewatcharangsri
10*	Identification of mass fingerprinting of *Leptospira* spp. Using matrix assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS)	The Thailand Research Fund, and Mahidol University	Dr. Piengchan Sonthayanon
11*	Prevalence of pathogenic *Leptospira* spp. from rodents in Thailand	Dean's Research Fund 2011 round 2	Dr. Piengchan Sonthayanon
12*	Effect of additional mutation (Mahidol) in G6PD Viangchan	Dean's Research Fund 2011 round 2	Dr. Usa Dokprom
13*	Production of rapid immunoscreening test for detection of IgM and IgG antibody specific to LipL32 protein in acute leptospirosis	Faculty of Tropical Medicine, Mahidol University	Ms. Nonglucksanawan Ritthisunthorn

No.	Research Title	Grant	Principal investigator
	Department of Protozoology		
1***	*Toxoplasma gondii* genotyping in domestic and wild felids in Thailand	Commission on Higher Education	Assoc. Prof. Yaowalark Sukthana
2***	Molecular characterization of DNA polymerase δ of *Plasmodium falciparum* and Its role in DNA peplication and DNA repair	Biotech	Assoc. Prof. Porntip Petmitr
3***	Molecular characterization of *Plasmodium falciparum* polynucleotide kinase	The Thailand Research Fund	Assoc. Prof. Porntip Petmitr
4**	Molecular characterization of *Plasmodium falciparum* polynucleotide kinase and its role on DNA repair of malaria parasites	Government Budget	Assoc. Prof. Porntip Petmitr
5***	PCR assays for detection of *Toxoplasma gondii* in Thai commercial meat products	Mahidol University	Ms. Rachatawan Chiabchalard
6**	Detection of *Trichomonas vaginalis* infection in Thai Women by PCR and culture methods	Faculty of Tropical Medicine, Mahidol University	Ms. Kanthinich Thima
7*	Identifying the Sources of Environmental Contamination by *Cryptosporidium*	The Thailand Research Fund	Assoc. Prof. Yaowalark Sukthana
8***	Development of intestinal protozoan diagnosis by Multiplex Real Time PCR	The National Research Concil of Thailand	Dr. Rachatwan Chiabchalard
9**	Relationships between superoxide dismutase enzyme and intestinal protozoa infection in underweight Thai boy orphans	Faculty of Tropical Medicine, Mahidol University	Dr. Supaluk Popruk
10***	Development of a loop-mediated isothermal amplification (LAMP) for rapid identification of *Naegleria fowleri*	Faculty of Tropical Medicine, Mahidol University	Dr. Ongart Mahitikorn
11***	Development of nested PCR and real-time PCR assays for diagnosis of *Plasmodium knowlesi*	Faculty of Tropical Medicine, Mahidol University	Mr. Pongrut Ratprasert
12*	Conmparative proteomic study of *Entamoeba histolytica* and *Entamoeba moshkovskii;* causative agent of muman amoebiasis	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Saengduen Moonsom
13*	Development Technique of Differentiation of Free-living Amoebae	The Thailand Research Fund	Assoc. Prof. Yaowalark Sukthana
14*	The Role of marine bivalves as a sentinel organism for monitoring food-and water-borne Protozoa-related diseases in coastal waters	The Thailand Research Fund	Assoc. Prof. Yaowalark Sukthana
15***	The Detection and Quantification of *Toxoplasma gondii* Captive Wildlife in Thailand	Department of Protozoology	Dr. Ongart Mahitikorn
16*	Development of differential diagnosis of *Entamoeba histolytica, E. moskovskii,* and *E. dispar* by specific monoclonal antibodies	Dean's Research Fund 2011 round 2	Dr. Saengduen Moonsom
17*	The study of nutritional status, intestinal parasitic infection and antioxidant enzymes in children living in orphan house	Faculty of Tropical Mecicine, Mahidol University	Dr. Supaluk Popruk
18*	Simultaneous detection of multiple infective agents by using single clinical specimen in Thai patients	(2-V Research Program) National Research Council of Thailand	Ms. Rachatawan Chiabchalard/ Assoc. Prof. Yaowalark Sukthana
	Department of Social & Environmental Medicine		
1**	Modifying mosquito population age structure to eliminate dengue transmission	Gates Foundation	Assoc. Prof. Piyarat Butraporn

No.	Research Title	Grant	Principal investigator
	Department of Social & Environmental Medicine *(Continued)*		
2**	Modifying mosquitoes age structure to eliminate dengue haemorrhagic fever: community participation in dengue haemorrhagic fever		Assoc. Prof. Piyarat Butraporn
3**	Technology transfer on the combination of effective microorganisms (EM) and Chitosan for control the environmental and diseases vectors problems using Participatory action research	Government Budget	Assist. Prof. Pongrama Ramasoota
4**	A surveillance of snail intermediate host of Schistosomiasis : *Schistosoma mekongi* (*Neotricula aperta* β-race) using the geographic information system in the area of Mun river, Ubon-Ratchatani Province	Faculty of Tropical Medicine, Mahidol University	Mr. Peerapol Chusongsaeng
5***	Development of Microorganism Killing Activity for Electronic Air Filter	The Thailand Research Fund	Assist. Prof. Pongrama Ramasoota
6**	Variable infection rate of Bithynia (Digoniostoma) *siamensis siamensis*, 1st intermediate host of liver fluke, *Opisthorchrist viverrini* at endemic areas in Chacheongsao Province, Thailand	Faculty of Tropical Medicine, Mahidol University	Mrs. Yupa Chusongsang
7***	Development of monoclonal antibody specific to 3 ABC protein of foot and mouth disease virus using phage display technology	The Thailand Research Fund	Assist. Prof. Pongrama Ramasoota
8***	Impact of temperature on Schistosoma mansoni infection in snail intermediate host Biomphalaria glabrata.	Faculty of Tropical Medicine, Mahidol University	Dr. Yanin Limpanon
9**	Production of Human scFv from hybridoma cell with Dengue virus neutralizing activity	Faculty of Tropical Medicine, Mahidol University	Dr. Pannamtip Pitaksajakul
10*	Effect of climate change on Gastro-intestinal Infectious Diseases	The Commission on Higher Education (National Research University)	Assist. Prof. Suwalee Worakunpiset
11***	Variable of infection rate of intermediated host of liver fluke, *Opisthorchis viverrini* at endemic areas in Chacheongsao Province, Thailand.	Department of Social and Environmental Medicine, Faculty of Tropical Meidicine, Mahidol University	Mrs. Yupa Chusongsang
12***	Therapeutic and diagnostic human monoclonal antibodies against Chikungunya virus.	Faculty of Tropical Medicine (Dean's Research Fund 2011)	Dr. Pannamtip Pitaksajakul
13*	Public Health Assessment of the Nam Theun 2 dydroelectric dam, Laos	Bureau de Project de l' Institut Pasteur au Laos	Mrs. Pusadee Sri-aroon
14*	Malacological Investigation of Nam Theun 2 Hydroelectric Project in Khammouane Province, Central Lao PDR (PhaseII)	Bureau de Project de l' Institut Pasteur au Laos	Mrs. Pusadee Sri-aroon
15*	Recombinant human IgG monoclonal antibody production with cross-neutralizing activity to all serotypes of Dengue virus	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Pannamthip Pitaksajjakul
	Department of Tropical Hygiene		
1**	Development of Health Information System for Managing Healthcare services in Remote Areas: A module for Monitoring Artemisinin Resistant Malaria Parasites	WHO-BMGF	Assist. Prof. Jaranit Kaewkungwal
2***	A phase II,randomized, open label, multicentre study to assess the antimalarial efficacy and safety of arterolane (RBx11160) maleate and piperaquine phosphate coadministration and Coartem in patients with acute uncomplicated *Plasmodium falciparum* malaria	Ranbaxy Laboratories Ltd., India	Assoc. Prof. Srivicha Krudsood

No.	Research Title	Grant	Principal investigator
	Department of Tropical Hygiene *(Continued)*		
3***	Evaluation of fosmidomycin, when administered concurrently to adult subjects with acute uncomplicated Plasmodium malaria	Jomaa Pharma GmbH, Hamburg, Germany	Assoc. Prof. Srivicha Krudsood
4***	Th1 and Th2 cytokine expression in common mosquito borne infected samples in Thailand	The Thailand Research Fund	Dr. Natthanej Luplerdlop
5***	Proteomics characterization of *Aedes aegypti*	Bourse Scholarship, IRD, France	Dr. Natthanej Luplerdlop
6***	Molecular techniques for identification of protective epitope and pathogenic peptides of LipL32 protein of *Leptospira* spp.	The Thailand Research Fund	Dr. Santi Maneewatchararangsri
7***	Dynamics of microscopic and submicroscopic P. falciparum gametocytemia after early treatment of artesunate-mefloquine	The Thailand Research Fund	Dr. Saranath Lawpoolsri
8**	Application of Geoinformatics Technology in the Assessment of Malaria Risk Area in Ratchaburi Province	Faculty of Tropical Medicine, Mahidol University	Ms. Chotipa Kulrat
9***	Prevalence and impact of intestinal parasitic infections in pregnant women in 3 health centers along the Thai-Myanmar border, Suan Phung district, Ratchaburi province: Field base study	Faculty of Tropical Medicine, Mahidol University	Mr. Nipon Thanyavanich
10***	Role of phosphoinositide 3-kinase and matrix metalloproteinases induce chronic arthritis in Chikungunya pathogenesis	Faculty of Tropical Medicine, Mahidol University	Ms. Suntaree Sangmukdanun
11***	Production of human VL complementary single-variable domain that interfere and/or neutralize IL-17 biological functions	Faculty of Tropical Medicine, Mahidol University	Dr. Santi Maneewatchararangsri
12***	Mathermatical modeling of optimal combinations of dengue diagnosis strategies	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Wirichada Panngam
13*	Integrated Studies of Epidemiological, Clinical, and Biomolecular Aspects of Dengue Virus	The Commission on Higher Education (National Research University)	Assoc. Prof. Pratap Singhasivanon
14***	Comparative study on the recurrence of helminthiases after selective treatment and mass treatment with single dose of 400 mg albendazole among hill-tribe Karens in border-line between Thailand and Myanmar, Amphoe Suanphung, Ratchaburi Province.	Faculty of Tropical Medicine, Mahidol University	Mr. Wanchai Maneebunyang
15***	Effect of land use change on malaria transmission in Suanphung district Ratchaburi.	Faculty of Tropical Medicine, Mahidol University	Mr. Patiwat Sa-angchai
16***	Surveillance and spatial-temporal distribution of Chikungunya and its impact among residents living in an area along Thai-Myanmar border of Ratchaburi province.	Faculty of Tropical Medicine, Mahidol University	Mr. Pitak Wutisen
17*	Study of lipopolysaccharide and biofilm formation in relapsing meliodosis	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Direk Limmathurotsakul
18*	Long-term Continuous Culture of *Plasmodium Vivax* Stages	University of South Florida, USA	Assoc. Prof. Pratap Singhasivanon/ Dr. Jetsumon Prachumsri
19***	Diagnosis of ARF in severe malaria by neutrophil gelatinase-associated lipocalin (NGAL) and liver fatty acid binding proteins (L-FABP)	The National Research Concil of Thailand	Prof. Srivicha Krudsood

No.	Research Title	Grant	Principal investigator
	Department of Tropical Hygiene *(Continued)*		
20***	Investigating Urine Protein Markers in Acute Renal failure Complicating Severe Malaria	The National Research Concil of Thailand	Dr. Natthanej Luplerdlop
21***	Mathematical modeling to design a preparedness plan for the emergence of leptospirosis due to flooding and other environmental changes in Thailand.	Faculty of Tropical Medicine (Dean's Research Fund 2011)	Dr. Wirichada Panngam
22*	Cell Phone-Based Vaccination Program for Stateless Children	Bill & Melinda Gates Foundation	Assist. Prof. Jaranit Kaewkungwal
23*	Forecasting model of malaria incidence with climate variables: a case study in Ratchaburi, Thailand.	Mahidol University	Dr. Ngamphol Soonthornworasiri
24*	Impact of diabetes mellitus on treatment response for tuberculosis among pulmonary tuberculosis patients in Upper North Thailand	Dean's Research Fund 2011 round 2	Dr. Saranath Lawpoolsri
25*	The comparative epidemiology of P. falciparum and P. vivax transmission in Papua New Guinea, Thailand and Brazil	Barcelona Center for International Health Research, Spain	Assoc. Prof. Pratap Singhasivanon/ Dr. Jetsumon Prachumsri
26*	DENFREE-Dengue Research Framework for Resisting Epidemics in Europe	Institute Pasteur, France	Assoc. Prof. Pratap Singhasivanon
	Department of Tropical Nutrition & Food Science		
1*	Determination of genes expression profile associated to the prognosis of breast cancer and cholangiocarcinoma using Affymetrix Gene Chip and development of diagnostic kits for prognostic detection of these cancers in Thai patients by real-time PCR technique	Government Budget	Prof. Songsak Petmitr
2***	Development of health behaviors and nutritional status of the Tsunami victims in Phang-nga Province	Brescia University, Italy	Assist. Prof. Karunee Kwanbunjan
3**	MTHFR polymophism of folate metabolic genes and susceptibility to colorectal cancer in Thai	Government Budget	Assist. Prof. Karunee Kwanbunjan
4***	Studies on toxicity of heme and oxidative stress after Exposure of antimalarial drugs on mouse macrophage Cell line (RAW264.7)	Faculty of Tropical Medicine, Mahidol University	Ms. Kriyaporn Songmuaeng
5**	Methylation pattern in Osteoporosis	Faculty of Tropical Medicine, Mahidol University	Dr. Pornrutsami Jintaridth
6***	Identification of plant natural products with inhibition of recombinant mosquito alpha-glucosidase	Faculty of Tropical Medicine, Mahidol University	Dr. Damrongkiat Art-harn
7*	DNA methylation singnatures at interspersed repetitive sequences within the rat brain cell during aging	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Pornrutsami Jintaridth
8*	Screening and identification of antimicrobial compound from *Bifidobacterium* with inhibitory activity against *Clostridium difficle*	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Amornrat Aroonnual
9***	Effect of torvoside in cholesterol synthesis in HepG2 cells	The Vejdusit Foundation	Ms. Anong Kitjaroentham
10*	Diversities of related-genes and protiens in obese children with family history obese children with family history of obesity	Government Budget	Prof. Rungsunn Tungtringchitr

No.	Research Title	Grant	Principal investigator
	Department of Tropical Nutrition & Food Science *(Continued)*		
11*	A novel *Solanum torvum* GH3 beta-glucosidase: molecular characterization, physiological functions, structural elements responsible for its natural substrate specificity, its applications	Faculty of Tropical Medicine (Dean's Research Fund 2011 round 2)	Dr. Dumrongkiet Arthan
12*	Effects of the weight loss program on anthropometric parameters, metabolic syndrome parameters and quantity of energy and nutrients intake among obese women	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Karunee Kwanbunjan
13*	Study of Gambicin: anti-microbial peptides from *Culex quinquefasciatus*	Faculty of Tropical Medicine, Mahidol University	Ms. Apanchanid Thepouyporn
14*	The study of methylation level in osteoporosis in menopause by pyrosequencing	Faculty of Tropical Medicine, Mahidol University	Dr. Pornrutsami Jintaridth
	Department of Tropical Pathology		
1**	Proteome of cancerous squamous cells in oral cavity and salivary gland tumor	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Urai Chaisri
2***	Vascular model for atherosclerosis by ex vivo support system (EVVSS)	Government Budget	Assoc. Prof. Yaowapa Maneerat
3*	Gene expression profiles in volve in pathogenesis of atherosclerosis and acute coronary heart disease: A study in Thai patients	Government Budget	Assoc. Prof. Yaowapa Maneerat
4**	Proteome of cancerous squamous cells in oral cavity and salivary gland tumor	Government Budget	Assist. Prof. Urai Chaisri
5**	Exploring Transcriptional factor-Nuclear Factor kappa B (NF-kB) activation in malaria as a new regulating factor in the pathogenesis of malaria	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Parnpen Viriyavejakul
6***	Excretory secretion from infective stage *Gnathostoma spinigerum* larva decrease function of human cytotoxic immune cells	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Yaowapa Maneerat
7***	Exploring Transcriptional factor-Nuclear factor kappa B (NF-KB) as a prognostic factor in developing acute renal failure in *Plasmodium falciparum* patients	The Vejdusit Foundation	Assoc. Prof. Parnpen Viriyavejakul
8***	Study of apoptosis in the liver of severe malaria patients.	Faculty of Tropical Medicine, Mahidol University	Mr. Vasant Kajornsaksumeth
9**	Sphingosine 1 phosphate expression in the brain of severe malaria.	Faculty of Tropical Medicine, Mahidol University	Ms. Rungrat Nintasen
10***	Investigating Causes of Acute Renal Failure in Severe Malaria by Histopathology and Immunohistochemistry	The National Research Concil of Thailand	Assoc. Prof. Parnpen Viriyavejakul
	Department of Tropical Pediatrics		
1*	Efficacy and safety of Dengue vaccine in healthy children aged 4 to 11 years in Thailand (CYD23)	Sanofi Pasteur Co., Ltd.	Prof. Arunee Sabchareon
2***	A controlled study of the safety and immunogenicity of ChimericVaxTM Japanese encepphalitus vaccine in Thai toddlers and children	Sanofi Pasteur Co., Ltd.	Prof. Arunee Sabchareon
3***	Evaluation of long-term immunity against Japanese encephalitis in Children vaccinated with Japanese encephalitis Vaccine	Department of Tropical Pediatrics	Assoc. Prof. Pornthep Chanthavanich

No.	Research Title	Grant	Principal investigator
	Department of Tropical Pediatrics *(Continued)*		
4***	Accuracy assessment of using WHO criteria in diagnosis of dengue infection	Department of Tropical Pediatrics	Assoc. Prof. Pornthep Chanthavanich
5***	Favirab™ post prescription event monitoring	Sanofi Pasteur Co., Ltd.	Assoc. Prof. Pornthep Chanthavanich
6***	The comparison of immunogenicity and adverse reactions after immunization with Japanese Encephalitis vaccine produced by BIKEN and Government Pharmaceutical Organization (GPO) in healthy Thai children (JE0150)	Government Pharmaceutical Organization	Assoc. Prof. Pornthep Chanthavanich
7**	Evaluation of long term immunity against rabies in children vaccinated with different pre-esposure regimens of PCEC (Rabipurâ) and the exposure in the children previously vaccinated with PCEC pre-exposure regimens (I49P6)	Department of Tropical Pediatrics	Assist. Prof. Kriengsak Limkittikul
8***	Protective Antibodies Against Erythrocyte Invasion Ligands in *Plasmodium falciparum* in Thailand	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Watcharee Chokejindachai
9**	Serum immunoglobulin (IgG, IgA, IgM and IgG subclass) levels in Thai children age 0-2 years old determined by Nephelometry	Faculty of Tropical Medicine, Mahidol University	Dr. Raweerst Sitcharangsri
10*	Immunogenicity and safety of activated vero cell devired Japanese Encephalitis vaccine in Thai children	Liaoning Cheng Da Biotechnology Co., Ltd. China	Assoc. Prof. Pornthep Chanthavanich
11*	Immunogenicity and Safety of Inactivated Vero Cell Derived Japanese Encephalitis Vaccine in Thai Children (Phase II)	Bionet Asia co., Ltd., Thailand & Liaoning Cheng Da Biotechnology Co., Ltd. (CDBIO), China	Assoc. Prof. Pornthep Chanthavanich
12*	A Phase III, observer blind, randomized, non-influenza vaccine comparator-controlled, multi-country and multi-centre study of the efficacy of GSK Biologicals quadrivalent, inactived, split virion, seasonal influenza vaccine candidate, GSK2282512A (FLU QQIV), administered intramuscularly in healthy children 3 to 8 years of age	GlaxosmithKline (Thailand) Ltd.	Assoc. Prof. Pornthep Chanthavanich
13*	EPI coverage survey in Thai and foreign children, since birth to grade 6, in Bangkok	Mahidol University	Dr. Weerawan Hattasingh
14*	Ant hypersensitivity in Thailand : Species identification and development of appropriate allergens for skin testing	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Raweerat Sitcharungsri
15*	A Phase II, Randomized, Observer-Blind, Multi-Center, Study to Evaluate Safety, Tolerability and Immunogenicity of an Adjuvanted Cell Culture-Derived H5N1 Subunit Influenza Virus Vaccine at Two Differenct Formulations in Healthy Paediatric Subjects	Novartis Thailand	Assoc. Prof. Pornthep Chanthavanich
16*	Burden of dengue infection in children and adults of Bang Phae distric, Ratchaburi province, Thailand	IVI, South Korea	Assoc. Prof. Pornthep Chanthavanich
	Center of Excellence for Antibody Research (CEAR)		
1**	Study on mouse macrophage cell (RAW 264.7) functions after exposure of artemisinin derivatives *in vitro*	Faculty of Tropical Medicine, Mahidol University	Mr. Naphachai Suthisai

No.	Research Title	Grant	Principal investigator
	Vaccine Trial Centre		
1*	A Randomized, international, Double-Blinded (With In-House Blinding), Controlled With GARDASILTM,Dose-Ranging, Tolerability, Immunogenicity, and Efficacy Study of a Multivalent Human Papillomavirus (HPV) L1 Virus-Like Particle (VLP) Vaccine Administered to 16 to 26 Year Old Women	Merck & Co., Inc	Prof. Punnee Pitisuttithum
2***	A phase III trial of Aventis Pasteur live recombinant ALVAC-HIV (VCP1521) priming with Vaxgen gp 120 B/E (AIDSVAX B/E) boosting in HIV-uninfected Thai adults	Walter Reed Army Institute of Research	Dr. Supachai Rueknggam (Prof. Punnee Pitisuttithum)
3***	Phase II/III safety and immunogenicity of pandemic live attenuated influenza vaccine (PLAIV) candidate strain A/17/CA/2009//38 (HIN1) in healthy Thais	Thai Health Promotion Foundation	Prof. Punnee Pitisuttithum
4***	Phase III Clinical Trial to Study the Immunogenicity, Tolerability, and Manufacturing Consistency of V503 (A Multivalent Human Papillomavirus [HPV] L1 Virus-Like Particle [VLP] in Preadolescents and Adolescents (9 to 15 years old) with a Comparison to Young Women (16 to 26 years old)	Merck & Co., Inc	Prof. Punnee Pitisuttithum
	The TropMed Diagnostic Center		
1**	Potential anti-aging activity of crude rice oil extracted from cadmium-contaminated rice determined with an in vitro human fibroblast cell model	Faculty of Tropical Medicine, Mahidol University	Ms. Hathairad Hananantachai
	Mahidol Vivax Research Unit (MVRU)		
1*	Proteomic study of human malaria parasite Plasmodium vivax liver stages for development of vaccine and drugs	The Geneva Foundation, USA	Dr. Jetsumon Prachumsri

* New Project
** Finished Project
*** Continued

Bangkok School of Tropical Medicine

New Enrollment

D.T.M.&H. 2012

NAME	COUNTRY
1. Dr. Kanako Sakamoto	Japan
2. Dr. Kay Khine Zaw	Myanmar
3. Dr. Shazril Ezzany Mokhtar	Malaysia
4. Dr. Thinzar Linn	Myanmar
5. Dr. Myat Thi Han Theint	Myanmar
6. Dr. Ei Khine Kyaw	Myanmar
7. Dr. Zizawur Aye Maung	Myanmar
8. Dr. Nguyen Thi Thinh	Vietnam
9. Dr. Muhammad Luthfi Al Manfaluthi	Indonesia
10. Dr. Nobuchika Hasejima	Japan
11. Dr. Taeko Oguma	Japan
12. Dr. Mika Sasabuchi	Japan
13. Dr. Yoshiaki Yamamoto	Japan
14. Dr. Myat Thu Soe	Myanmar
15. Dr. Kenichiro Kobayashi	Japan
16. Dr. Najla Ibrahim Ahmed Elhaj	Sudan
17. Dr. Nadiia Shevchenko	Ukraine
18. Dr. Khaing Zaw Latt	Myanmar
19. Dr. Takashi Ueji	Japan
20. Dr. Atsumi Shimizu	Japan
21. Dr. Masahiko Sakamoto	Japan
22. Dr. Giulia Aroasio	Italy
23. Dr. Ehab AB.R. Omrani	Lybia
24. Dr. Rosario Martinez Vega	Spain
25. Dr. Tomohiro Terahara	Japan
26. Dr. Ismael PapeToure	Switzerland
27. Dr. Andrea Danielle Allgower	Switzerland
28. Dr. Christoph Weber	Germany
29. Dr. Md. Gulam Mostafa	Bangladesh
30. Dr. Tobias Karl Brummaier	Austria
31. Dr. Eliane Reine Zeukeng Tsabguim	Switzerland
32. Dr. Jens Erwin Raffelsberger	Sweden
33. Dr. Ho Thi Hoai Thu	Vietnam
34. Dr. Hoang Thuy Hang	Vietnam
35. Dr. Amornnivit Kanokwanvimol	Thailand
36. Dr. Mahammad Sami Hayat	Afghanistan
37. Dr. Najeebullah Rahimy	Afghanistan

M.C.T.M. 2012

1. Dr. Ei Khine Kyaw	Myanmar
2. Dr. Zizawur Aye Maung	Myanmar
3. Dr. Muhammad Luthfi Al Manfaluthi	Indonesia
4. Dr. Mahammad Sami Hayat	Afghanistan
5. Dr. Takashi Ueji	Japan
6. Dr. Christoph Weber	Germany
7. Dr. Myat Thi Han Theint	Myanmar
8. Dr. Rosario Martinez Vega	Spain
9. Dr. Najeebullah Rahimy	Afghanistan
10. Dr. Myat Thu Soe	Myanmar

M.C.T.M. (Trop.Ped.) 2012

NAME	COUNTRY
1. Dr. Nguyen Thi Thinh	Vietnam
2. Dr. Atsumi Shimizu	Japan
3. Dr. Tomohiro Terahara	Japan

M.Sc. (Trop.Med.) 2012

1. Mr. Peerut Chienwichai	Thailand
2. Mr. Ritthideach Yorsaeng	Thailand
3. Mr. Sittidech Surasri	Thailand
4. Ms. Nuntana Meesiripan	Thailand
5. Ms. Maneerat Kityapan	Thailand
6. Ms. Subenya Injampa	Thailand
7. Ms. Lerdthip Teammongkolrat	Thailand
8. Ms. Chotirot Thongprapha	Thailand
9. Ms. Nutchavadee Vorasan	Thailand
10. Mr. Patthamaphong Jaiklom	Thailand
11. Ms. Natnaree Saiprom	Thailand
12. Mrs. Jenni Katariina Hietanen	Finland
13. Dr. Manivanh Vongsouvath	Laos PDR

Ph.D. (Trop.Med.) 2012

1. Mr. Mongkol Pajongthanasaris	Thailand
2. Mr. Surasak Chaikhiandee	Thailand
3. Ms. Unchana Arayasongsak	Thailand
4. Ms. Wanichaya Somsri	Thailand
5. Mr. Saksakon Paratsaphan	Thailand
6. Ms. Krongkan Srimuang	Thailand
7. Mr. Suttipat Srisutham	Thailand
8. Mr. Vichaya Suttisunhakul	Thailand
9. Ms. Kanokpich Puaprasert	Thailand
10. Ms. Sineenart Sengyee	Thailand
11. Mr. Chakkaphan Runcharoen	Thailand
12. Ms. Onuma Singhasivanon	Thailand
13. Mr. Chirawat Paratthakonkun	Thailand
14. Mr. Surasak Chaikiandee	Thailand
15. Dr. Chan Nyein Maung	Myanmar
16. Ms. Thitiporn Surit	Thailand
17. Mrs. Min Min Win	Myanmar
18. Ms. Rawipun Worasathit M.D.,Ph.D.(Trop.Med.)	Thailand

Ph.D. (Clin.Trop.Med.) 2012

1. Dr. Aye Aye Win	Myanmar
2. Dr. Haruhiko Ishioka	Japan

D.B.H.I. 2012

1. Dr. Maria Corazon	Philippines
2. Dr. Haykhame Keokanchanh	Laos PDR
3. Mr. Shongpon Piapengton	Thailand
4. Ms. Huyi Lv	China

New Enrollment

M.Sc. (B.H.I.) 2012

NAME	COUNTRY
1. Mr. Sun Sok Leng	Cambodia
2. Mr. Sok Samnang	Cambodia
3. Dr. Khansoudaphone Phakhounthong	Laos PDR
4. Dr. Sengphachanh Phienphommalinh	Laos PDR
5. Dr. Nouannipha Simmalavong	Laos PDR
6. Mrs. Win Min Thit	Myanmar
7. Dr. Ngwa Sar Dway	Myanmar
8. Dr. Ittapon Leowongiaroen	Thailand
9. Mr. Mongkol Akko	Thailand
10 Mrs. Suwaporn Marsook	Thailand
11. Ms. Siriporn Monyarit	Thailand
12. Mr. Panu Looareesuwan	Thailand
13. Mrs. Tippa Wongstiwilairoong	Thailand
14. Mr. Nguyen Trung Kien	Vietnam
15. Dr. Md. Maruf Haque Khan	Bangladesh

Graduates - Academic Year 2012

Ph.D. (Trop.Med.)

NAME	COUNTRY
1. Mr. Tanasak Changbunjong	Thailand
2. Miss Siriphan Boonsilp	Thailand
3. Miss Aunchalee Thanwisai	Thailand
4. Mr. Manas Kotepui	Thailand
5. Miss Chayanee Setthapramote	Thailand
6. Miss Ladawan Wasinpiyamongkol	Thailand
7. Miss Mathukorn Na Ubol	Thailand
8. Miss Rungrat Nintasen	Thailand
9. Mrs. Panadda Krairojananan	Thailand
10. Lt.Col. Kwanjai Viputtigul	Thailand
11. Miss Chuthaporn Tongboonchoo	Thailand

M.Sc. (Trop.Med.)

NAME	COUNTRY
1. Ms. Dechen Pemo	Thailand
2. Mrs. L.H.K.N. Deepika	Thailand
3. Ms. Ruenruetai Udonsom	Thailand
4. Ms. Nipa Thammasonthijarern	Thailand
5. Mr. Thiranut Ramutton	Thailand

Graduates - Academic Year 2011

M.Sc. (Trop.Med.)

NAME	COUNTRY
1 Miss Chatnapa Duangdee	Thailand
2 Mr. Nopporn Tohmee	Thailand
3 Mr. Wachiraphan Chittham	Thailand
4 Miss Phakapun Singchai	Thailand
5 Miss Apinya Pumpuang	Thailand
6 Mr. Surachet Benjathummarak	Thailand
7 Miss Natthakan Tipkura	Thailand
8 Dr. Huynh Ngoc Son	Vietnam
9 Mr. Paudel Damodar	Nepal
10 Dr. Wai Lin Htun	Myanmar

Ph.D. (Trop.Med.)

NAME - SURNAME	COUNTRY
1 Miss Saranya Siribal	Thailand
2 Miss Muncharee Tattiyapong	Thailand
3 Miss Chutharut Ridruechai	Thailand
4 Mrs Kanyanan Krisiriwuthinan	Thailand
5 Miss Parichat Lapcharoen	Thailand
6 Mr. Kasem Somthana	Thailand
7 Miss Nichaphat Kunsakorn	Thailand
8 Miss Somsiri Decharat	Thailand
9 Miss Tippawan Sungkapong	Thailand

Ph.D. (Trop.Med.) *(Continued)*

NAME	COUNTRY
10 Miss Nada Pitabut	Thailand
11 Mr. Sumate Aumpawong	Thailand
12 Miss Wantana Paveenkittiporn	Thailand
13 Miss Darunee Utennam	Thailand
14 Miss Chalalai Rueanghiran	Thailand
15 Dr. Nyan Win Myint	Myanmar
16 Dr. MD. Shamsuz Zaman	Bangladesh
17 Miss Chaowanee Chupeerach	Thailand
18 Mr. Sujan Babu Marahatta	Nepal
19 Mr. Khuanchai Koompapong	Thailand
20 Mr. Chuchard Punsawad	Thailand
21 Miss Sumonmal Uttayamakul	Thailand

M.C.T.M. (Trop.Med.)

NAME - SURNAME	COUNTRY
1 Dr. Thitima Klomkleao	Thailand
2 Mrs. Annette Mueller	Germany
3 Dr. Nils Kaehler	Germany
4 Dr. Bipin Adhikari	Nepal
5 Dr. Patrick Sagaki	Uganda

Graduates - Academic Year 2011 *(Continued)*

M.C.T.M. (Trop.Ped.)

NAME	COUNTRY
1 Dr, (Mr.) Abdirizak Hersi Osman	Somalia
2 Dr. (Mrs) Librada Siman Fortuna	Philippines

D.T.M.&H.

NAME	COUNTRY
1. Dr. Kanoko Sakamoto	Japan
2. Dr. Kay Khine Zaw	Myanmar
4. Dr. Shazril Ezzany Mokhtar	Malaysia
5. Dr. Thinzar Linn	Myanmar
6. Dr. Myat Thi Han Theint	Myanmar
8. Dr. Zizawur Aye Maung	Myanmar
9. Dr. Nguyen Thi Thinh	Vietnam
11. Dr. Nobuchika Hasejima	Japan
12. Dr. Taeko Oguma	Japan
13. Dr. Mika Sasabuchi	Japan
16. Dr. Kenichiro Kobayashi	Japan
17. Dr. Najla Ibrahim Ahmed Elhaj	Sudan
19. Dr. Khaing Zaw Latt	Myanmar

D.T.M.&H. *(Continued)*

NAME	COUNTRY
20. Dr. Takashi Ueji	Japan
21. Dr. Atsumi Shimizu	Japan
22. Dr. Masahiko Sakamoto	Japan
23. Dr. Giulia Aroasio	Italy
24. Dr. Ehab Ab.R. Omrani	Libya
25. Dr. Rosario Martinez Vega	Spain
26. Dr. Tomohiro Terahara	Japan
27. Dr. Ismael Papetoure	Switzerland
28. Dr. Andrea Danielle Allgower	Switzerland
29. Dr. Christoph Weber	Germany
30. Dr. Md. Gulam Mostafa	Bangladesh
31. Dr. Tobias Karl Brummaier	Austria
32. Dr. Eliane Reine Zeukeng Tsabguim	Switzerland
33. Dr. Jens Erwin Raffelsberger	Sweden
34. Dr. Ho Thi Hoai Thu	Vietnam
35. Dr. Hoang Thuy Hang	Vietnam
36. Dr. Amornnivit Kanokwanvimol	Thailand
37. Dr. Mahammad Sami Hayat	Afghanistan
38. Dr. Najeebullah Rahimy	Afghanistan

Thematic Papers

NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Master of Science in Tropical Medicine (M.Sc. (Trop.Med.)) 2012			
Ms. Wikanda Ngamdee 5436334 TMTM/M	Social and Environment	Complitition between *Burkholderia pseudomllei* and *B. Thailandensis*	Asst. Prof. Dr. Narisara Chantratita
Ms. Ai-rada Pintong 5436335 TMTM/M	Protozoology	Molecular detection and subtyping of *Blastocystis* spp. in Thai children and adolescent orphans	Lect. Dr. Supaluk Popruk
Ms. Pattarakul Pakchotanon 5436337 TMTM/M	Molecular Tropical Medicine and Genetics	Identification and characterization of potential immunomodulatory molecules, serine protease inhibitors, from *Schistisoma mansoni*	Lect. Dr. Poom Adisakwattana
Mr. Kasemsak Jandee 5436339 TMTM/M	Tropical Hygiene	Assessment of expaned program of immunization vaccines coverage and its determinants among hill tribe children, Wawee City, Mae Suai, Chiang Rai , Thailand	Asst.Prof. Dr. Jaranit Kaewkungwal
Ms. Khwanchit Boonha 5436341 TMTM/M	Molecular Tropical Medicine and Genetics	Affinity study of fab monoclonal antibodies specific to haemegglutinin of h5n1 influenza virus using spr biosensor	Asst. Prof. Dr. Pongrama Ramasoota
Ms. Wireeya Chawjiraphan 5436342 TMTM/M	Microbiology and Immununology	Multilocus sequence typing of *Brucella isolates* in Thailand	Asst. Prof. Dr. Thareerat Kalambaheti
Ms. Benjamas Wichapoon 5436345 TMTM/M	Tropical Pathology	Investigating causes of acute renal failure in severe malaria by histopathology and immunohistochemistry	Assoc. Prof. Dr. Parnpen Viriyavejakul
Ms. Phanthila Sirichaiyakul	Tropical Nutrition and Food Science	Expression and characterization of anti-microbial peptide gambicin from culex *Quinquefasciatus* in *Pichia pastoris*	Asst. Prof. Dr. Dumrongkiet Arthan
Ms. Rungarun Suthangkornkul	Tropical Nutrition and Food Science	Functional expression and characterization of III- glucosidase from mosquitoes	Asst. Prof. Dr. Dumrongkiet Arthan

Thematic Papers *(Continued)*

NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Master of Science in Tropical Medicine (M.Sc. (Trop.Med.)) 2012 (Cont.)			
Ms. Anongruk Chim-ong 5437620 TMTM/M	Molecular Tropical Medicine and Genetics	Analysis of candidate gene for prognostic breast cancer biomarker	Prof. Dr. Songsak Petmitr
Ms. Nattaya Muenngern 5437624 TMTM/M	Molecular Tropical Medicine and Genetics	Neutralizing monoclonal antibodies against dengue virus using random peptide phage display library	Lect. Dr. Pannamthip Pitaksajjakul
Ms. Kyi Pyar Min Htike 5438230 TMTM/M	Molecular Tropical Medicine and Genetics	Pyrosequencing approach for mutaiton detection in the *rpoB* gene of the rifampicin resistant *Mycobactrium tuberculosis*	Asst. Prof. Dr. Pongrama Ramasoota
Mr. Wai Yan Aung 5438231 TMTM/M	Tropical Hygiene	Adherence to 3 days course of artemether-lumefantrine treatment in Myanmar	Assoc. Prof. Dr. Pratap Singhasivanon
Ms. Hathai Nochot 5336034 TMTM/M	Helminthology	Diagnosis of filarial dna in domestic cat's blood samples in narathiwat province using real time pcr	Assoc. Prof. Dr. Paron Dekumyoy
Ms. Sumanee Lertkanokkun 5336035 TMTM/M	Social and Environmental	Effect of healthcare provider's knowledge attitude and practice on the success rate of tb treatment	Assoc. Prof. Dr. Kamolnetr Okanurak
Ms. Pornpimol Panprathip 5336041 TMTM/M	Tropical Nutrition and Food Science	Folate status and the risk of colorectal cancer in Thais	Assoc. Prof. Dr. Karunee Kwanbunjan
Ms. Nipa Thammasonthijarern 5336042 TMTM/M	Protozoology	Diagnostic procedures for detecting canine neosporosis in Thailand	Assoc.Prof. Dr. Yaowalark Sukthana
Mr. Saranyoo Sotawong 5336048 TMTM/M	Clinical Tropical Medicine	Hemozoin from blood stage *Plasmodium faciparum* induces T cells independent specific antibody production	Assoc. Prof. Dr. Yaowapa Maneerat
Ms. Jittraporn Rattanamahaphoom 5337887 TMTM/M	Microbiology and Immununology	*In vitro* studies on the mechanisms of vascular leakage in dengue hemorrhagic fever	Asst.Prof. Dr. Pornsawan Leaungwutiwong
Mr. Sethawud Chaikitgosiyakul 5337889 TMTM/M	Tropical Pathology	Placental malaria : a clinico-histopathological correlation	Assoc. Prof. Dr. Emsri Pongponratn
Ms. Rapeepan Prasertbun 5337891 TMTM/M	Protozoology	Relationship between intestinal parasitic infection, nutritional status, and antioxidant enzymes in Thai children and adolescents living in orphanage	Lect. Dr. Supaluk Popruk
Ms. Kanthinich Thima 5337893 TMTM/M	Protozoology	Studies on *Plasmodium falciparum* gemetocyte specific proteins	Assoc. Prof. Dr. Porntip Petmitr
Ms. Htun Oo Saw 5338144 TMTM/M	Social and Environmental	Preventive behaviors of tuberculosis among myanmar immigrant workers in Samutsakhon province, Thailand	Assoc.Prof. Dr. Wijitr Fungladda
Mr. Tenzin Wangdi 5338180 TMTM/M	Medical Entomology	Biting activity of anopheline mosquitoes in rubber plantation areas of Kanchanaburi province, Thailand	Lect. Dr. Sungsit Sungvornyothin
Mr. Nhu Thanh Hung 5338183 TMTM/M	Social and Environmental Medicine	HIV risk-related sexual behavior among ethinic minorities in Quang Tri province, Vietnam	Asst. Prof. Dr. Pongrama Ramasoota
Mr. Tran Viet Anh 5338184 TMTM/M	Tropical Hygiene	Rattern of drug use and sexual behavior among young males 15-24 years old in Quangninh province, Vietnam	Asst. Prof. Dr. Jaranit Kaewkungwal

Thematic Papers *(Continued)*

NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Master of Science in Tropical Medicine (M.Sc. (Trop.Med.)) 2012 (Cont.)			
Mr. Sithithana Adam 5237226 TMTM/M	Helminthology	Production of the recombinant protein of *Angiostrongylus* cantonensis for diagnosis of human angiostrongyliasis	Assoc. Prof. Dr. Paron Dekumyoy
Mr. Nattapon Pingthong 5237227 TMTM/M	Protozoology	Molecular characterization of plasmodium falciparum dna-3-methyladeinine glycosylase	Assoc. Prof. Dr. Porntip Petmitr
Ms. Anchana Sumarnrote 5237228 TMTM/M	Medical Entomology	Toxonomic and morphometric diversity of adult mosquito fauna at different regions of Thailand	Lect. Dr. Ronald Enrique Morales Vargas
Mrs. Monika Saraswati Sitepu	Tropical Hygiene	Temtoral spatial distribution of dengue hemorrhagic fever(DHF)	Lect. Dr. Saranath Lawpoolsri
Ms. Orawan Sungkhachat 5237330 TMTM/M	Microbiology and Immunology	Diversity of enterotoxin genes and Antibiotic susceptibility of clinical *Staphyloccus aureus* isolates	Asst. Prof. Dr. Nitaya Indrawattana
Ms. Busara Banrungsak	Microbiology and Immunology	Molecular genotyping of hpv L1 capsid Protein in low-risk and high-risk Population in bangkok	Asst. Prof. Dr. Pornsawan Leaungwutiwong
Ms. Klairoong Thonsanoi 5237726 TMTM/M	Tropical Pathology	The expression of synapsin i in Cerebral malaria	Assoc. Prof. Dr. Parnpen Viriyavejakul
Ms. Nattaka Chumsang 5136085 TMTM/M	Helminthology	A pilot study on developing the Diagnosis of spargnosis using Ige, IgG and Immunoblot	Assoc. Prof. Dr. Paron Dekumyoy
Ms. Pimjai Klaisri	Tropical Hygiene	Association betewen alcohol Consumption and overweight among Male myanmar workers in samut Sakhon province, Thailand	Assoc. Prof. Dr. Waranya Wongwit
Mr. Atcha Montree	Protozoology	Molecular characterization of *Plasmodium falciparum* dna polymerase small subunit	Assoc. Prof. Dr. Porntip Petmitr
Master of Clinical Tropical Medicine (M.C.T.M.) 2012			
Dr. Christoph Weber	Clinical Tropical Medicine	Incidence and outcome of iris in HIV patients with cryptococcal meningitis in Udon Thani, Northeast Thailand	Lect. Dr. Wirongrong Chierakul
Dr. Takashi Ueji	Clinical Tropical Medicine	Effect of HIV co-infection on treatment outcomes of tuberculosis patients in Udon Thani, Northeastern Thailand	Lect Dr. Chatporn Kittitrakul
Dr. Najeebullah Rahimy	Clinical Tropical Medicine	Treatment outcome of pulmonary tuberculosis in smear positive patient	Lect. Dr. Viravarn Luvira
Dr. Rosario Martinez Vega	Clinical Tropical Medicine	The differences of hepatic impairment and clinical outcome among adults and children in dengue infection	Asst. Prof. Dr. Weerapong Phumratanaprapin
Dr. Zizawur Aye Maung	Clinical Tropical Medicine	The early profiles and dynamic changes of hematologic parameters in adults with dengue infection	Asst. Prof. Dr. Weerapong Phumratanaprapin
Dr. Mohammad Sami Hayat	Clinical Tropical Medicine	"Platelet count alteration in plasmodium vivax malaria"	Prof. Dr. Polrat Wilairatana
Dr. Ei Khine Kyaw	Clinical Tropical Medicine	Continuous hemodynamic profiles in adult patients with dengue at the hospital for tropical diseases, Bangkok, Thailand	Asst. Prof. Dr. Vipa Thanachartwet

Thematic Papers *(Continued)*

NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Master of Clinical Tropical Medicine (M.C.T.M.) 2012 (Cont.)			
Dr. Myat Thu Soe	Clinical Tropical Medicine	Measurement of hemoglobin in adult patients with dengue viral infection using noninvasive and conventional methods	Lect. Dr. Supat Chamnanchanant
Dr. Muhammad Luthfi Al Manfaluthi	Clinical Tropical Medicine	Clinical & outcome of clinically diagnosed leptospirosis patient in queen savang vadhana memorial hospital	Lect. Dr. Prakaykaew Charunwatthana
Master of Clinical Tropical Medicine (Tropical Pediatrics) 2012			
Dr. Tomohiro Terahara	Tropical Pediatrics	Pediatric bcg disease in ramathibodi hospital during 2008-2012	Asst. Prof. Dr. Kriengsak Limkittikul
Dr. Nguyen Thi Thinh	Tropical Pediatrics	Clinical features of respiratory syncytial virus (RSV) infection in children in Ramathibodi hospital	Lect. Dr. Raweerat Sitcharungsi
Dr. Atsumi Shimizu	Tropical Pediatrics	Clinical course of Kawasaki disease, comparing between Japanese children and Thai children	Assoc. Prof. Dr. Chukiat Sirivichayakul
Doctor of Philosophy in Clinical Tropical Medicine (Ph.D. (Clin.Trop.Med.)) 2012			
Dr. Bilal Ahmad Rahimi	Clinical Tropical Medicine	Relapse pattern of plasmosdium vivax malaria using antigen genes and microsatelliteloci, with one year follow up	Asst. Prof. Dr. Watcharee Chokejindachai
Dr. Ayodhia Pitaloka Pasaribu	Clinical Tropical Medicine	Comparison of the efficacy and safety of two acts plus primaquine for uncomplicated plasmodium vivax malaria in north sumatera, indonesia: 1 year follow-up	Asst. Prof. Dr. Watcharee Chokejindachai
Dr. Instiaty	Clinical Tropical Medicine	Development and validation of bioanalytical method for measurement of oseltemivir and oseltamivir carboxylate in dried blood spots and its implementation in clinical trial	Prof. Sasithon Pukrittayakamee
Doctor of Philosophy in Tropical Medicine (Ph.D. (Trop.Med.)) 2012			
Mr.Parkpoom Piyamarn 4501106 TMTM/D	Tropical Medicine	Microarchitecture of prelymphatic system in rat liver with special reference to the missing link between portal tract interstitium and lymphatic vessels	Lect. Dr. Wichai Ekataksin
Mrs.Areerat Sa-ngasang 4736997 TMTM/D	Microbiology and Immunology	Human genetics susceptibility to severity of dengue virus infection	Lect .Dr. Jintana Patarapotikul
Miss Ruangrat Buddhirongawatr 4737003 TMTM/D	Protozoology	*Toxoplasma gondii* genotyping in domestic and wild felids in Thailand	Assoc. Prof. Dr. Yaowalark Sukthana
Miss Namtip Trongnipatt 4837561 TMTM/D	Medical Entomology	Role of NK cells, NKT cells and T cell subpopulations through granule exocytosis in response to *M. tuberculosis* infection	Assoc. Prof. Dr. Chamnarn Apiwathnasorn
Lt.Col.Pasra Arnutti 4938555 TMTM/D	Microbiology and Immunology	Determination of genes expression profile of breast cancer in Thai patients using affymetrix gene chip	Prof. Dr. Songsak Petmitr
Miss Jitlada Vasuvat 5036135 TMTM/D	Protozoology	Biochemical and functional characterization of plasmodium falciparum dna polymerase δ catalytic subunit	Assoc. Prof. Dr. Porntip Petmitr

Thematic Papers *(Continued)*

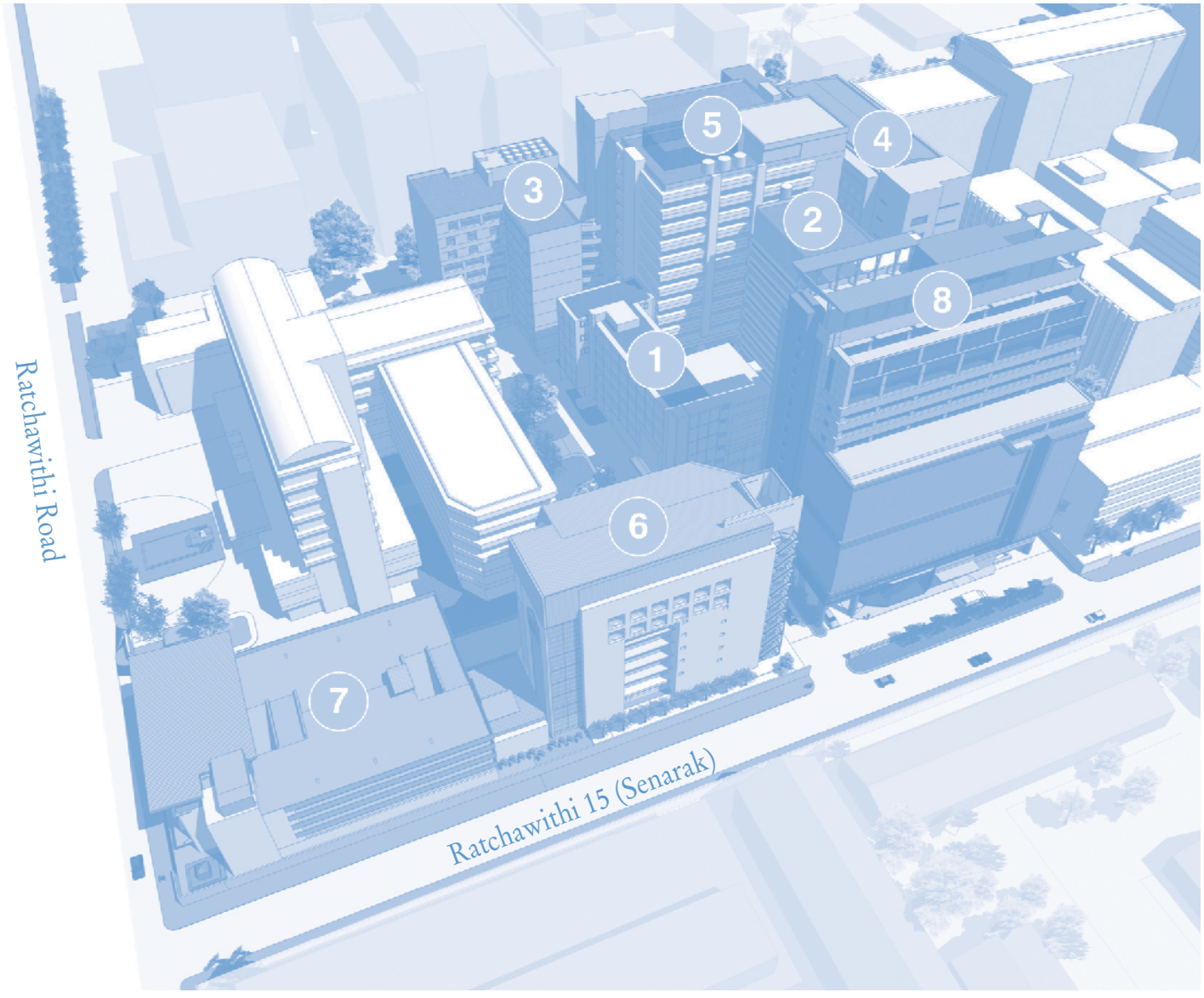
NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Doctor of Philosophy in Tropical Medicine (Ph.D. (Trop.Med.)) (Cont.)			
Mr.Pornsak Khortwong 5036138 TMTM/D	Tropical Hygiene	Tuberculosis care and treatment program for non – Thai migrants in Urban provinces, Thailand	Asst. Prof. Dr. Jaranit Kaewkungwal
Pol.Capt.Natsuda Jamornthanyawat 5036139 TMTM/D	Tropical Medicine	Molecular characterization of human G6PD variants in Afghanistan	Asst. Prof. Dr. Mallika Imwong
Miss Saithip Bhengsri 5036140 TMTM/D	Tropical Hygiene	Epidemiology and cost of bacteremic melioidosis in Nakhon Phanom and Sa Kaeo provinces, Thailand	Asst. Prof. Dr. Jaranit Kaewkungwal
Miss Supinya Tanapongpichat 5037442 TMTM/D	Tropical Medicine	Investigations based on the genetic diversity of malaria parasites : *Plasmodium vivax* in pregnancy and the *Laverania* clade in Chimpanzees	Asst. Prof. Dr. Mallika Imwong
Mrs.Amornrat Anuwatnonthakate 5037443 TMTM/D	Tropical Hygiene	Epidemiology of drug resistance among tuberculosis patients: an analysis of Thailand TB active surveillance network	Asst. Prof. Dr. Jaranit Kaewkungwal
Mrs.Kruawan Chotelertsak 5037444 TMTM/D	Medical Entomology	Molecular identification of medical important fleas in Thailand	Lect. Dr. Jiraporn Ruangsittichai
Miss Ladawan Sariya 5038635 TMTM/D	Microbiology and Immunology	Development of nonstructural 3ABC protein and fab mab for foot and mouth disease virus diagnosis and differentiation between infected and vaccinated animals	Asst. Prof. Dr. Pongrama Ramasoota
Miss Pikun Thesuriyanont 5136077 TMTM/D	Microbiology and Immunology	Serodiagnosis of blucellosis based on recombinant proteins	Asst. Prof. Dr. Thareerat Kalambaheti
Mr.Siriwat Akapirat 5136081 TMTM/D	Microbiology and Immunology	Production of neutralizing human monoclonal antibodies in Thai hiv-infected individuals using hybridoma and phage display techniques	Asst. Prof. Dr. Pornsawan Leaungwutiwong
Miss Kanokkarn Pothong 5137442 TMTM/D	Helminthology	Analysis of *Paragonimus heterotremus* specific antigen prepared by cdna cloning for serodiagnosis of human paragonimiasis in Thailand	Assoc. Prof. Dr. Paron Dekumyoy
Mrs.Kruawan Chotelertsak 5037444 TMTM/D	Medical Entomology	Molecular identification of medical important fleas in Thailand	Lect.Dr.Jiraporn Ruangsittichai
Miss Ladawan Sariya 5038635 TMTM/D	Microbiology and Immunology	Development of nonstructural 3ABC protein and fab mab for foot and mouth disease virus diagnosis and differentiation between infected and vaccinated animals	Asst. Prof. Dr. Pongrama Ramasoota
Miss Pikun Thesuriyanont 5136077 TMTM/D	Microbiology and Immunology	Serodiagnosis of blucellosis based on recombinant proteins	Asst. Prof. Dr. Thareerat Kalambaheti
Mr.Siriwat Akapirat 5136081 TMTM/D	Microbiology and Immunology	Production of neutralizing human monoclonal antibodies in thai hiv-infected individuals using hybridoma and phage display techniques	Asst. Prof. Dr. Pornsawan Leaungwutiwong
Miss Kanokkarn Pothong 5137442 TMTM/D	Helminthology	Analysis of *Paragonimus heterotremus* specific antigen prepared by cdna cloning for serodiagnosis of human paragonimiasis in Thailand	Assoc. Prof. Dr. Paron Dekumyoy

Thematic Papers *(Continued)*

NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Doctor of Philosophy in Tropical Medicine (Ph.D. (Trop.Med.)) (Cont.)			
Miss Duangjai Duangrithi 5137443 TMTM/D	Tropical Medicine	Microbiological outcome of anti-tuberculosis treatment in pulmonary tuberculosis patients	Prof. Dr. Punnee Pitisuttihum
Miss Saiyud Moolphate 5137444 TMTM/D	Tropical Hygiene	Treatment of latent tuberculosis infection (TLTI) by isoniazid therapy : survival benefit for people living with HIV and the barriers of implementing TLTI programme in northern Thailand	Asst. Prof. Dr. Jaranit Kaewkungwal
Mr. Ittisak Subrungruang 5137446 TMTM/D	Microbiology and Immunology	Study of genetic profile in Cholangiocarinoma	Prof. Dr. Songsak Petmitr
Miss Chonlatip Pipattanaboon 5138449 TMTM/D	Microbiology and Immunology	Cloning and expression of dengue recombinant proteins for ideal vaccine development	Asst. Prof. Dr. Pongrama Ramasoota
Miss Khurawan Kumkrong 5237217 TMTM/D	Microbiology and Immunology	Multiple locus variable number tandem repeat analysis (MLVA) for typing *Brucella* isolates	Asst. Prof. Dr. Thareerat Kalambaheti
Miss Narumon Chanwimalueang 5237218 TMTM/D	Tropical Medicine	A study to evaluate effectiveness of twisting tourniquet decongestive technique in Lymphedema patients	Lect. Dr. Wichai Ekataksin
Miss Sivaporn Wannaiampikul 5237298 TMTM/D	Tropical Nutrition and Food Science	Leptin receptor (LEPR), melanocortin-4 receptor (mc4r) and melanocortin-3 receptor (mc3r) genes and related proteins in obese children and their obese relatives	Prof. Dr. Rungsunn Tungtrongchitr
Miss Paviga Limudomporn 5237730 TMTM/D	Protozoology	Molecular characterization of *Plasmodium falciparum* ATP-dependent DNA helicase	Assoc. Prof. Dr. Porntip Petmitr
Miss Pannamas Maneekan 5238746 TMTM/D	Tropical Hygiene	Cytokines expression : the biomarker for severity of dengue infection	Asst. Prof. Dr. Natthanej Luplertlop
Miss Chuenrutai Yeekian 5238748 TMTM/D	Tropical Medicine	Medical and economic burden of chronic hepatitis B patients at Queen Savang Vadhana Memorial Hospital	Prof. Dr. Punnee Pitisuttithum
Miss Woranich Hinthong 5336046 TMTM/D	Social and Environmental Medicine	Influence of temperature on virulence of enteroaggregative *Escherichia coli*	Asst. Prof. Dr. Suwalee Worakhunpiset
Miss Sirikul Kulanuwat 5336051 TMTM/D	Tropical Nutrition and Food Science	Proprotein convertase subtilisin/kexin type 1 (pcsk 1) gene variation and biochemical profiles in thai obese children; family - based study	Prof. Dr. Rungsunn Tungtrongchitr
Miss Wilawan Somsong 5336053 TMTM/D	Tropical Hygiene	Adverse drug reactions and treatment outcomes in the elderly pulmonary tuberculosis patients	Asst. Prof. Dr. Jaranit Kaewkungwal
Mr. Bandid Mangkit 5337896 TMTM/D	Helminthology	Identification of *Haemonchus* spp from domestic ruminants in Thailand: based on morphological examinations and molecular techniques	Assoc. Prof. Dr. Chalit Komalamisra
Miss Sirilak Dusitsittpon 5337898 TMTM/D	Helminthology	Genetic diversity and phylogeography of angiostrongylus species in Thailand	Assoc. Prof. Dr. Chalit Komalamisra
Miss Chantira Suttikornchai 5337899 TMTM/D	Protozoology	The role of thai marine bivavles as a sentinel for monitoring food-and water–borne protozoa	Assoc. Prof. Dr. Yaowalark Sukthana

Thematic Papers *(Continued)*

NAME	DEPARTMENT	TITLE OF THESIS	ADVISOR
Doctor of Philosophy in Tropical Medicine (Ph.D. (Trop.Med.)) (Cont.)			
Miss Wanida Chuenta 5337903 TMTM/D	Tropical Nutrition and Food Science	Fat mass and obesity-associated (FTO) gene variation and obesity in Thai obese children and their relatives	Prof. Dr. Rungsunn Tungtrongchitr
Miss Somporn Saiwaew 5337905 TMTM/D	Tropical Medicine	Effects of low molecular weight heparin and antimalarial drugs on cytoadhesion of *Plasmodium falciparum*	Assoc. Prof. Dr. Kesinee Chotivanich
Mr. Hirotake Mori 5338856 TMTM/D	Protozoology	Characteristics and clinical significance of opportunistic intertinal protozoa in non-HIV immunocompromised patients	Assoc. Prof. Dr. Yaowalark Sukthana
Mr.Tanasak Changbunjong 5338863 TMTM/D	Medicine Entomology	Species distribution and molecular identification of biting muscid flies in the tribe stomoxyini (diptera : muscidae), Thailand	Lect. Dr. Jiraporn Ruangsittichai
Mr. Teera Kusolsuk 5338864 TMTM/D	Helminthology	Taeniasis and solium cysticercosis : parasitological survey, immunological and molecular identification in Thasong Yang district, Tak province, Thailand	Assoc. Prof. Dr. Chalit Komalamisra
Miss Sara Elena Canavati de la Torre 5338857 TMTM/D	Tropical Medicine	Evaluation of behaviour change communication interventions in western Cambodia: successful approaches and barriers to achieving results of behaviour change in a malaria elimination setting	Assoc. Prof. Dr. Pratap Singhasivanon
MISS NEELIMA AFROZ MOLLA 5438235 TMTM/D	Social and Environmental Medicine	Climate refugees: disease burden among children under 5 years old in slum communities of Dhaka, Bangladesh	Assoc. Prof. Dr. Wijitr Fungladda
Miss Supannee Kaewsutthi 5438739 TMTM/D	Tropical Nutrition and Food Science	Identification of the gene(s) associated with familial early – onset obesity in Thai children	Prof. Dr. Rungsunn Tungtrongchitr



Building

1 Hospital for Tropical Diseases
2 Chamlong Harinasuta
3 Khunying Tranakchit
4 Anekprasong
5 Chalermprakiat 50th Anniversary
6 60th Anniversary of His Majesty the King's Accession to the Throne Building
7 Branch Vitayaborikarn
8 Rajanagarindra

For correspondence or inquiries, please contact:

Mahidol University, Faculty of Tropical Medicine
420/6 Ratchawithi Road, Ratchathewi, Bangkok 10400, Thailand
Tel: 66 (0) 2354-9100-4, 66 (0) 2306-9100-9
Fax: 66 (0) 2354-9139
Web: www.tm.mahidol.ac.th

NOTES:

Faculty of Tropical Medicine, Mahidol University
420/6 Ratchawithi Road, Ratchathewi, Bangkok 10400, Thailand
Tel: 66 (0) 2354-9100-4, 66 (0) 2306-9100-9
Fax: 66 (0) 2354-9139
http://www.tm.mahidol.ac.th