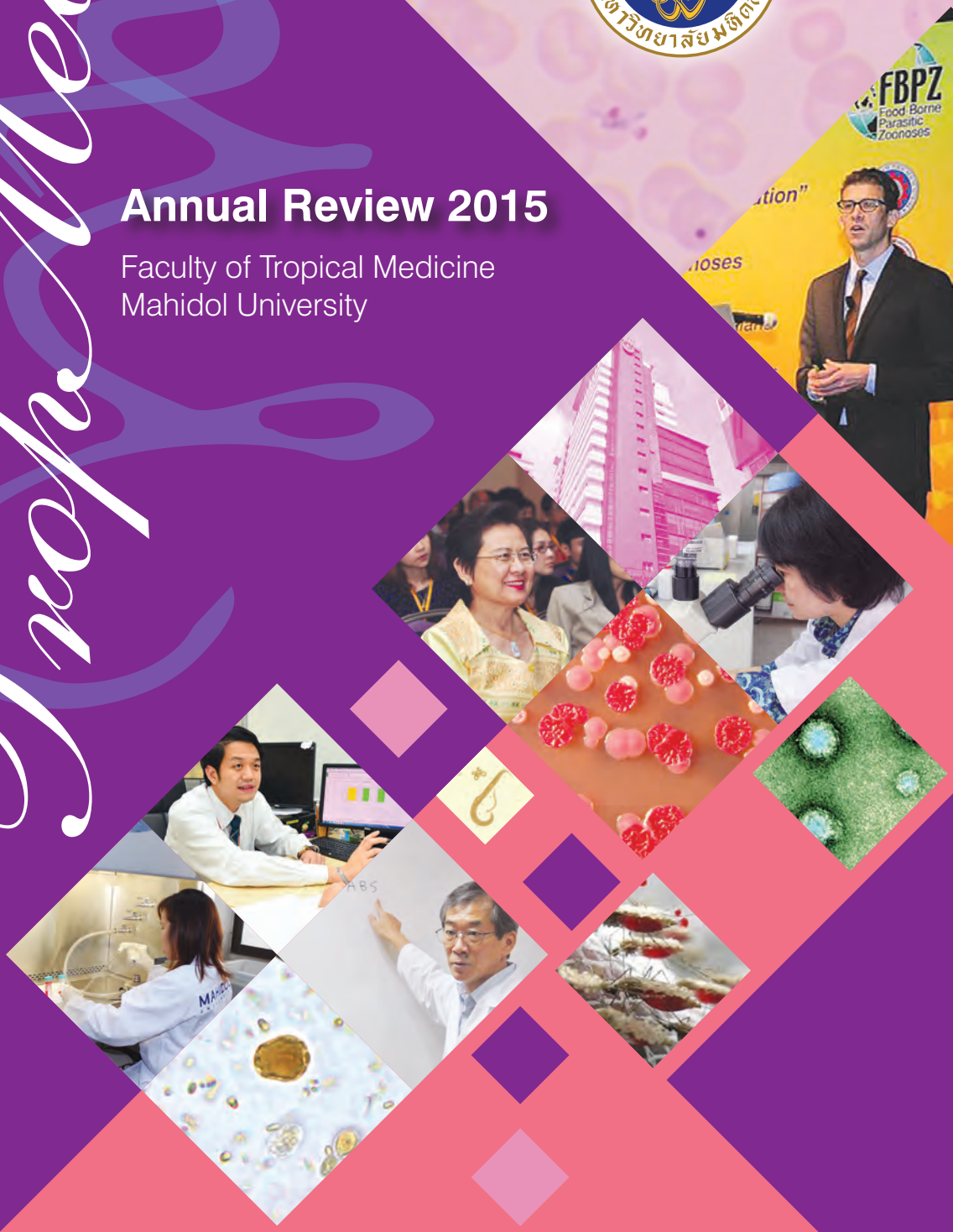
TropMed

Annual Review 2015

Faculty of Tropical Medicine
Mahidol University



ANNUAL REVIEW **2015**

Contents

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DEAN'S Foreword

Prof. Dr. Yaowalark Sukthana

Our vision for the Faculty of Tropical Medicine is to become a world leader in tropical medicine – and with that in mind, 2014 has been a very successful year for us. As a Faculty, we have three main areas of responsibility – research, education, and services, and I am proud to say that during the past year, we have been very successful in all these areas. I would therefore like to start by thanking all our staff for the hard work and excellent results of this past year.

RESEARCH

Our research has continued to be our main strength – it has helped improve the health and well-being of people in Thailand, ASEAN, and beyond. Faculty researchers published 246 peer-reviewed articles in 2014, on average 1.69 per researcher per year, yet again making us the most productive Faculty at Mahidol University. In order to support our researchers to continue this level of output, we have collaborated with an external scientific editing company, EDANZ, which provides post-production support through editing and expert reviews. This unique service is provided free for our researchers, allowing them to focus more on their scientific work, and less on time-consuming writing.

We have had a strong research record for a long time, so our goal this year has been to translate our research into practical applications. We have put much effort into transforming our successful basic research into clinical settings, ensuring that our findings affect and improve the health of our patients. Prof. Punnee Pitisuttithum has been appointed Deputy Dean for Translational Medicine and Innovation, responsible for facilitating the process from lab to practice by working together with clinicians, pharmaceuticals, and other stakeholders. This has resulted in significant advances already, with monoclonal antibody production set to develop with a pharmaceutical partner, a diagnostic test kit for malaria, and a licensing agreement for herbal products developed at the Faculty.

EDUCATION

The Bangkok School of Tropical Medicine has also had a successful year. We have a large number of new students, and there has been a significantly more diverse enrolment than previous

years. Traditionally, our most popular course is the DTM&H, but this year we have seen a large increase in our MSc and PhD programmes. Furthermore, about 50% of our students come from abroad – we now have students from 25 countries at the school, making it a truly international campus. This highlights our important role as a regional education center for tropical medicine. Many of these new students have been supported by new scholarships – 53 students are now supported by scholarships – almost double the number from last year. According to the Thailand Research Fund, the Bangkok School of Tropical Medicine is now the country's top medical education institution, and this is the result of our unique position and close collaboration with researchers at the Faculty. We design all courses to allow students to work closely with our researchers, and to expose them to as many practical situations as possible.

SERVICES

The Hospital for Tropical Diseases has now been in its new building for two years, and both patients and hospital staff have been very positive about the change. The Hospital has been able to take on more patients, and in addition to the patient care space, three floors are dedicated to labs, and we are in the early process of constructing a BSL-3 lab, which will enable us safely to conduct advanced experiments with dangerous pathogens. The Hospital has always had a close relationship with Faculty researchers, and this year – consistent with our theme of translational medicine – we have set up the Reference Lab for Tropical Diseases in the Hospital. This lab utilizes the newest diagnostic methods to identify some of the most common tropical diseases in the region – malaria, toxoplasmosis, scrub typhus, gnathostomiasis, and dengue. These diseases are difficult to diagnose and are often underreported, but with access to our reference lab, doctors can receive an accurate diagnosis and provide patients with the best care available.

STAFF

Our success would not be possible without our staff. Our people are our strongest resource, and we work hard to attract the best staff, to develop their skills, and to recognise and reward performance. We have invested heavily in training and development for all levels of the organisation. Most of our research staff are young, so we have developed mentor schemes and workshops to help develop researchers in the early stages of their careers. The training is both top-down, driven by strategic needs where we have identified areas that need improvement, and bottom-up, where individuals or units can propose training and development initiatives. This investment gives us highly trained staff that can build their careers at the Faculty, and this is one of the main pillars supporting our success.

Going forward, I am feeling very positive. We are on the right track, and our work is constantly improving the health of millions. I am confident that if we continue to strive to improve we can make the coming year one of the best in the Faculty's history.

TROPMED Strategic Plan

The Faculty's strategic vision is to be a world leader in Tropical Medicine. This will be achieved by focusing on the following 8 key strategic areas:

T eaching Excellence

The Faculty aims to make the Bangkok School of Tropical Medicine one of the top three tropical medicine schools in the world, by further improving its teaching quality and providing courses and curricula that reflect the ground-breaking research conducted by the Faculty's researchers.

R esearch and Innovation Excellence

The Faculty is a key driver in tropical medicine research in the ASEAN region, and will strive to continue pushing the boundaries of knowledge even further, with the goal to be one of the top five tropical medicine research faculties. This will be achieved by continuing to increase the number of publications and their impact.

O utstanding Clinical Outcome

The Hospital for Tropical Diseases is situated in its new state-of-the-art facilities in the Rajanagarindra Building, and has started world-first travel medicine residency training. We aim to continue to provide patients with the highest level of care, by offering them the country's leading specialists in tropical medicine, and the most modern facilities and medical equipment available.

P eople Excellence

Our people are our most valuable resource. Therefore we want to continue to recruit the best employees at all levels, and in order to attract the top talent we invest heavily in our co-workers' career development and in making their work at the Faculty challenging and rewarding.

I

nfrastructure Excellence

We have launched the "TM Green" campaign; by encouraging the habit of reducing, reusing, recycling, and repairing resources in our daily activities at TropMed. This effort is a first step towards raising employees' awareness about maintaining a greener environment.

C

ustomer and Community Service Excellence

Openness and transparency are key components in providing this process, and we work hard continuously to improve our services, and to adapt to the ever-changing environment we operate in.

A

lliance Excellence

One of the Faculty's main strategic advantages is our extensive network of collaborators and partners. We strive to constantly strengthen and expand these connections, by inviting guest speakers/ lecturers, organize international visits and conferences, and further integrate our ongoing collaborations with our partner institutions.

L

eadership and Management Excellence

Effective leadership is a key component to ensure the Faculty's continued success, and we will invest heavily in developing our Faculty's leadership ability at all levels of the organization. Leadership training is provided to all managers to help them become more effective leaders.

Administrative BOARD

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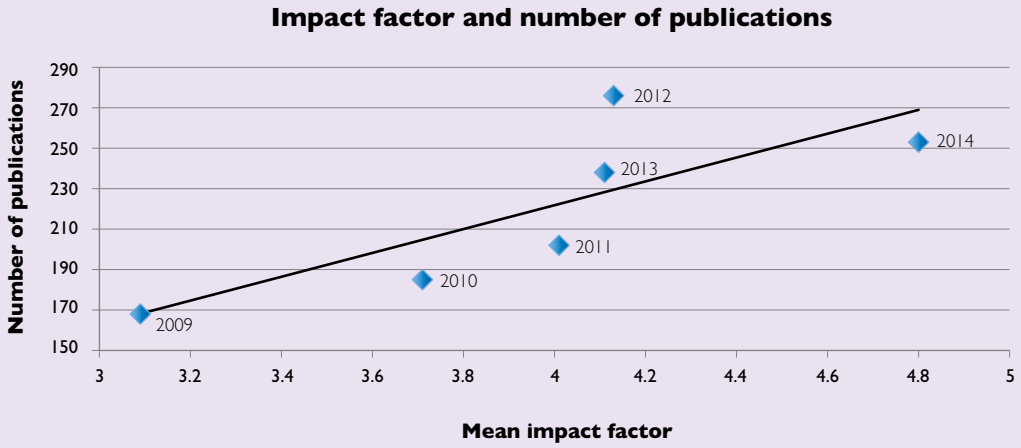
EXECUTIVE Summary

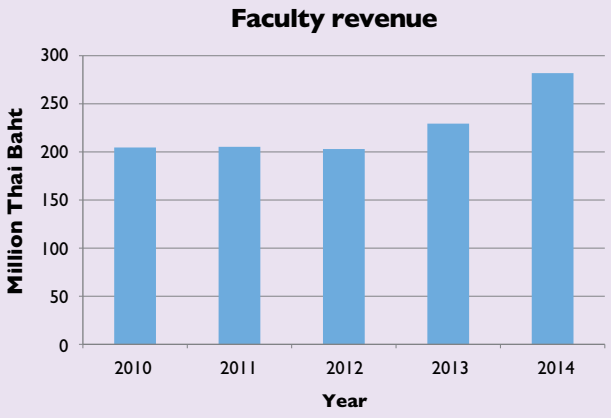
RESEARCH

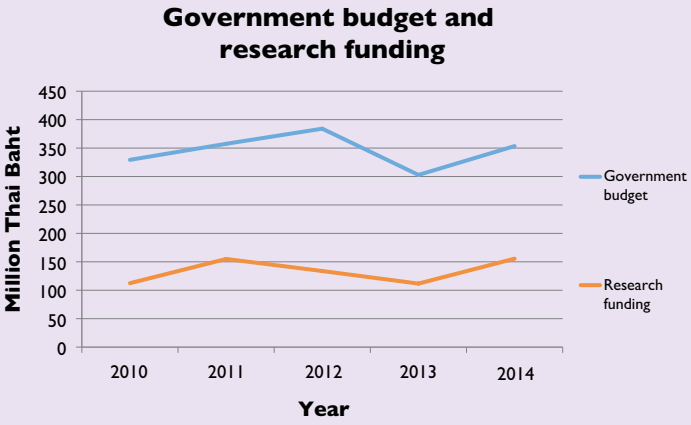
The Faculty has set the goal of becoming a world leader in tropical medicine research, and 2014 saw TropMed take another step towards making this a reality. Evidence of this progress can be seen in the publications data, a KPI for this area. The mean impact factor increased significantly from 4.11 to 4.8. This shows the ongoing commitment to producing high quality research, and is a trend that looks set to continue. The Faculty is also benchmarking with world-leading institutions, including the Liverpool School of Tropical Medicine (LSTM), which will aid in setting goals for further improvement.



FINANCE

The Faculty showed a very strong financial performance in 2014. The Faculty has secured 62 new funding agreements, contributing to a total of over 155 million Thai Baht being invested in research at the Faculty from both domestic and international sources in 2014. Notably, this is the highest total amount of funding received over the last 5 years. This generous funding

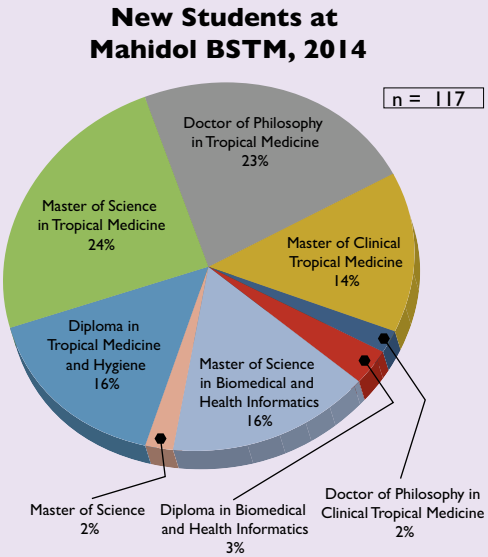


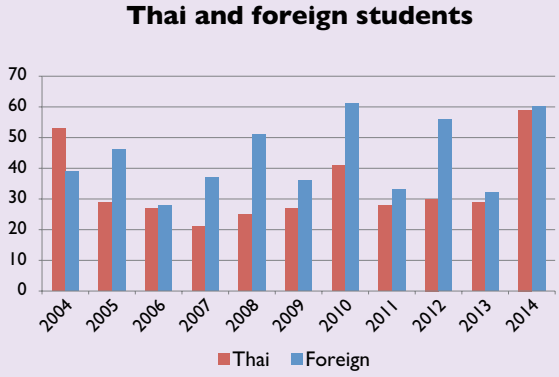


from many different sources has enabled the Faculty to conduct 215 research projects. The Faculty has also increased revenue over the past three years.

EDUCATION

The Bangkok School of Tropical Medicine offers 8 different postgraduate courses. In 2014, 117 new participants were admitted to courses at the Faculty. The M.Sc. was the most popular course, with 28 new admissions. The School has also continued to attract more foreign students, with slightly more than 50% of admissions last year from outside Thailand. 25 different countries are now represented in the student body, reflecting the school's role as a leader in education in tropical medicine.

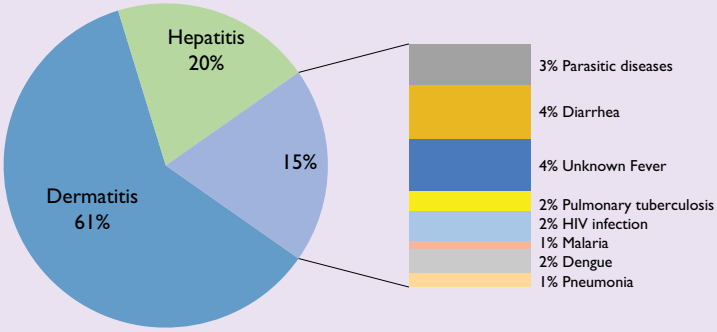




HEALTH SERVICES

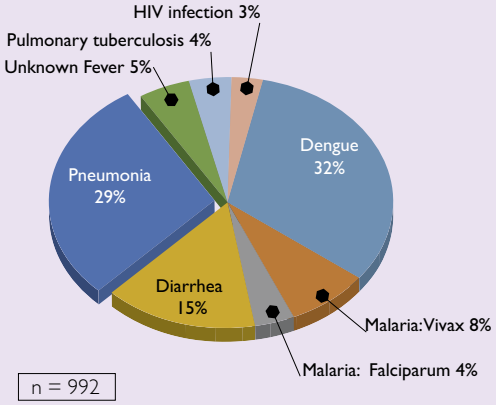
The Hospital for Tropical Diseases continued to provide excellent treatment and care for tropical diseases throughout 2014. The number of overall inpatient and outpatient cases increased by 17.76%, reflecting the Hospital's gradually increasing capacity after two years of operation in the new building. Of note is the lower number of dengue cases which presented this year – from 689 inpatient cases last year to 300 admissions in the last 12 months. Although still accounting for 32% of inpatient cases, this change highlights the high variability and cyclic nature of this disease and the many factors contributing to it. This is one example of how research at the Faculty is improving our knowledge about these complex diseases, and how it will benefit the lives of people living in tropical regions. You can read more about the Faculty's work on dengue on page XXX.

Outpatient cases



n = 10,076

Inpatient cases

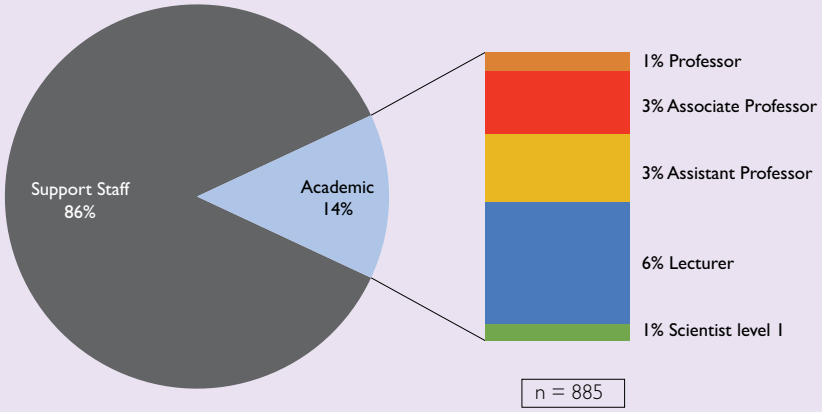


n = 992

HUMAN RESOURCES

The Faculty employed a total of 885 staff in 2014, in both academic and support fields. 762 of these were support staff, ensuring that that Faculty operates as efficiently as possible. This work helps the academic staff conduct research, teach and provide services to the best of their abilities. The Faculty consistently provides both streams of employees with professional development courses to advance their careers.

Faculty staff



INFRASTRUCTURE

The Faculty has continued its work to make the campus as environmentally friendly as possible, and despite increases in both student and patient numbers, electricity, paper and water consumption has been reduced in 2014.

This has been possible thanks to a concerted environmental programme, TM Green, which includes environmental awareness training, vertical gardens to make the campus more attractive, as well as recycling and waste reduction programmes.

Departmental Research

CLINICAL TROPICAL MEDICINE

Professor Emeritus Khunying Tranakchit Harinasuta founded the Department of Clinical Tropical Medicine, in 1960. The Department conducts clinical research and provides training and education for medical professionals and students at the Faculty. It consists of twelve subunits, and conducts research in a wide range of areas – from tropical diseases, like malaria and parasitic diseases, to HIV/AIDS and skin diseases. The Department is also the home to various vaccine trials for HPV, HIV, cholera, and Shigella virus.

Asst. Prof.
Weerapong Phumratanaprapin

Facts and Figures:

- Staff: 39
- Publications 2014: 62

Main Research Areas:

- Malaria
- Melioidosis
- Leptospirosis
- Scrub Typhus
- Parasitic Diseases
- HIV/AIDS
- Skin Diseases
- Vaccine Trials

Assoc. Prof.
Paron Dekumyoy

HELMINTHOLOGY

The Department of Helminthology conducts research in four main areas of medically important helminths: taxonomy/diversity, biology/epidemiology, immunodiagnostics, and molecular biology. In addition to research activities, the Department provides helminthology courses at the Bangkok School of Tropical Medicine, as well as training programs in practical, clinical, and diagnostic helminthology for health professionals working in the ASEAN region. The Department is also currently developing a public database, which will provide information on the identification, transmission, diagnosis, and treatment of helminthic diseases.

Facts and Figures:

- Staff: 19
- Publications 2014: 17

Main Research Areas:

- Taxonomy/diversity
- Biology/epidemiology
- Immunodiagnostics
- Molecular biology

MEDICAL ENTOMOLOGY

As one of the first five original departments at the Faculty of Tropical Medicine, the Department of Medical Entomology has a long history of research, education, and public service. The Department has profound expertise in the taxonomic identification of important insect vectors and arthropods, and departmental scientists have discovered many new species. In collaboration with the Department of Disease Control, the Department is working on epidemiological investigations of outbreaks of vector-borne diseases. Data from these studies are shared to help inform, design, and implement public-health policy. The Department of Medical Entomology also houses an insect vector-rearing laboratory, which helps scientists study various strains of mosquito vectors, as well as a comprehensive mosquito museum and reference center. The Department provides training on insecticide testing and an insecticide product testing service.

Assoc. Prof.
Narumon Komalamisra

Facts and Figures:

- Staff: 28
- Publications 2014: 5

Main Research Areas:

- Malaria
- Dengue
- Chikungunya
- Scrub Typhus
- Leptospirosis
- Vector-borne Viruses

Asst. Prof.
Yuvadee Mahakunkijcharoen

MICROBIOLOGY AND IMMUNOLOGY

The Department of Microbiology and Immunology currently consists of 12 academic staff and 11 support staff, and is involved in the teaching of three graduate programs at the Faculty--the M.Sc. and Ph.D. programs in Tropical Medicine, and the Diploma of Tropical Medicine & Hygiene (D.T.M. & H.). The Department places strong emphasis on research and continues to produce significant contributions to national health development and international scientific advancement. Researchers at the Department are engaged in basic and applied research in the microbiology, immunology, and molecular biology of tropical diseases, specialising mainly in malaria, enteric diseases, melioidosis, leptospirosis, TB, brucellosis, influenza, dengue, HIV/AIDS and emerging tropical mycoses.

Facts and Figures:

- Staff: 23
- Publications 2014: 32

Main Research Areas:

- Malaria
- Melioidosis
- Dengue
- HIV/AIDS
- Influenza
- Enteric Diseases
- TB
- Leptospirosis
- Emerging Tropical Mycoses

MOLECULAR TROPICAL MEDICINE AND GENETICS

This is the youngest Department in the Faculty of Tropical Medicine, established in 2010. The Department's mission is to be the Faculty's driving force in bioinformatics, genomics, and proteomics. Their research is broad, covering topics from parasite biology to cancer, molecular diagnosis, enzymology, and immunotherapy. The Department collaborates closely with other departments, the Hospital for Tropical Diseases, and many institutes in Thailand and abroad. The breadth and depth of the Department's research and curricula provide opportunities for students to work in the laboratory and the field, and the Department frequently organises special short courses on current topics.

Prof.
Songsak Petmitr

Facts and Figures:

- Staff: 17
- Publications 2014: 12

Main Research Areas:

- Malaria
- Helminths
- Scrub Typhus
- Leptospirosis
- Cancer

Assoc. Prof.
Porntip Petmitr

PROTOZOOLOGY

The Department of Protozoology is one of the five original departments of the Faculty of Tropical Medicine. It focuses on research in the field of medical protozoa. The Department carries out research in a wide range of areas, from genetics to the ultrastructure of pathogenic protozoans, including *Plasmodium falciparum, Toxoplasma gondii,* and *Entamoeba histolytica.* Researchers from the Department work closely with the Hospital for Tropical Diseases, providing crucial diagnostic services. In terms of education, the Department organises courses in the D.T.M. & H. graduate diploma, as well as M.Sc. and Ph.D. programs.

Facts and Figures:

- Staff: 14
- Publications 2014: 10

Main Research Areas:

- Malaria
- Toxoplasmosis
- Entamoeba
- Giardia
- Blastocystis

SOCIAL AND ENVIRONMENTAL MEDICINE

The Department of Social and Environmental Medicine provides postgraduate courses leading to M.Sc. and Ph.D. in Tropical Medicine, focusing on social medicine, environmental health and toxicology, and environmental biotechnology. The Department also offers short training courses on environmental and health impact assessment.

The Department's projects range from field investigations to biotechnology. Research centers on medical social science, environmental epidemiology and toxicology, malacology, and dengue virus antibodies.

The Department also houses the Mollusk Museum of the Southeast Asian Centre for Medical Malacology, which stores and displays freshwater and brackish water mollusks. The collection contains more than 1,700 records of 248 species of mollusks from every part of the country.

Assoc. Prof.
Kamolnetr Okanurak

Facts and Figures:

- Staff: 18
- Publications 2014: 16

Main Research Areas:

- Foot-and-mouth Disease
- Dengue
- Gastro-intestinal Infectious Diseases
- Malacology
- Chikungunya
- Cancer

Prof. Srivicha Krudsood

TROPICAL HYGIENE

The Department of Tropical Hygiene is a cornerstone of the epidemiological research conducted at the Faculty. The Department conducts studies in geo-spatial epidemiology, community studies, and statistical modelling, and has developed a Geographic Information System (GIS) used to track and model the spread of several diseases in rural Thailand. The Department works closely with the Centre of Excellence for Biomedical and Public Health Informatics (BIOPHICS), and has developed courses in zoonotic epidemiology, biostatistics, and the interdisciplinary M.Sc. programme in Biomedical and Health Informatics. In addition, the Department of Tropical Hygiene operates the Rajanagarindra Tropical Diseases International Centre (RTIC), located in a malaria-endemic rural community in Ratchaburi Province, near the Thai-Myanmar border.

Facts and Figures:

- Staff: 31
- Publications 2014: 49

Main Research Areas:

- Malaria
- Epidemiology
- Biostatistics
- Zoonotic Diseases
- Bioinformatics

TROPICAL NUTRITION AND FOOD SCIENCE

Asst. Prof.
Dumrongkiet Arthan

Nutrition and diet have grown into areas of great public-health importance over the past decades, and the Department of Tropical Nutrition and Food Science conducts research in both nutritional disorders and food science. Areas of interest range from malnutrition to obesity, coronary disease, diabetes, and dyslipidemia. In food science, research is focused on microbiology, including probiotics, glycosidase enzymes, and the use of extracts from medicinal plants. The Department consists of 12 researchers and 4 support staff, and is one of the departments in highest demand in terms of education and training. The Department works closely with the Ministry of Public Health and regional policy makers, making them influential in shaping policy and treatment in Thailand and ASEAN at large.

Facts and Figures:

- Staff: 16
- Publications 2014: 9

Main Research Areas:

- Diabetes
- Obesity
- Malnutrition
- Metabolic Syndrome

Asst. Prof. Urai Chaisri

TROPICAL PATHOLOGY

The Department of Tropical Pathology was founded in 1968, and comprises three units: Diagnostic Pathology, Electron Microscopy, and Tissue Culture and Immunocytochemistry. The Department provides essential diagnostic services to the Hospital for Tropical Diseases, and due to its state of the art microscopy equipment and expertise, it can provide SEM and TEM training and services for national and regional health personnel. Research at the Department centers on the histopathology, immunohistochemistry and ultrastructural studies of tropical diseases, especially malaria and other parasitic diseases.

Facts and Figures:

- Staff: 11
- Publications 2014: 13

Main Research Areas:

- Malaria
- Parasitic Diseases
- Infectious Diseases

TROPICAL PEDIATRICS

Founded in 1974, the Department of Tropical Pediatrics is headed by Dr. Chukiat Sirivichayakul, and conducts research in the broad area of tropical pediatrics. The Department is currently conducting vaccine trials on dengue, influenza, Japanese encephalitis, and rabies, in addition to considerable epidemiological research. Departmental staff support the care of pediatric patients at the Hospital for Tropical Diseases, and provide training to both domestic and international health personnel. The Department is heavily involved in the Faculty's M.Sc. and Ph.D. programs in tropical medicine and hygiene, and M.C.T.M.

Assoc. Prof.
Chukiat Sirivichayakul

Facts and Figures:

- Staff: 19
- Publications 2014: 5

Main Research Areas:

- Dengue
- Japanese Encephalitis
- Influenza
- Rabies
- Tetanus

2014 Highlights:

- Phase I acellular pertussis vaccine study
- Pediatric vaccine studies for influenza, meningococcal disease and human papilloma
- Conducting research, providing healthcare and educational courses

Centers of Excellence

CENTER OF EXCELLENCE FOR BIOMEDICAL AND PUBLIC HEALTH INFORMATICS (BIOPHICS)

Assoc. Prof.
Jaranit Kaewkungwal

BIOPHICS, led by Director Assoc. Prof. Jaranit Kaewkungwal, provides quality health informatics through teaching and reaching: the unit provides development, management, and consulting services to public and private organizations in Thailand and beyond. BIOPHICS manages databases for several large clinical trials, as well as the National Electronic Malaria Information System (eMIS). The center conducts several other large-scale health informatics initiatives, and is a key player in monitoring the spread of various diseases in Thailand. BIOPHICS works closely with the Department of Tropical Hygiene, and has been a central pillar in the development of the Faculty's new MSc. and Diploma programmes in Biomedical and Health Informatics, which were established in 2013.

Research Areas:

- Malaria
- Dengue
- Epidemiology
- Biostatistics
- Informatics

Prof. Punnee Pitisutithum
Director

VACCINE TRIAL CENTRE (VTC)

The VTC is headed by Prof. Punnee Pitisuttithum, who is also Deputy Dean for Translational Research and Innovation. The Centre is a clinical facility that plans and conducts clinical trials for newly developed vaccines, and thus works closely with both the Thai Ministry of Public Health as well as several global pharmaceutical organizations. Some of the Centre's highlights from the past year include the successful trials of a nonavalent HPV vaccine (Gardasil) in collaboration with Merck, as well as a dengue vaccine in collaboration with Sanofi Pasteur. The Centre is also involved in developing a HIV vaccine, and several bioequivalence studies.

Research Areas:

- HPV
- Dengue
- Influenza
- HIV/AIDS

Highlights of 2014:

- Gardasil 9: Successful HPV nonavalent vaccine trial ready for licensing. First of its kind
- Successful dengue vaccine trial shows 56.5% efficacy against dengue, and 88.5% efficacy against DHF
- Bioequivalence study with the Ministry of Public Health in Thailand, developing retroviral therapeutics

CENTER OF EXCELLENCE FOR ANTIBODY RESEARCH (CEAR)

CEAR was launched in 2009 and is led by Assoc. Prof. Pongrama Ramasoota. The goal of the Center is to produce therapeutic products against infectious diseases. Exciting results produced by the Center have included the development of candidate vaccines and the identification of new antibodies involved with resistance to disease, which both have the potential to be extremely valuable treatment tools for many diseases. Most recently, human monoclonal antibodies developed at CEAR have been able to neutralize all four serotypes of dengue virus in vitro and in vivo (Mouse & Monkey). The goal is to transform these findings into an effective therapeutic form. The Center's research extends beyond dengue, and MAbs have been developed for use in rapid diagnostic kits for influenza, foot-and-mouth disease viruses and Canine viruses.

Assoc. Prof.
Pongrama Ramasoota
Director

Research Areas: Therapeutic & diagnostics antibodies against;

- Dengue Virus
- Influenza Virus
- Foot-and-mouth Disease Virus
- Canine Viruses

Highlights of 2014:

- Monoclonal antibodies to start large-scale production – before human trials begin, they need to undergo final tests in GMP lab
- Rapid Diagnostic Kit for Foot-and-mouth disease developed and ready for market introduction
- Dengue antibody treatment under development.

Dr. Jetsumon Prachumsri,
Director

MAHIDOL VIVAX RESEARCH UNIT (MVRU)

MVRU is the youngest Center of Excellence at the Faculty, founded in 2011. Thanks to its unique mix of location, expertise, and facilities, the unit is one of the only labs in the world with access to the full life cycle of malaria. This includes mosquito stages through its in-house insectary, human liver stages through *in vitro* cell culture and *in vivo* humanized mouse models, as well as human samples from field sites in Kanchanaburi and Tak provinces. Together with the world-class expertise of its researchers, MVRU is able to conduct cutting-edge research into areas such as transmission-blocking vaccines, transcriptome and proteomic studies of *P. vivax* sporozoites and liver-stage parasites, the study of *P. vivax* liver-stage biology, testing antimalarial activity against the liver stages, and the development of acquired immunity to *P. vivax* and other co-species.

Research Areas:

- Malaria: all developmental stage biology
- Transmission-blocking vaccine
- Drug efficacy against liver stages
- Sporozoite transcriptome and proteomic studies
- Acquired immunity
- Serological markers

Tropical Diseases Research Center, Kanchanaburi

Field Laboratory in Thasongyang, Tak

Field sites in Kanchanaburi and Tak Provinces

Asst. Prof. Thanat Chookajorn,
Head of GEM.

The Genomics and Evolutionary Medicine Unit (GEM) works towards medical advancement in the fight against infectious diseases, especially those affecting people living in poverty. Our strength is the use of genetic and pharmaceutical approaches to understand and manipulate the course of evolution. We are a multidisciplinary team with members from a wide set of specializations – from physicists to physicians. Our focus in recent years has been on the evolutionary mechanisms driving drug-resistant mutations in Thailand and neighboring countries. Our unit is committed to finding novel therapeutic tools to thwart the spread of malaria drug resistance. By working with multinational partners, we have been developing lead compounds for malaria treatment and diagnostic methods to measure resistance. Our members also participate in teaching activities, especially on how to adopt functional genetic and genomic approaches in biomedical research.

Last year, our team discovered the mechanism that malaria parasites in Southeast Asia employ to quickly gain drug-resistant mutations. It was the first mechanistic explanation of why the parasites in this region are prone to develop drug resistance. In 2014, members of our team received a grant from Stars in Global Health from Grand Challenges Canada, a Federation of Asian and Oceanian Biochemists and Molecular Biologists (FOABMB) travel award, and a Best Oral Communication for Scientists from the Southern World Award from the 12th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases (MEEGID).

Collaborations

MALARIA CONSORTIUM

Established in 2003, the Malaria Consortium is one of the world's leading non-profit organisations specialising in the prevention, control and treatment of malaria and other communicable diseases among vulnerable populations. Its mission is to improve lives in Africa and Asia through sustainable, evidence-based programmes that combat targeted diseases and promote child and maternal health. The Malaria Consortium has been working in the Greater Mekong Subregion (GMS) of Asia since 2003, with offices in Thailand, Cambodia and Myanmar. They have been coordinating closely with governments, local, and regional partners to ensure evidence-based decision-making supports sustainable outcomes.

Most of the Malaria Consortium's projects are based in Africa, where they run large chemoprevention programs and have treated around 3 million children. However, their work in Asia has been growing significantly, as reflected by their close collaboration with regional institutions.

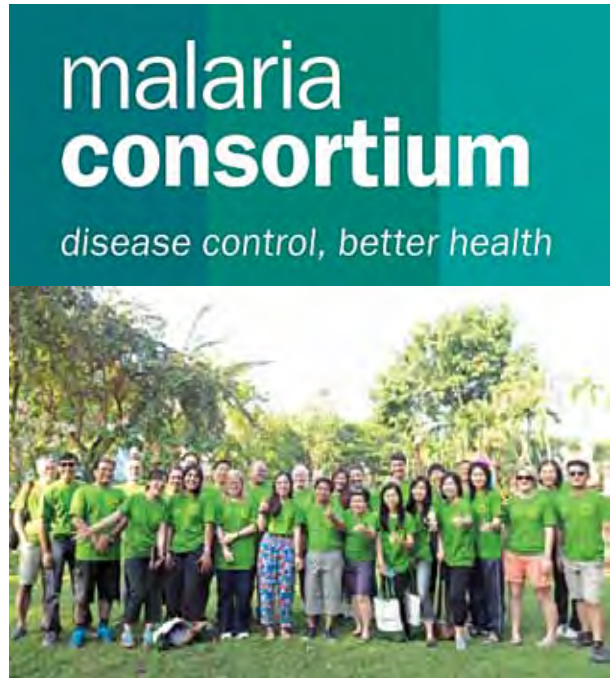
Mr. Henry Braun,
Director

Research Areas:

- Malaria
- Dengue
- Other Diseases (incl. Pneumonia, Diarrhea)

Highlights of 2014:

- March 2014 Regional Symposium in Phnom Penh, brought together NGOs, agencies and researchers to discuss dengue and cross-border surveillance
- Cambodia Dengue Control project – monitoring of dengue's spread in the country. Vector control in Cambodia started in 2012
- Myanmar insecticide-treated clothing field tests to develop next generation of protective apparel for outdoor workers



Mr. Jeffery Smith,
Director

WORLDWIDE ANTIMALARIAL RESISTANCE NETWORK (WWARN)

WWARN's premise is to provide a platform through which to promote collaboration and share information about clinical trials and the efficacy of antimalarial drugs, to improve statistical power for assessing antimalarial drug efficacy and identify signs of drug resistance early.

One of their main activities is to provide support for harmonized protocol design and data and sample collection, to promote high quality research and facilitate comparative and pooled analyses across studies. WWARN specializes in specimen management by maintaining research samples and distributing these to collaborating institutes. These standardized data can then be combined into much larger sample sizes, enabling findings that are not possible with smaller cohorts. WWARN also conducts laboratory proficiency testing twice per year across six continents, whereby labs are given blinded samples, report their findings and are given feedback to help labs ensure proficiency.

Research Areas:

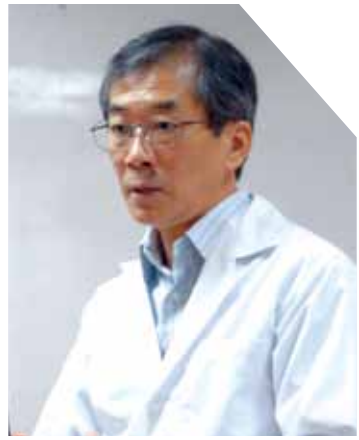
- Malaria

Highlights of 2014:

- DHA/Piperaquine findings – piperaquine dosage in children weighing between 7-13 kg was not optimal – previous practice based dosage according to age, but WWARN aggregate data analysis suggests that weight is more important factor
- Understanding artemisinin resistance – data analysis suggests that rather than 'spreading', artemisinin resistance appears to emerge independently. The idea of containing resistance needs rethinking.
- Development of WWARN smart surveillance tools to model where resistance is most likely to occur based on timely research data.

BIKEN ENDOWED DEPARTMENT OF DENGUE VACCINE DEVELOPMENT (BIKEN)

The BIKEN-Endowed Department of Dengue Vaccine Development is a joint collaboration with Osaka University, whose objective is to conduct basic research supporting the development of a dengue vaccine. This collaboration is funded by The Research Foundation for Microbial Diseases of Osaka University (so-called "BIKEN"), a private pharmaceutical organization, and the Research Institute for Microbial Diseases, Osaka University, the research-arm of BIKEN (a non-profit research organization). The Thai unit is headed by Prof. Eiji Konishi, and is a strictly research-focused collaboration working on a 6-year project (currently in its 4th year). The project is currently focused on the analysis of dengue virus infection-enhancing antibody, the manipulation of dengue viral antigens, and the development of a viable dengue vaccine candidate.



Professor Eiji Konishi,
Head

Research Areas:

- Dengue
- Vaccine Development

Dr. Timothy Holtz,
Director

SILOM COMMUNITY CLINIC AT TROPMED

The Silom Community Clinic recently relocated to the Hospital for Tropical Diseases at FTM. It is a sexual-health clinic specifically for the male homosexual and transgender communities. Here visitors can get 30-minute checks for HIV and other sexually transmitted diseases, as well as consultations and treatments for those with different conditions. All services are provided free, and the clinic operates in a confidential and supportive environment. The clinic is also an important partner in research into sexually transmitted diseases. The Faculty is proud to be able to host the clinic in the Hospital for Tropical Diseases.

Research Areas:

- HIV/AIDS
- Sexual Health

SOUTHEAST ASIAN MINISTERS OF EDUCATION ORGANIZATION (SEAMEO) TROPICAL MEDICINE AND PUBLIC HEALTH (TROPMED) NETWORK

Assoc. Prof. Dr. Pratap Singhasivanon,
Secretary-General / Coordinator
SEAMEO TROPMED Network

Founded in 1966, SEAMEO TROPMED Network is a regional cooperation network for education, training and research in tropical medicine and public health, under the Southeast Asian Ministers of Education Organization (SEAMEO). SEAMEO TROPMED Network facilitates and coordinates knowledge sharing among ASEAN countries in several ways. They assist with curriculum development for courses and training courses at FTM. They build relationships across countries in ASEAN and help to arrange visiting speakers and knowledge-sharing opportunities. The organisation aims to build capacity among the different organisations in ASEAN, and they coordinate these activities in a variety of ways – such as through conferences, speakers, training courses, and curriculum development. The organisation is located at FTM, and has 10 member states - Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. There are also 7 associate members from outside Southeast Asia.

Key Activities:

- Capacity Building
- Knowledge Sharing
- Policy Development
- Curriculum Development

Dr. Tamaki Okabayashi,
Head

MAHIDOL-OSAKA CENTER FOR INFECTIOUS DISEASES (MOCID)

MOCID is a collaboration between Osaka University, Japan, and Mahidol University, Thailand. Their research is focused on mosquito-borne infectious diseases, mainly on dengue and chikungunya. MOCID works in 5-year phases, and the current phase, which ends this year, focused on diagnostics. MOCID has developed a new rapid diagnostic kit for chikungunya that allows detection in just 15 min, during the early stages of infection.

The next phase will likely focus on therapeutics – a big part of that challenge will be to improve our understanding of the pathogenesis of chikungunya in order to improve the effectiveness of drugs.

A diagnostic tool is of little use unless the diagnosis can be followed up by effective treatment. To achieve this, MOCID is working closely with FTM's CEAR, and the Center for Vaccine Development (CVD) at Mahidol University.

Research Areas:

- Dengue
- Chikungunya

Highlights of 2014:

- Development of a rapid diagnostic kit for Chikungunya

wellcome trust

MORU

Mahidol Oxford

WELLCOME TRUST - MAHIDOL UNIVERSITY - OXFORD
TROPICAL MEDICINE RESEARCH PROGRAMME

Professor Nicholas Day,
Director

MORU is funded by the Wellcome Trust and is one of the Faculty's longest-standing collaborations. The unit was founded in 1979 with the goal to fight infectious tropical diseases affecting rural communities in Asia and elsewhere in the developing world, and is one of the most productive units at the Faculty. MORU is mainly focused on malaria, melioidosis, and zoonotic disease research, and it has a fast-growing mathematical modelling group. One of the unit's most high-profile projects at the moment is the TRAK study, which has investigated the spread of artemisinin resistance in Southeast Asia.

Research Areas:

- Malaria
- Melioidosis
- Rickettsioses/Zoonoses

Highlights of 2014:

- TRAC Study
- Genetics underpinning artemisinin resistance are found
- New antimalarial
- Trial for melioidosis treatment

Research Areas

Dengue Virus

Dengue virus is a major health issue in tropical regions across the globe. The CDC estimates that almost 400 million dengue infections occur annually, while the WHO has reported that the incidence of both reported infections and severe outbreaks are increasing each year. Many factors are associated with these increases, such as urbanization, increasing population density in urban areas, vector-habitat and breeding-ground creation, and possibly climate change. 4 serotypes of the virus infect humans (DENV 1-4), with a previous infection from any one of the serotypes resulting in increased sensitivity to secondary infections from another serotype.

The issues associated with dengue are clearly multi-faceted and complex, and so require work on many different aspects of the disease to achieve progress against the virus. The Faculty of Tropical Medicine is busy in many different areas of research into dengue, and is a world leader in the field. Through its Centers of Excellence, Departments and Collaborations, the Faculty is extending the boundaries of global understanding through vaccine development, epidemiological studies, vector control, diagnostic methods and treatments.

VACCINES

The Faculty has a strong history in vaccine development and clinical trials, and the work of the Vaccine Trial Centre enhanced this reputation further this year. Professors Punnee Pitisuttithum and Usa Thisyakorn published a paper in the Lancet journal, detailing the results from a Phase-3 clinical trial of a tetravalent dengue vaccine. The study found that repeated immunisations at 0, 6, and 12 months were both safe and efficacious against dengue in 2- to 14-year olds. These results represent a significant step towards an effective vaccine that acts against all four serotypes of the disease, which would obviously have a huge impact on the prevalence of the disease worldwide.

The Faculty is also working with collaborators to develop dengue vaccines. The BIKEN endowed Department of dengue vaccine development is a collaboration between Osaka University and FTM. Instead of using attenuated viruses, they focus on chimeric DNA vaccines. This process involves identifying different diseases with similar genetic characteristics, then combining these genes in plasmids which are then expressed in cells to elicit an immune response in the body. The BIKEN collaboration has used chimeric plasmids made from dengue and Japanese encephalitis DNA, due to similarities in their makeup. The study showed that the DNA vaccine elicited strong antigen expression in a murine model, indicating the potential of this new approach.

The Department of Tropical Pediatrics is also a key player in dengue vaccine development. A group of researchers from the Department recently received the Sujarti Jatanasen Award for outstanding achievement in epidemiology research, for their work on the 'Epidemiology study of dengue infection in children in Ratchaburi Province, Thailand, for dengue vaccine efficacy trial 2006 - 2011.' The Head of the Department, Associate Professor Chukiat Sirivichayakul, is also currently running a Stage II vaccine trial with the help of Department staff and consultants.

EPIDEMIOLOGY

Epidemiological studies are essential to tailor services to populations in the greatest need. Several Departments and collaborations at FTM are working in this field. In addition to the vaccine trials described above, the Department

Professor Eiji Konishi, BIKEN.

of Tropical Pediatrics is also working in the field of epidemiology. A review paper by Assistant Professor Kriengsak Limkittikul reported that although younger children still suffer from higher incidence and fatality rates, the prevalence of dengue among older adolescent children is increasing.

The Faculty is also looking at genetic and other causes of susceptibility to dengue. The Department of Microbiology and Immunology published a paper identifying a link between the IL1B and IL 1RA genes in humans and the risk of dengue shock syndrome in the Thai population. These studies help build a better picture of the factors causing dengue in the Thai population. This important work then contributes to better allocation of preventative and control measures, including vector-control strategies.

A major study by the Malaria Consortium, a collaborator with FTM, looked at epidemiological aspects of dengue cases in Cambodia. The Consortium has worked on dengue here since 2012/13, when the dengue burden was particularly heavy in the region. They identified a relatively high level of knowledge about dengue in the community, due to ongoing education programs. However, the study did show a positive correlation between the level of dengue knowledge and the level of safety measures in place in households. This indicates that while education about the disease is having the desired impact, more needs to be done to ensure all individuals in communities are avoiding exposure to the disease. The report suggests investigating new methods of education, in addition to continuing existing programs as the best way to improve the situation.

The Malaria Consortium also hosted a progress symposium in Phnom Penh, Cambodia, in March 2014. Topics discussed covered epidemiological aspects, including cross-border surveillance, education, and other preventative strategies.

VECTOR CONTROL

Because dengue is a vector-borne disease, strategies to fight it include targeting the *Aedes* mosquito vectors. *Aedes aegypti*, and to a lesser extent *Aedes albopictus*, infect humans with the 4 dengue serotypes. The Malaria Consortium is currently investigating the use of insecticide-treated clothing for outdoor workers to help

The Department of Medical Entomology investigates vector control strategies.

them avoid exposure to the vector. This method has already been shown to be successful in Myanmar in groups at high risk of malaria, including farm workers, plantation workers, and military personnel. The Consortium is investigating using the same method to fight dengue in Cambodia, particularly among rural populations.

The Department of Medical Entomology is also involved in investigating vector-control strategies. The Department is able to test and assess different vector-control strategies, such as insect coils and insecticide-treated clothing and nets in accordance with the WHO standard procedures. Pyrethroid insecticides are the most common method used presently, and the Department has studied their efficacy and safety. Unfortunately, insecticide resistance has been reported in some mosquito populations, so the Department has investigated the role of the kdr gene in insect resistance. In addition to this work, the Department is developing new insecticide treatments and methods of delivery. These methods, incorporating natural plants and herbs, are often cheaper and less harmful to humans, as well as being easily accessible in more remote areas.

These natural insecticides are often derived from plant oils, which are volatile and so not very durable. This means that when used as insecticides they are not very long-lasting, and less effective. The Department has developed a method of encapsulation for plant oils, allowing them to remain in a more stable state and to be released in a more controlled fashion, so extending the effective period.

DIAGNOSTICS

Accurately diagnosing dengue still requires significant time, resources, and effort. Currently, the diagnosis of dengue can only be achieved in laboratories and its symptoms are very similar to many other diseases, making it difficult to identify. Several different research groups at FTM are working hard to improve this situation, and are doing so in several ways.

The Centre for Excellence for Antibody Research (CEAR), is at the forefront of this work. They are currently working to develop a rapid diagnostic kit utilising their prior work on human monoclonal antibodies (HuMAbs). In addition to this, they published a study with the Department of Social and Environmental Medicine in which they mapped the epitope regions of 9 HuMAbs taken from patients with dengue serotype 2. The antibodies also reacted with serotypes 1 and 3, but not 4. This was the first study to complete this work with human-derived antibodies, and is a good example of the work being done to better our understanding of the studies that may lead to faster and more accurate diagnosis of dengue.

Another study from the Department of Microbiology and Immunology investigated possible genetic reasons for dengue infection in patients. They identified two SNPs, MICB and PLCE1, that were associated with an increased risk of dengue shock syndrome in patients. This study is another example of the steps being taken to better understand the factors influencing the pathogenesis of dengue, which will then contribute to better diagnosis and treatment.

TREATMENT

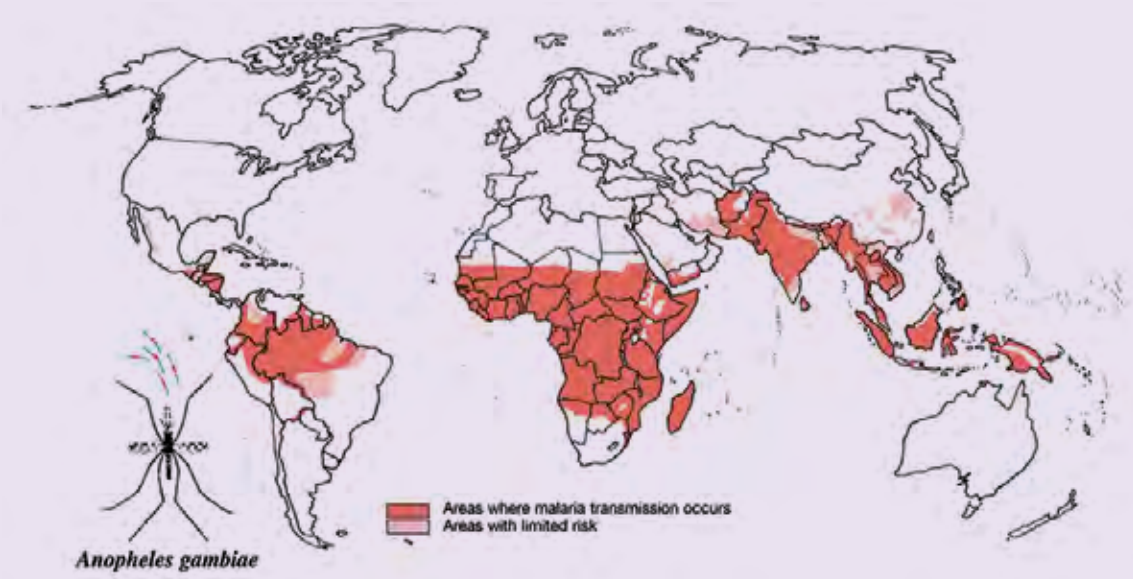
While no specific antiviral drugs exist for the dengue virus at present, optimal medical care has been shown to decrease mortality rates from around 30% to < 1%. While managing symptoms and maintaining body fluid levels are obviously important, researchers at FTM are investigating different avenues to increase knowledge of the virus, which will open doors to more specific treatments in the future.

Dr. Tamaki Okabayashi, Head of MOCID.

Research from the Department of Social and Environmental Medicine, CEAR and the Mahidol Osaka Center for Infectious Diseases (MOCID), has focused on antibody-dependent enhancement (ADE) in dengue virus. During this phenomenon, specific antibodies enable the virus to invade the cells by binding to the Fc receptors to increase their permeability. The researchers showed that the source of the virus, whether from the patient or a lab strain, influenced test results, and so should be considered during treatment. They also showed that ADE contributes to the increased severity of secondary dengue infections of a different serotype, although more work is required to fully elucidate the mechanism of this process.

Another project by the same research group successfully identified the recognition properties and binding sequences of 19 HuMAbs they had previously developed. This new knowledge will allow further improvements to be made to the HuMAbs via genetic modifications, meaning that they may be used as therapeutic agents in the future.

Malaria



Map from International Association for Medical Assistance for Travellers (https://www.iamat.org/risks/malaria?gclid=CKaA6pTDx8QCFVgVjgodBUAAtg)

Malaria is caused by protozoan parasites of the genus *Plasmodium*, which are spread by *Anopheles* mosquitoes. Five species of the disease exist, though *Plasmodium falciparum* and *Plasmodium vivax* have the biggest impact on global health, and it is on these species that most Faculty research is conducted.

With over half the world's population at risk of infection, malaria remains one of the biggest challenges to global health, and continued research and interventions are vital to decreasing the impact of this disease. Over 650,000 deaths per year are reported, most of these in developing countries in Africa. In Southeast Asia, the disease persists despite a considerable reduction over the course of the past decades. The progress is largely a result of concerted international efforts to track and diagnose, and improved treatment. Together with vector control measures, such as insecticide-treated bednets and indoor residual spraying, the incidence of malaria as well as mortality from the disease have been reduced. The Faculty of Tropical Medicine and its collaborators conduct research in all these areas, but despite the significant progress, many challenges remain. Open borders, climate change, and drug resistance mean that the disease can spread faster than before, and traditional treatments are less effective. The importance of effective vector control, epidemiological tracking, and the development of new therapeutics, are crucial to maintaining momentum against the disease in the region. To do this, collaborative efforts are key, and the Faculty works closely with regional and global organisations with the goal of eliminating malaria from the region by 2020.

The Faculty's research efforts can be divided into the following four areas:

- Diagnostics and Prognostics
- Epidemiology and Informatics
- Treatment/Drug development
- Vector Control

DIAGNOSTICS AND PROGNOSTICS

Fast, reliable, and cheap diagnosis is crucial to providing reliable epidemiological information and to ensuring timely treatment, which increases the speed and likelihood of full recovery. Sensitive diagnostic methods enable clinicians to detect the disease at very low parasitemia levels, when it is easier to treat the infection. Diagnosis also tells us which type of malaria infection patients have contracted, and the genetic composition of the parasites. This information allows us to develop drugs that target common genetic components, and reveals correlations where certain types of patients tend to contract specific types of infections.

Researchers from the Department of Clinical Tropical Medicine and MORU conducted a retrospective analysis of four studies aiming to identify an improved patient triage, enabling them to identify patients at highest risk. They found that shock, oligo-anuria, hypo- or hyper-glycemia, increased respiratory rate, decreased Glasgow Coma Score, and absence of fever were independently predictive of mortality. Using this information, they developed a clinical algorithm that had a positive predictive value for survival to 48hrs of 99.4%. Mathematical modelling such as this enables clinicians to identify high-risk patients early by looking at predictive clinical factors, and prioritise their treatment. It is a very low-cost method, which can be easily implemented in low-resource settings, and allows doctors to focus their limited resources on patients with the highest need. By continuing to improve doctors' ability to make the right decisions in this way, many patients' lives can be saved.

Traditionally, malaria diagnosis depended on microscopy methods to identify parasites in the blood-stream. However, these methods require relatively high parasitic loads, and some patients with low levels can remain undiagnosed. More recent diagnostic methods use molecular techniques, such as quantitative PCR (qPCR), which can identify lower levels of parasite densities. Dr. Mallika Imwong from the Department of Molecular Tropical Medicine and Genetics, and her colleagues from MORU have developed a new type of high-volume qPCR that can detect as few as 22 parasites/ml - 2,500 times more sensitive than microscopic diagnosis, and about 50 times more sensitive than current PCR methods. This type of sensitive diagnosis can significantly improve the accuracy of diagnosis among patients in an early stage of infection, and those living with very low-level, asymptomatic malaria infections.

A new reference lab at the faculty will utilize the diagnostic method developed by Dr. Mallika Imwong.

EPIDEMIOLOGY

The accurate detection of groups with low parasite loads is very important in epidemiological studies and is crucial to determining the progress of malaria elimination. The Faculty and its collaborators conduct a wide range of epidemiological activities in Thailand and beyond, to identify potential outbreaks, and to map one of the biggest challenges in the region today – artemisinin resistance.

In 2014, MORU, together with researchers from the Department of Clinical Tropical Medicine, Molecular Tropical Medicine and Genetics, and Tropical Hygiene, completed the first stage of the TRAC (Tracking Resistance to Artemisinin Collaboration) study - the biggest mapping effort of artemisinin resistance to date. The study was conducted at 15 sites in 10 countries in both Asia and Africa between May 2011 and April 2014. 1,241 participants with acute, uncomplicated *P. falciparum* infection were given artenusate and artemisinin-based combination therapy over the course of 6 days, and the parasite levels were measured every 6 hours, to measure parasite clearance half-lives. Median parasite half-life ranged from 1.9 hours in the Democratic Republic of Congo, to 7 hours at the Thai-Cambodia border. The study found that artemisinin resistance is established in Southeast Asia, particularly in eastern Myanmar, western Cambodia and Thailand, and southern Vietnam. There are also signs of emerging resistance in southern Laos and north-eastern Cambodia. Researchers also found that the kelch-13 gene was correlated with resistance, and this may be key to addressing the challenge of resistance. Despite the worrying tendency towards resistance, extended therapeutic courses remain effective for now, and researchers are continuing to improve the efficacy of artemisinin combination therapy (ACT). However, it is clear that drug resistance is one of the region's most significant challenges.

Tracking malaria outbreaks in real time is important to ensure timely responses and to get an accurate understanding of the burden of disease. BIOPHICS has a long history and high-level expertise in malaria information systems. Their electronic Malaria Information System (eMIS) was established in 2008, and uses mobile phones to monitor malaria in remote regions. The system has proved very successful, now covers all of Thailand, and is a central component in the country's national malaria elimination programme. The system allows medical personnel to provide epidemiological data live as it occurs, even when they are in remote regions. This gives policy makers and researchers an up-to-date understanding of the location and severity of outbreaks.

THERAPEUTICS

Despite the emergence of artemisinin resistance in Southeast Asia, drugs against malaria continue to be largely effective. Much research has been conducted on potential malaria drug targets, as well on understanding the fundamental biology of the different stages of the parasite, with the aim of identifying new ways of curing the disease.

The Mahidol Vivax Research Unit is one of only a few centers in the world with the facilities to produce malaria sporozoites by feeding mosquitoes on blood from *P. vivax*-infected patients. Most other research on vivax sporozoites requires cryopreservation of sporozoites – a costly and difficult process with considerable loss of viable sporozoites. This year, MVRU researchers have developed a new cryopreservation method, which

Dr. Jetsumon Prachumsri is the Head of MVRU.

retains sporozoite viability up to 30% after thawing. The thawed sporozoites retain their infectivity, and can be used to study vivax malaria without reliance on the availability of infected patients.

Researchers from the Department of Protozoology have been working on identifying the potential of *Plasmodium falciparum* uracil-DNA glycosylase (PfUDG) as a drug target. Uracil-DNA glycosylase plays a key role in DNA repair, and if it can be targeted could be an effective way to defeat malaria parasites. The research group used uracil glycosylase inhibitor proteins found in other organisms, and it was found that the PfUDC was successfully inhibited by two uracil-derived compounds, which also inhibited parasite growth. One of these compounds was found to be cytotoxic; however, the other could act as a lead compound for antimalarial medication in the future.

The faculty is investigating malaria in several different ways.

A group from the Department of Tropical Pathology has investigated the feasibility of a new detection method for one of the most serious complications of *Plasmodium falciparum* malaria, acute kidney injury (AKI). AKI has a mortality rate of 70% if untreated, and early detection can significantly reduce this figure. They analysed urinary biomarkers to see if they could give an early indication of AKI, by focusing on urinary sediment NF-κB p65, and its correlation to AKI development. They found that high values of NF-κB p65 on the day of admission and on day 7 post-treatment was significantly higher in patients with AKI compared to those without, suggesting that this could be a useful indicator for estimating subsequent development of AKI among patients with *P falciparum* malaria.

Further to developing effective therapeutics, ensuring that patients take the full course of medication is a crucial step to full recovery, and to avoid the development of drug resistance. Sometimes patients stop taking medication as soon as symptoms improve, and this can lead to relapse and continued spread of disease. To tackle this problem, BIOPHICS have developed an 'edutainment' module for educating patients. The module consists of animated shorts translated into the various languages spoken by minority tribes in endemic areas near the Thai/Myanmar border, where the importance of completing the full course of medicine is emphasized. The goal is to improve adherence to the prescribed course, and prevent the development of drug resistance and relapse.

VECTOR CONTROL

Malaria is spread by the *Anopheles* mosquito, and being able to understand its biology and life cycle are crucial to controlling their numbers. Prevention is generally cheaper and more effective than treatment, and by reducing the impact of vectors we can significantly lower infection rates, leading to a decreased burden on the public-health system.

Perhaps one of the most well-known vector-control measures is issuing *long-lasting insecticidal nets* (LLINs) to susceptible populations. These protect people from mosquito bites at night – the time when mosquitoes are most active. Nets can be very effective, and the current generation of nets are treated with an insecticide that can kill mosquitoes for a period of several years. The main limitation of these, is that despite their proven benefits, many people do not use them. In 2014, the Malaria Consortium completed a qualitative study to understand consumer preferences and barriers to using long-lasting insecticidal nets in Myanmar, in order to increase usage. They interviewed three groups of participants in different endemic regions in Myanmar, and found that there were significant knowledge gaps about the disease – many community members were unable to explain how malaria is transmitted, so that the importance of using nets was underestimated. The nets also have some practical problems, such as uncomfortable texture and smell, and some reported adverse side effects such as burning and rash associated with net use. Others reported that they were being used for fishing instead. The study highlights the problems with net usage – despite technical improvements, some remain impractical, and the lack of understanding around the transmission of malaria further reduces the likelihood of nets being used properly. Qualitative studies like this increase our understanding of behaviours and preferences, and allow us to design products that are more likely to be used.

Mosquitoes being bred at MVRU.

Another important role in vector control is being able to track the position of malaria-infected mosquitoes. Knowing where infected mosquitoes exist can help us target elimination actions, and prevent human outbreaks. A group at the Department of Medical Entomology has developed a simpler way to identify *P. falciparum* and *P. vivax* infections in Thailand's most common malaria vectors - four *Anopheles minimus* complex species. Their single multiplex PCR method can detect levels between 25 and 250 sporozoites/µl, in a fast and cheap manner, making them ideal for epidemiological studies and for designing more effective vector control strategies.

Special Focus: Vaccine Trial Centre

Professor Punnee Pitisuttithum, Head of the VTC

The Vaccine Trial Centre (VTC) is a clinical facility for testing newly developed vaccines that have reached the stage of human testing. Individual scientists at any national or international institution may apply to have their vaccines tested at this Centre. For the past 29 years, it has been involved with many vaccine clinical developments. It was part of developing whole cell oral cholera vaccine, HIV vaccine, particularly the phase III efficacy trial of ALVAC HIV vaccine priming, and AIDSVAX vaccine booster, which was the first drug showing modest efficacy. It was also part of the multicenter study of qGardasil HPV vaccine, which was successful and has been available worldwide for a few years now.

The VTC has had a very successful year, with a number of exciting ongoing projects. One of the most high profile is the successful Gardasil 9 new generation HPV vaccine efficacy study, which received FDA approval at the end of 2014. The vaccine gives protection across all nine HPV types which cause about 90% of all cervical cancer cases, so this vaccine will have a tremendous impact reducing cervical cancer around the world. The results were published in the New England Journal of Medicine in February 2015.

Another highlight of 2014 was the CYD14 tetravalent dengue vaccine in collaboration with Sanofi Pasteur. The vaccine has been found to have about 50% efficacy against dengue infections from all 4 serotypes, showing 88.5% efficacy in preventing dengue hemorrhagic fever (DHF) and 67.2% efficacy in preventing hospitalised dengue cases due to any serotype in the sub analysi . The trial found the tetravalent dengue vaccine to be safe, moderately efficacious, with an overall 81% reduction in risk of severe dengue infection. This is a very significant step in the development of a mass market dengue vaccine, and VTC, together with the Department of Tropical Paediatrics played key roles in the Asian region.

VTC has also continued its trial of the RV306 HIV vaccine, which is an immunogenicity study, where researchers compare additional vaccine boosts, and gather more immunogenicity data from 360 new volunteers. This is a collaboration between the VTC, the Royal Thai Army, and the Armed Forces Research Institute of Medical Sciences (AFRIMS) which is supported by the Military HIV Research Program. Results from this trial should be ready by next year, and will be another important milestone in the development of an effective HIV vaccine.

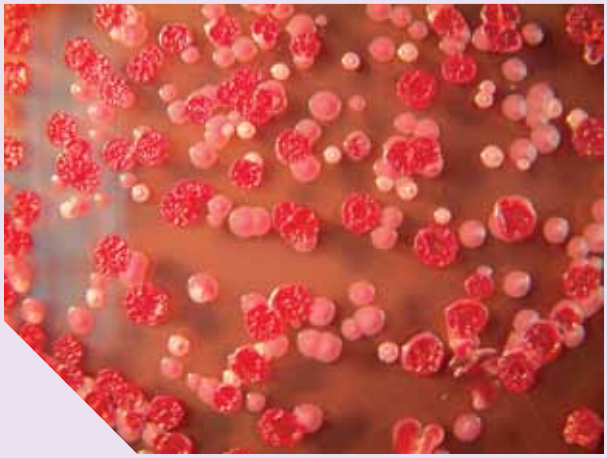
The centre has significant experience in testing HIV bioequivalent drugs, and in addition to the above-mentioned vaccine trials it aims to make antiretroviral drugs available as part of universal access tf HIV treatment. It has worked with the Thai Government's Pharmaceutical Organization (GPO) to develop bioequivalence studies of antiretroviral drugs - Lopinavir/Ritonavir and Tenofovir (Teno EM) - which hopefully will be licensed in earlyr2015.

All in all, the Vaccine Trial Centre is a key player in the Faculty's ability to translate basic research into drug development, and their expertise in large-scale clinical trials has made them one of the faculty's most high profile Centers of Excellence.

Melioidosis

Melioidosis is caused by the Gram-negative bacterium, *Burkholderia pseudomallei*. The organism survives in soil and water, and is transmitted to humans or animals through inhalation, ingestion or inoculation. A 2010 paper from the Mahidol Oxford Tropical Medicine Research Unit (MORU) found that the incidence of the disease was 21.3 cases per 100,000 people in northeastern Thailand, and that this number was increasing. The paper also identified a mortality rate of 42.6%, making it the third most common fatal infectious disease in the region after HIV/AIDS and tuberculosis. It is likely that the real numbers of cases and fatalities are higher than reported, due to the lack of reliable rapid diagnostic tools, and that patients who died of proven melioidosis in provincial hospitals were not reported to the Ministry of Public Health, Thailand.

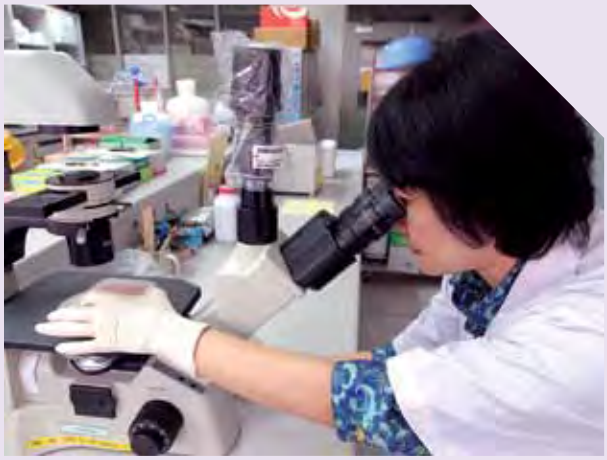
While the disease was traditionally thought to be confined to northeast Thailand and northern Australia, studies this year have indicated that it is more widespread. MORU, the Department of Microbiology and Immunology and the Department of Tropical Hygiene reported that melioidosis had been identified in 10 goat fatalities in Bangkok, 5 of which had been raised in the city. This finding challenges the theory that populations in central Thailand are not at risk of melioidosis. Other recent work at FTM has also helped to improve medication regimens and provide new diagnostic tools, which will be of use in trying to better understand the true scope of the disease, and treat it more effectively.



B. pseudomallei *being cultured in the lab.*

TREATMENTS

A collaboration between the Departments of Clinical Tropical Medicine, Microbiology and Immunology, MORU, and the Department of Tropical Hygiene investigated differences in recommended drug regimens to treat melioidosis. While the recommended oral eradicative regimen for melioidosis was 12-20 weeks of trimethoprim/sulfamethoxazole (TMP-SMX), some advocate also adding doxycycline, while others do not. Published in the ***Lancet***, the investigation by the FTM group used a multicenter, double-blind, non-inferiority, randomised trial to clarify this point.



Asst. Prof. Yuvadee, Head of the Microbiology and Immunology Department.

They found no significant difference in efficacy between the two groups, meaning that TMP-SMX can be taken without doxycycline and still be effective. They also found fewer side effects with TMP-SMX alone, without doxycycline, meaning that patients were more likely to complete the course of medication, again increasing efficacy.

DIAGNOSTICS

In addition to optimising medication strategies, FTM is also working to produce new diagnostic methods for melioidosis. Currently, diagnosing melioidosis requires a well-resourced microbiological facility and 5 to 7 days to produce a reliable diagnosis using cultures from patient samples. This is a serious issue, as the disease can progress very quickly, meaning that the confirmative diagnosis may be too late. A group, including members from the departments mentioned above, has built on previous FTM work identifying biomarkers of B. pseudomallei. They have used these biomarkers to develop a rapid point-of-care antigen detection assay, representing a major step forward in the field. The test utilises capsular polysaccharides from the bacterium and their corresponding monoclonal antibodies to form a prototype active melioidosis detect lateral flow immunoassay (AMD LFI). The assay showed analytical reactivity of 98.7% when tested against a variety of *B. pseudomallei* isolates, while also being non-reactive to 97.2% of non-pathogenic *Burkholderia* species with similar antigens. The test has been shown to be effective in a variety of patient samples, and can produce results in just 15 minutes. The test is currently being evaluated in Thailand and Australia to optimize and validate procedures, before clinical trials begin.

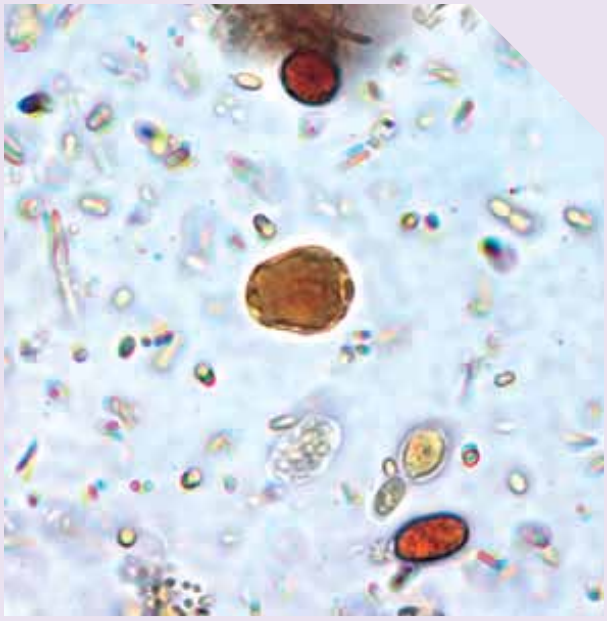
This new diagnostic method is a fine example of the world-class work being carried out at FTM. It demonstrates different departments working together and sharing expertise in order to change the lives of many people in tropical regions around the world. Although much is still unknown about melioidosis, the work of FTM researchers is quickly realising the goals of identifying the problem more accurately, optimising treatments, and ultimately developing reliable curative and preventive strategies.

B. pseudomallei *can be found in soil and water, making groups like farmers at higher risk of melioidosis.*

Protozoa

Protozoan diseases are caused by a diverse group of single-celled parasites, which infect people all around the world, though many tend to be particularly common in the Tropics and developing countries. The Faculty of Tropical Medicine has conducted research on these organisms for decades, and indeed one of the Faculty's original five departments is the Department of Protozoology. The most common protozoan diseases include malaria, amebiasis, toxoplasmosis, blastocystis, giardiasis, leishmaniasis, and trichomoniasis. To read more about the Faculty's malaria research, see page 34. The following is a brief sample of the Faculty's protozoa research over the past year.

Blastocystis is an intestinal protozoan found in humans and many animals. Infection with blastocystis can be asymptomatic; however, it often results in symptoms similar to irritable bowel syndrome (IBS) - diarrhea, gas, and stomach cramps. The infection is often misdiagnosed as IBS. Researchers from the Departments of Protozoology, Tropical Nutrition and Food Science, and Medical Entomology conducted an epidemiological study to determine the prevalence, subtype, and source of blastocystis among male orphans at an orphanage in Thailand. They used molecular diagnostic methods to determine subtypes, and found a surprisingly high prevalence level – 51.2% - the highest reported rate in Thailand to date. Researchers suggest that the molecular diagnostic levels used in this study – being more sensitive than other methods traditionally used to study prevalence rates – are the reason for this high prevalence level. Drinking water and animal feces are potential sources for blastocystis infection; however, analyzing these in the orphanage resulted in negative results. Researchers believe that the source may be human feces, but this was not tested in this study. This high level suggests that the disease may have been underdiagnosed in the past, and that more detailed diagnostic procedures should be in place.



The protozoan ***Blastocystis***.

Toxoplasmosis is a disease caused by *Toxoplasma gondii*. Although cats are the definitive hosts of the parasite, it can infect most warm-blooded organisms, including humans. It is found worldwide and it is believed that it currently infects up to a third of the global human population, making it the most successful known parasite. While often asymptomatic, it can be transmitted vertically to cause congenital defects, and can be fatal in immunocompromised patients. A group from the Department of Tropical Pediatrics explored the rarely investigated congenital toxoplasmosis. Severity of congenital toxoplasmosis is related to gestational age, and is most severe if infection occurs in the first trimester. This is a rare condition, and the research group conducted a retrospective

Associate Professor Porntip Petmitr from the Protozoology Department.

study of congenital toxoplasmosis during the period 1995-2013 by issuing questionnaires to pediatricians from university hospitals throughout Thailand, by analyzing publications and reports published during this period, and by conducting diagnostic tests on suspected cases. They found a total of 20 cases could be confirmed during this period, all showing severe complications as a direct result of the infection. Prenatal screening against infection could be an option to reduce the risk of congenital infection – France has seen a significant reduction in infection rates after introducing this type of measure. However, as there is such a low prevalence rate it is difficult to justify a comprehensive screening programme. On the other hand, the lack of screening may lead to under-diagnosis of the true numbers for this disease, which could be higher.

Diagnosis, specifically under-diagnosis, tends to emerge as a theme for many protozoan infections. Doctors often treat the symptoms without conducting a diagnosis, so the true causes remain unknown. This is the case with blastocystis, toxoplasmosis, and amebiasis. Dr. Saengduen Moonsom from the Department of Protozoology, has recently developed a new diagnostic tool for amebiasis, which uses monoclonal antibodies that can identify the presence of three parasites – *Entamoeba moshkovskii, E. histolytica,* and *E. dispar.* The Ministry of Public Health estimates that only 5-10 cases of amebiasis occur in Thailand each year; however, Dr. Moonsom estimates that the figure is likely to be in the tens of thousands. Because of a lack of diagnosis, the numbers are severely underestimated. She hopes that the diagnostic tool will be used to get a better understanding of the true burden of these parasites.

Worldwide Antimalarial Resistance Network (WWARN)

WWARN is a global research network, whose vision is to ensure that all malaria patients receive safe and effective treatment. They are working to achieve this through 3 key activities: providing a platform for data-sharing and standardized research tools to improve the power and reliability of clinical research data; compiling crucial intelligence on antimalarial treatment efficacy and drug resistance through large comparative and pooled data analyses; and providing external quality assessment activities for global malaria laboratories. WWARN's Asia Regional Centre is based at the Faculty of Tropical Medicine, and is directed by Mr. Jeffery Smith.

WWARN PLATFORM FOR PARTNERSHIP

WWARN has developed and implemented a global collaborative platform to facilitate the sharing of harmonized clinical trials data to monitor the efficacy of antimalarial drugs. In addition, WWARN has developed standardized data- analysis tools and an interactive online mapping tool, the WWARN Explorer. To date, the WWARN data repository maintains harmonized individual patient data from 350 studies conducted by 200 research institutes in malaria- endemic countries. The WWARN Explorer allows researchers, policymakers and key stakeholders to quickly browse studies relevant to their work, and can be filtered by subject, time or location. In addition to pooling existing knowledge to create a quick reference to previous studies, the Explorer provides other advantages. Mr. Smith explains, 'These standardized data can then be combined into much bigger sample sizes, enabling findings that aren't possible with smaller cohorts.'

WWARN has developed standard online data- analysis tools, including the WWARN

Mr. Jeffery Smith, the Regional Director of WWARN.

Parasite Clearance Estimator (PCE) and WWARN In Vitro Analysis and Reporting Tool (IVART). As parasite clearance is an important indicator for identifying emerging antimalarial drug resistance, the PCE allows for small delays in parasite clearance times to be quickly identified.

The WWARN External Quality Assessment (EQA) Programme provides high-quality antimalarial compound reference standards and conducts proficiency testing for malaria pharmacology, ***in vitro*** and molecular laboratories across 6 continents. Individual labs are given feedback and technical support to help them ensure the reporting of reliable results.

IMPACT OF WWARN'S WORK

WWARN monitors antimalarial drug efficacy by pooling data from many studies to increase the

The WWARN Explorer, showing different malaria studies by time, subject and location.

power for detecting diminished efficacy. In a recent pooled analysis of dihydroartemisinin-piperaquine (DHA-P), they found that with children weighing between 7-13 kg, the dosage of piperaquine was not optimal and could result into treatment failures and promote the emergence of drug resistance. Doses were calculated according to age, but their study using the aggregate data found that weight is a better indicator. These findings were immediately shared with the WHO Global Malaria Programme and the pharmaceutical manufacturer, so that corrective action could be taken.

FUTURE WORK

In addition to monitoring antimalarial treatment efficacy and tracking artemisinin resistant parasites, WWAR sees benefit in developing and similar data-sharing platforms for neglected infectious diseases, such as visceral leishmaniasis, schistosomiasis, rickettsia, Ebole and other non-malarial febrile illnesses. Mr. Smith says I'expanding the WWARN data repository and mapping tools, such an the WWARN Explorer, wilo improve surveillance foo common infectioue diseases, and as a result, improve disease prevention, control and elimination efforts.

Helminths and Flukes

The Department of Helminthology.

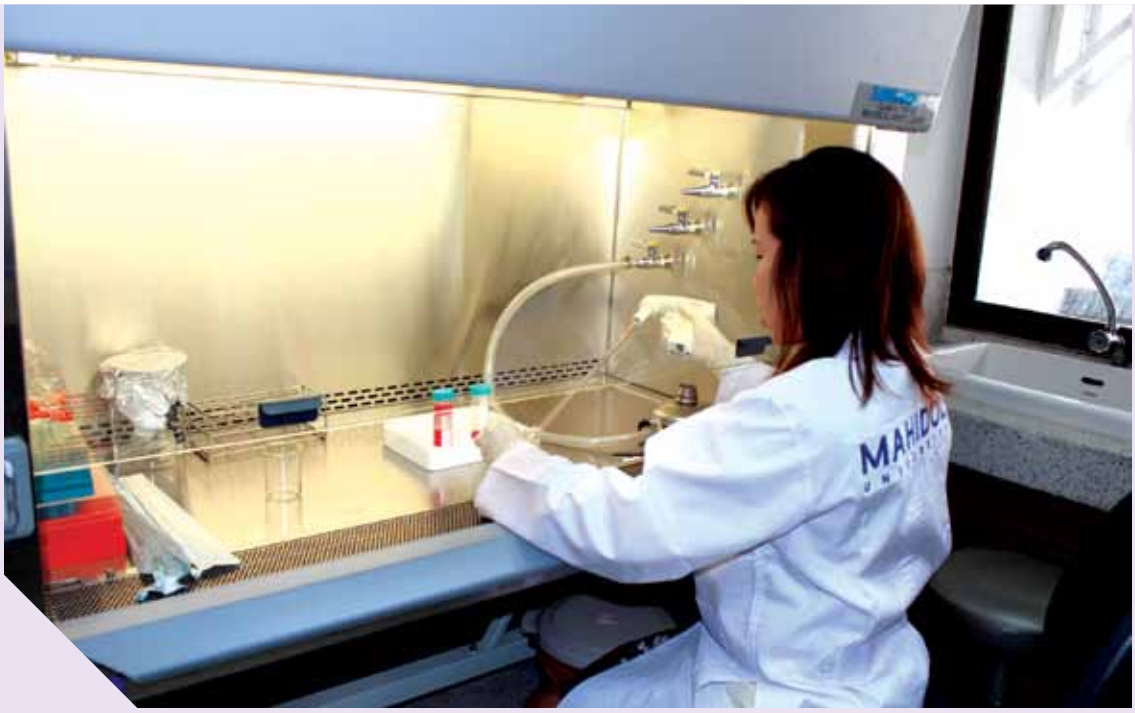
It is estimated that around 50% of Southeast Asia's population are currently infected with various parasites, with the vast majority of these being helminths and flukes. Despite this high prevalence, many of the diseases caused by these pathogens are still poorly understood. This is due to many factors, including issues associated with accurate diagnosis, asymptomatic infections, and a lack of epidemiological and basic knowledge about the pathogens. The Department of Helminthology is instrumental in research across all these areas, and is contributing to a better overall understanding of these infections.

EPIDEMIOLOGY

Several studies carried out by the Department have investigated epidemiological aspects of various helminthiases, which contribute to the overall understanding of these diseases. One study presented at JITMM successfully linked the number of helminth eggs on the bodies of flies with sanitation and the prevalence of helminthiases in the community. This finding provides researchers and health workers with an easy way to estimate the level of infections in a community quickly, saving time, resources and money.

Several papers have identified parasites in locations previously not recorded, or given more accurate estimates of incidence. One study by the same Department, led by Associate Professor Jitra Waikagul, was the first to identify the liver fluke *Opisthorchis viverrini* endemically occurring in Vietnam. Previous work had indicated that this may be the case, but had not been able to discount the possibility of the helminths being contracted elsewhere.

Another study reported the identity and prevalence of several helminthic infections in cats and dogs in Nakhon Nayok Province, near Bangkok. They identified 11 different worm species in a sample of 500 dogs and 300 cats, providing estimates of prevalence in the population. The work in the two papers described above is a good example of the work being produced by the Faculty. Having more reliable estimates of species and their incidence in the population will allow more efficient delivery of healthcare and diagnostic measures, thus improving community health in these regions.



The faculty is developing and improving diagnostic methods.

DIAGNOSIS

Two studies have also investigated the diagnosis of various helminths. The Departments of Clinical Tropical Medicine and Helminthology have successfully developed a new diagnostic method for gnathostomiasis. The previous method required a Western blot test, which can be difficult to perform quickly, or in resource-limited settings. The group developed and tested a new method, using a fractionated *Gnathostoma spinigerum* antigen solution in an intradermal test. The results proved to be as accurate and specific as the current method, indicating its potential as a future diagnostic method.

Another group from the Department of Helminthology have developed and tested a serodiagnostic method for the tapeworm *Spirometra erinaceieuropaei,* the causative pathogen of sparganosis in humans. They screened different immunoglobulins associated with the condition, and found that IgG4 had the highest detection rate. In a pilot test including 223 samples, 8 false positives were found. This indicates that although the IgG4-ELISA can potentially be used as a diagnostic tool for sparganosis, further studies are required to optimise the process.

The Department of Molecular Tropical Medicine and Genetics has also contributed knowledge and techniques for working with helminths. Lecturer Onrapak Reamtong published a paper describing the uses of mass spectrometry in studying parasites and helminthiases. She outlined how proteomics techniques could be applied to host-parasite interactions, vaccine development, drug-target identification, and diagnosis of parasitic diseases.

TREATMENT

In addition to pathways for developing potential vaccines, the Faculty is also investigating various treatment methods for helminths. A collaboration between the Department of Helminthology and the Armed Forces Research Institute of Medical Sciences (AFRIMS) produced a paper with a potential mass drug administration strategy for malaria and soil-transmitted helminths (STHs). Mass administration of ivermectin has been suggested as a tool to eliminate malaria in several regions. The research group found that combining ivermectin with albendazole would increase its efficacy against STH infections, which correlate positively with malaria infections. This would effectively reduce the mortality rate in these populations, and also improve other public-health concerns, such as child development and pregnant women being affected by STHs.

A second paper by the Departments of Helminthology and Clinical Tropical Medicine investigated the issues surrounding treating *Strongyloides stercoralis* infection. They reported that due to difficulties in clearing infection, ivermectin is the best drug due to its higher tolerability. They also found that rigorous monitoring was key to successful treatment, and advocated both stool testing and serology for 1 to 2 years to check for infection.

Although there are still many issues surrounding tropical parasitic diseases, FTM is working in many areas to improve the situation. Developing our knowledge of epidemiology and the occurrence of various diseases will help deliver treatments more efficiently, and improved diagnostics and treatments will help those with tropical diseases. The Faculty and its collaborators will continue towards these goals, to improve the health of the ASEAN community.

***Strongyloides stercoralis**, a roundworm studied by the faculty. (Image: CDC)*

HIV/AIDS

The WHO estimates that, at the end of 2013, there were 35 million people around the world with HIV. In the same year, around 1.5 million people died from HIV-related causes. Although treatment strategies have improved in recent years, these alarming numbers highlight the importance of research into the condition. Although the disease is not confined to tropical regions, many countries in the Tropics are severely affected.

FTM is working on many different aspects of the disease, through various departments and collaborations. Since the ground-breaking RV144 clinical, which achieved 31.2% efficacy in preventing HIV infection, the Faculty has worked on improving understanding of both epidemiological and immunological factors, in addition to studies focusing on treatment and clinical trials for methods to prevent the disease.

IMMUNOLOGY, EPIDEMIOLOGY & VACCINE TRIALS

Improving our understanding of the immune response to the disease will play a central role in progress towards more effective treatments and cures. Several departments at the Faculty are involved in this work, with promising results.

Professor Punnee worked on the HIV RV144 vaccine trials.

One paper published by the Vaccine Trial Centre (VTC), the Departments of Clinical Tropical Medicine and Tropical Hygiene looked at antibody-dependent phagocytosis (ADP) in HIV. This is a potentially important function the body uses to clear HIV infection. Although it has been shown to be effective in studies such as the RV144 trial, little is still known about how it works. The study group developed a modified ADP assay, which they used to test subjects' levels of ADP. They found that levels were elevated during HIV infection in patients, but that no elevated responses were found in the RV144 cohort. The study concluded that enhanced ADP-mediated immunity may help improve vaccine efficacy.

The faculty is working on several different aspects of HIV/AIDS.

The RV144 trial was a landmark development in HIV treatment, which achieved 31.2% efficacy, as mentioned earlier. This study has led to many different avenues of research which are shedding light on different aspects of the disease.

Two recent papers from Professor Punnee Pitisuttithum and Associate Professor Jaranit Kaewkungwal have contributed to this area. One article, published in *Science Translational Medicine,* identified the role of HIV-1–specific immunoglobulin G (IgG) subclass antibodies in decreased risk of HIV infection. In two different clinical trials, it was correlated with decreased risk, making it a suitable test for immune correlates in future trials.

The second article dealt with the site of immune pressure in the RV144 trial, K169. Their work showed that the same region is present in rhesus macaques, meaning it has been conserved in the genome through divergent evolution. This indicates an evolutionary advantage to this mode of recognition, and that the region may be important in the immune response against HIV.

Although HIV is still a major global public-health issue, the continued work of many groups and collaborations at FTM is continually improving our treatment, knowledge, and understanding of the disease. Given the distinguished history of the department in this research area, and the hard work from all involved, the Faculty is well placed to continue on this path.

Another study by the Department of Tropical Hygiene and MORU looked at factors associated with mortality in HIV patients with cryptococcal meningitis (CM), one of the most common causes of death in HIV cases. The study tracked 501 HIV cases in Thailand and several African countries. They found that several factors were associated with increased mortality risk, including fungal burden, altered mental status, and rate of clearance of infection. Studies such as this help identify those at higher risk of mortality, which will enable treatment to be better tailored to them, in turn reducing overall mortality.

TREATMENTS & CLINICAL TRIALS

In addition to improving the overall understanding of the disease, the Faculty also seeks to provide the best treatments available and research new ones. The Silom Clinic, based on campus in the Hospital for Tropical Diseases, is run by Dr. Timothy Holtz. Run as part of the CDC, the clinic aims to prevent the spread of HIV and AIDS. A key component of this is education, with a focus on prevention. The clinic confidentially provides diagnosis, counselling and treatment services free of charge.

While providing these essential services, the clinic also carries out trials into various treatments. The ADAPT study has recently concluded data collection, and is a Phase-2 trial of an oral pill on a weekly basis to avoid contracting the disease. The study has involved a cohort from Thailand, the U.S. and South Africa, and data analysis is currently being carried out. The clinic is also commencing work in a Phase-2 trial looking at the efficacy of a drug-containing cream on *ex-vivo* rectal biopsy samples.

Dr. Timothy Holtz, Director of the Silom Clinic.

Molecular Tropical Medicine and Genetics

The Department of Molecular Tropical Medicine and Genetics was established in 2010 with a mission to provide training and research in bioinformatics, genomics, and proteomics. This broad area allows the Department to contribute to research across a wide range of diseases, including malaria, helminthiases, leptospirosis, scrub typhus, and cancer. Professor Songsak Petmitr, the Head of Department, emphasises that "work is continuing on a range of problems, using techniques like molecular epidemiology and proteomics. We aim to develop new tools and knowledge that will benefit clinical practice, future policies and planning."

MALARIA

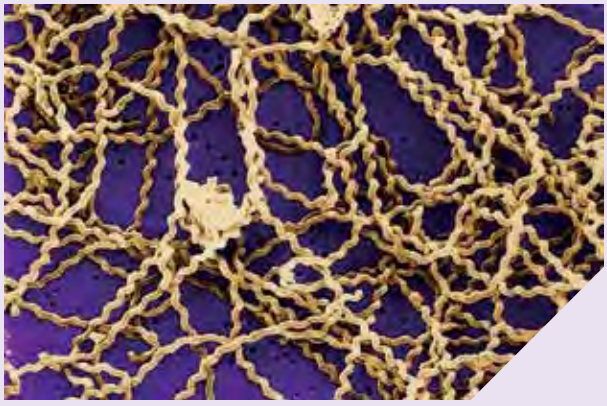
As described on page 43, malaria is a major concern in tropical public health. There are several species of parasites that can cause malaria, and research at the Department has covered many of them. Assoc. Prof. Mallika Imwong and Dr. Naowarat Saralamba have developed molecular techniques for the characterization of the two distinct *Plasmodium ovale* species, *P. ovale curtisi* and *P. ovale walkeri*.

Antimalarial drug resistance threatens the health of people living in tropical countries. Dr. Imwong has also investigated how drug resistance emerges and spreads in the malaria parasites affecting humans in Asia. This involves studying the changes in the genes that cause the parasites to be resistant. She has characterized the resistance genes possibly involved in mefloquine, artemisinin and antifolate drug resistance by genetic mutations and amplifications using field parasite samples from Afghanistan, Rwanda and Lao PDR. This basic information is the first step towards possible treatments.

Professor Songsak Petmitr, Head of the Department.

NEGLECTED TROPICAL DISEASES

The expertise of the Department make it very well suited to working on neglected tropical diseases (NTDs), which are often poorly understood. Several studies have improved our understanding of different NTDs. One study by the Department mapped the epitopes of murine mAbs using a recombinant protein based immunoassay, which were shown to protect the animals from lethal leptospirosis infections. Prevalence can reach 25 cases per 10,000 people



*SEM image of **Leptospira** bacteria, the Leptospirosis pathogen (Courtesy of CDC/Rob Weyant).*

in endemic areas, with up to 40% of cases being fatal. This finding, which may be relevant to future vaccine development, is a significant development.

Another group has investigated *B. pseudomallei*, the pathogen causing melioidosis. Led by Associate Professor Narisara Chantratita, the group used bioinformatics analysis to prove the role of a short-chain dehydrogenase/oxidoreductase (SDO) in the disease-invading cells. This finding elucidates a potential route for the pathogenesis of disease, and so provides options for treatment and candidate vaccines, which could potentially help many patients.

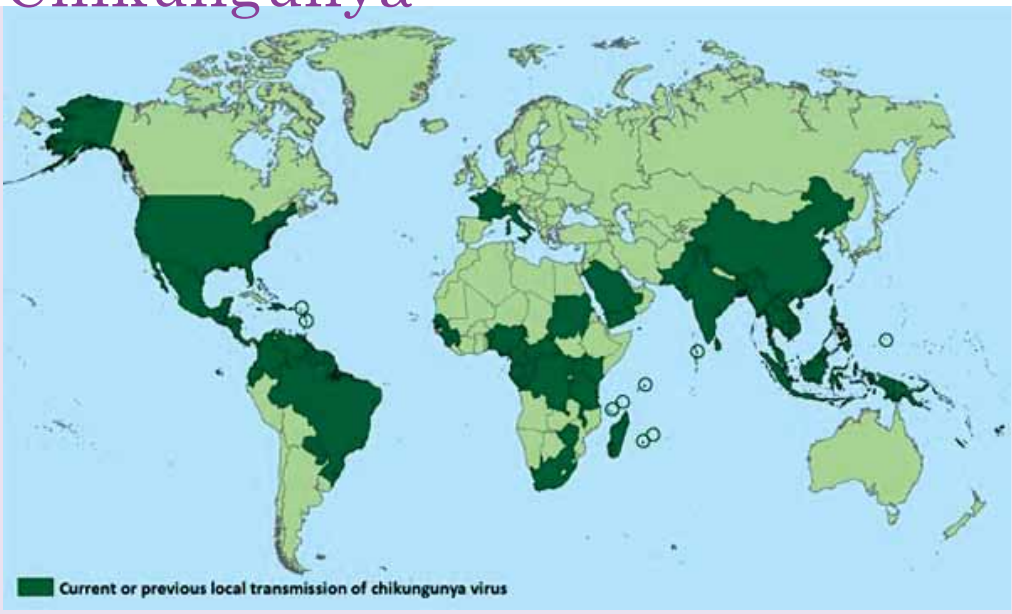
Diagnosing NTDs quickly, accurately, and cheaply is also a major issue. Dr. Piengchan Sonthayanon's research aims to develop molecular methods for the diagnosis of two important clinical problems in Thailand and East Asia--scrub typhus and leptospirosis. The methods have been established and tested using more than 500 samples. This work will have a large impact on our understanding of the epidemiology and prevalence of these under-reported diseases.

OTHER RESEARCH AREAS

In addition to working on areas that other Faculty Departments are contributing to, the skills and knowledge at the Department of Molecular Tropical Medicine and Genetics can be applied to many different issues. One example is the work led by Professor Songsak Petmitr, which uses QRT-PCR to identify the SLC35B2 gene with poor prognoses in breast cancer. Another study by the Department investigated king cobra venom and its components. The study identified 14 different protein families in the venom, which will help future development of alternative antivenoms. These two studies are good examples of the wide range of research areas that this Department is capable of working in, and give an idea of the many tropical health issues that they could contribute to in the future.

The Department has investigated the composition of King Cobra venom (www.snaketype.com).

Chikungunya



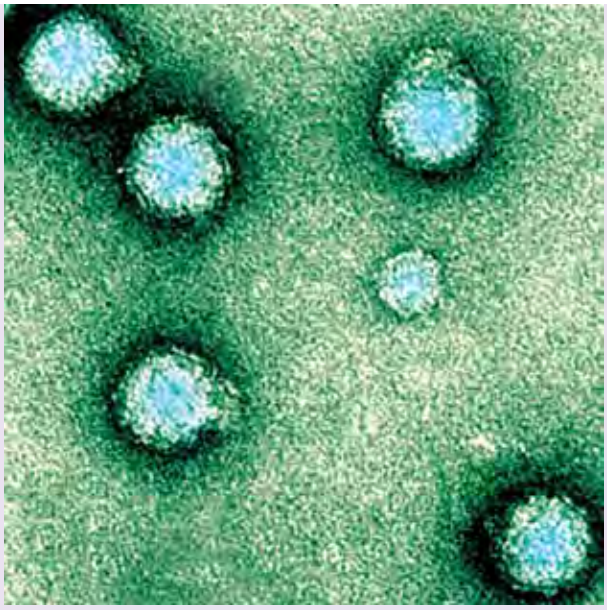
Chikungunya is caused by the Chikungunya virus (CHIKV), an arbovirus transmitted to humans by the bite of infected *Aedes* mosquitoes. Typical symptoms include fever, which passes after about one week, and joint pain, which can remain for years. Particularly older patients report that the disease often results in chronic musculoskeletal pain. The disease was first identified in Tanzania in 1953, and has since been reported in Asia, Europe, Africa, and the Americas; however, it tends to be concentrated in tropical regions. It appears to be spreading to new regions, as instances of locally transmitted infections were reported in Mexico, French Polynesia, Samoa, and South America for the first time in December 2014.

Three CHIKV serotypes have been identified to date – the West African genotype, the ESCA genotype, and the Asian genotype. To study the genetic makeup of CHIKV in Thailand, researchers from the Departments of Clinical Tropical Medicine, Microbiology and Immunology, Social and Environmental Medicine, Tropical Hygiene, CEAR and MOCID, conducted a joint study on the viral growth kinetics and sequences of the structural genes derived from isolates derived from CHIKV-suspected patients in Ratchaburi Province, in 2010. The study was completed last year, and the group found that over 99% of CHIKV infections belonged to the Indian Ocean Lineage, a relatively independent branch of the ESCA genotype.

A true understanding of the spread and impact of the disease is difficult to estimate, since CHIKV symptoms closely resemble dengue, and other non-descript febrile diseases. Correct and rapid diagnosis is crucial to reducing the risk of acute disease and long-term effects. Traditional diagnostic methods rely on antibodies, which are only detectable after a few days. Researchers at MOCID, in collaboration with the Departments of Medical Entomology and Social and Environmental Medicine, and CEAR, have developed a new rapid diagnostic tool that detects antigens displayed by the pathogen. This method makes diagnosis much faster and closer to the time of infection, allowing doctors to treat the infection at an earlier stage,

and to differentiate the infection from other similar diseases, such as dengue. It is user-friendly, does not require specialist knowledge, and gives a result within 15 minutes. The diagnostic kit is still in its early stages, and is only able to detect the ECSA genotype. The next step is to make it specific for the other two known serotypes, as well.

There is currently no specific treatment against CHIKV, so once diagnosis is confirmed, doctors rely on relieving the symptoms and keeping fever under control. However, researchers from the Department of Social and Environmental Medicine, CEAR, and MOCID have recently developed a monoclonal antibody (MAb) from mice that targets CHIKV protein and thereby inhibits the viral release process – essentially preventing the virus from reproducing. This is a very promising finding, and the MAb has the potential to be turned into a therapeutic agent in the future.



Chikungunya virus, as seen with a scanning electron microscope.

Reference Laboratory for the Diagnosis of Tropical Diseases

The Faculty already has a strong reputation in the research and development of diagnostic methods. A new innovation, initiated by Professor Yaowalark Sukthana and Dr. Jetsumon Prachumsri, promises to build on this strength. The Reference Laboratory for the Diagnosis of Tropical Diseases will be the first of its kind in a Thai University. Under the leadership of Associate Professor Dr. Kesinee Chotivanich and Assistant Professor Dr. Pornsawan Leaungwutiwong, this laboratory will centralize the expertise already present in separate departments. This will streamline both internal and external operations, allowing the maximum benefit to be achieved from the excellent work being completed here.

Associate Professor Kesinee and Assistant Professor Pornsawan in the new lab.

ACCREDITATION AND INITIAL PROCESS

The laboratory is scheduled to open in August 2015, after obtaining ISO 15189 accreditation from the International Organisation for Standardisations' Technical Committee 212. This step involves large amounts of paperwork and time, which means that doing it once for the whole Faculty takes much less time than each department doing so separately. Combining the work of different departments will also save resources and power usage. Once these steps are complete, the lab will begin diagnosing 5 different tropical diseases – scrub typhus, toxoplasmosis, dengue fever, gnathostomiasis, and malaria, using best practice. These diseases have been chosen due to the demand for rapid diagnostic techniques for them, and the expertise already present within the Faculty. The lab will employ full-time staff, but also utilize the knowledge and skills of individuals working in separate TropMed departments.

PLANNING AND THE FUTURE

Once the lab is operating, diagnostic services will be available to both the Hospital for Tropical Diseases at the Faculty and external institutions. This will provide a better overall picture of the location and prevalence of several tropical diseases in Thailand, while helping health professionals and patients at the same time. Assistant Professor Dr. Pornsawan explains that the methods will be "centered on serotyping antibodies and using other molecular methods to diagnose samples."

The lab will begin testing for 5 tropical diseases, in addition to developing new tests.

In addition to diagnostics, the Lab will focus on sharing knowledge and skills with others, while collaborating with other centers to ensure best practice and cutting-edge processes. Healthcare staff at the Hospital for Tropical Diseases and other FTM departments will have access to training workshops in carrying out and interpreting tests. This will help close the gap between the research and development phase and the use of new technology and methods in clinical settings, thus providing better care for patients.

Research and development will also be a focus of the reference lab. As mentioned above, staff from existing departments will use the facility to work together. Dr. Chotivanich anticipates that verifying test kits and diagnostics from other institutes and companies will generate some income for the lab, while also providing a valuable service. She explains that "the combination of ISO 15189 accreditation of the lab and the TropMed 360 services center will truly make FTM a 'one-stop shop' for new diagnostic methods in the development stage." The Faculty has already fielded enquiries from several potential customers.

BIO BANK

The research lab also plans to work with BIOPHICS to build a Bio Bank. This will entail building a database of the many samples held by the Faculty. Excess samples from previous studies will be available for use in new Faculty research, saving time and increasing efficiency. There will also be reference strains of many pathogens endemic to Thailand, which will also be available to TropMed researchers, and other groups domestically and internationally.

The reference lab is representative of the many different ways that the innovative work being undertaken at the Faculty can benefit both research here, and society as a whole.

The proposed BioBank will enable even more research at the Faculty.

Other Research Areas

The Faculty is not only an authority on well-known tropical diseases, but extends into a number of different research areas. FTM staff investigate many varied topics, including factors associated with research and data collection, cancer, emerging and future threats in tropical regions and neglected tropical diseases (NTDs). Through these different activities, the research being conducted at the Faculty is shedding light on many areas, in addition to established areas such as dengue and malaria. These findings will help many people in the Tropics, but also those in the temperate areas of the world.

RESEARCH METHODS

Two papers published by MORU in 2015 investigated various research methods. The first of these looked at optimising clinical trials in Africa. They reported that while they have proven outcomes, care should be taken to ensure the monitoring process is supportive rather than a threatening process for subjects. The second paper dealt with issues surrounding child consent in pediatric studies, and stated that context-specific decisions are the best solution. Studies such as these obviously help researchers optimise their studies, ensuring more robust data while also helping members of the public engage with the research they are a part of.

CANCER

Several departments at the Faculty are investigating different aspects of cancer. The Department of Clinical Tropical Medicine published a case report on a primary granulocytic sarcoma. The Department of Molecular Tropical Medicine and Genetics reported that overexpression of the

The faculty is active in a large number of research fields.

gene SLC35B2 was associated with poor prognoses in breast-cancer patients. This means it may have both diagnostic and therapeutic potential. These studies are both good examples of the work the Faculty is carrying out, which could benefit people all over the world, not just in tropical regions.

FUTURE ISSUES

While cancer is already a major problem worldwide, the Faculty is also looking at emerging problems and issues that will become more pressing in the future. One paper produced by the Department of Tropical Nutrition and Food Science investigated methods to reduce the risk of atherogenic risk in type II diabetics, a rapidly increasing disease world-wide. The Department also reported on genetic factors associated with metabolic disorders among Thais.

Another study, from the Department of Social and Environmental Medicine, reported ways of quantifying disease burden among climate refugees in Bangladesh. They emphasised the potential effects of climate change on child health. These insightful studies are helping societies prepare for future change.

NEGLECTED TROPICAL DISEASES (NTDS)

Many tropical diseases are not well understood, meaning they often suffer from a lack of funding to improve our diagnostic and treatment capabilities. Several studies at the Faculty have focused on these NTDs, helping to better understand these problems. One such study conducted a seroepidemiologic survey of scrub and murine typhus in Bangladesh. The results showed that 23.7% of the subjects had recently been exposed to scrub typhus, while 66.6% were positive for recent exposure to murine typhus. The study found no difference in prevalence between urban and rural areas, suggesting that these diseases should be considered in febrile illness cases in the region.

Associate Professor Kamolnetr Okanurak, Head of Social and Environmental medicine

Another study by a group from MORU investigated a new diagnostic method for tropical pathogens. As mentioned above, patients presenting with fever in the Tropics may have one or even two of many different pathogens, making diagnosis difficult and time-consuming. This study developed a 'lab-on-a-chip', which is capable of identifying 26 different pathogens to species level. The tool uses a DNA microarray system, and was shown to positively identify spiked human blood samples with as few as 200 *P. falciparum* parasites. Although work is still needed before the chips are produced commercially, new innovative tools such as this one will prove very useful in accurately identifying the presence and prevalence of many different NTDs.

The work described here is just a snapshot of the varied areas of research occurring at the Faculty. They are an indication of the many fields of expertise covered by the staff here, as well as the innovation and dedication they have to improving standards of public health in the Tropics.

Education

Since its opening in 1960, the Bangkok School of Tropical Medicine, Mahidol University, has provided excellent real-world education in tropical medicine. While now moving towards its 55th anniversary in 2015, the School remains focused on providing the best possible experience for all its students. The School added a new course in 2014 (Master of Science in School Health), ensuring that graduates leave with highly relevant skills to work in various fields of tropical medicine. The student body is also becoming more international, and every effort is made to help students achieve their potential.

FIELD EXPERIENCE

Graduates from the Faculty are very well placed to contribute to the fields of research or clinical services for tropical medicine. Students are consistently exposed to 'real-world' experiences in order to be better prepared for entering the workforce after graduation. The Faculty is fortunate to have the Hospital for Tropical Diseases onsite and Mahidol University's Ramathibodi Hospital nearby. Both facilities are used in student rounds, which are a very effective way to gain real-world experience. Being located in an area with many endemic tropical diseases, the School also makes use of the Faculty's field sites. Facilities in Ratchaburi, Kanchanaburi and Ubon Ratchathani allow students to gain a better understanding of the logistical problems and specific issues facing rural communities and healthcare services dealing with tropical diseases. This is essential knowledge for positions in public health and policy roles, which many institutions are unable to provide to their students. The School's D.T.M.&H. and M.C.T.M. courses have been certified by the American Society for Tropical Medicine and Hygiene (ASTMH), recognizing the high standard of teaching and learning taking place here.

STUDENT COHORT

In addition to international recognition, the Faculty is also benefiting from an increase in students from other countries. In the 2014 academic year, the student population was 50% Thai and 50% international, almost doubling in size from 2013. The international student body helps individuals become familiar with different cultural and social ideas, as well as diseases and

Professor Sasithon Pukrittayakamee, the Deputy Dean for Education.

Students enjoy a wide range of social and cultural activities in addition to studies.

issues specific to certain areas. These experiences are another way that studying at FTM leads to graduates being better equipped to move into the workforce. The Faculty has also been able to offer many more scholarship positions, thanks to internal sources such as the Dean's Fund and international bodies, including the Rockefeller Foundation. These extra positions allow the Faculty to improve the lives of more people in tropical regions around the globe.

FACILITIES AND SERVICES

As well as benefiting communities in the Tropics, the Bangkok School of Tropical Medicine focuses on providing every possible support to students during their time at the Faculty. The education department is committed to many different avenues of support, from admissions and scholarships as mentioned above, to maintaining facilities and services for students. Many different social activities are run by the School, celebrating Thai and international cultures and events like sports days and cooking evenings. These events ensure that students have balanced lives and are able to relax during their studies. Students also have easy access to support from their departments, for topics such as career advice.

EXCHANGES AND VOLUNTEERING

While providing support at the Faculty, the Faculty also encourages students to gain experience from a wide range of facilities. The BSTM runs exchange programs to help students experience a wide range of institutes and countries. Last year, 13 students visited other countries, while the School welcomed 25 international exchange students. These experiences are highly valuable in exposing students to different cultures and methodologies in various labs, but also help them gain a better understanding of regional issues. These exchanges also provide networking opportunities and future collaborations for the Faculty. In addition to exchanges, the School assists many students in volunteering activities in Thailand and internationally. One D.T.M.&H. participant travelled to West Africa to volunteer in the fight against Ebola. This doctor's self-sacrifice is a fine example of the responsible, professional, and empathetic world view encouraged among students of Mahidol BSTM.

The ongoing dedication of the staff at the BSTM ensures that the Faculty will continue to be a leader in tropical medicine education.

Course Title
Diploma in Tropical Medicine and Hygiene (D.T.M.& H.)
Master of Clinical Tropical Medicine (M.C.T.M.)
Master of Clinical Tropical Medicine (Tropical Pediatrics) [M.C.T.M.(Trop.Ped.)]
Doctor of Philosophy in Clinical Tropical Medicine [Ph.D.(C.T.M.)]
Diploma in Biomedical and Health Informatics (D.B.H.I.)
Master of Science in Biomedical and Health Informatics [M.Sc.(B.H.I.)]
Master of Science in Tropical Medicine M.Sc.(Trop.Med.)
Doctor of Philosophy in Tropical Medicine [Ph.D.(Trop.Med.)]
Master of Science (School Health) *

Courses offered by the Bangkok School of Tropical Medicine in 2014 (indicates new course).*

The Hospital for Tropical Diseases

The Hospital for Tropical Diseases has been part of the Faculty of Tropical Medicine for over 50 years, and during this time it has grown into a national center for tropical-disease treatment and a pioneer in travel medicine. The hospital has 250 beds, and is a center for both excellent medical care and scientific research.

Dr. Watcharapong Piyaphanee

Two years ago, the Hospital moved into new facilities in the Rajanagarindra Building, and last year it received prestigious Hospital Accreditation from the Thai Healthcare Accreditation Institute. This accreditation is given to high-quality healthcare providers, and is a mark of efficiency and quality in care, safety, and data management at the Hospital. In order to retain accreditation, it needs to pass a renewal inspection, which is due to happen this year. The hospital has continued to develop its services and improve its quality of care, and it is quickly becoming a national center of expertise in tropical diseases, such as dengue, malaria, parasitic infections, and other infectious diseases. Patients from around the country are being referred to specialists at the Hospital, and the numbers of patients this past year have been the highest to date.

In addition to tropical diseases, the hospital has positioned itself as a hub for travel medicine in Bangkok, and both locals and tourists visit the Hospital for travel health advice, vaccinations, and other travel related support. Last year the travel clinic developed a residency training in travel medicine – the first of its kind in the world, and the first two specialists are by now one year into the three-year training. This June, an additional five residents will join the training. Travel medicine is a very fast-growing field with tremendous impact on people's lives and countries' health policy. Increased travel results in the rapid spread of diseases, and the importance of knowing what health risks are present in different areas around the world, and making sure that you take the appropriate precautions (and required vaccines) is very important. The Hospital for Tropical Diseases has taken a proactive role in elevating the field of travel medicine into a specialization in its own right, and we believe that many other hospitals around the world will soon follow suit.

The Hospital has always prided itself of working closely with both researchers and

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

students at the Faculty – students conduct ward rounds at the Hospital as part of their clinical training, and researchers support clinicians with various lab-related services and expertise. The Hospital for Tropical Diseases, therefore, also often provides support for other hospitals with specialist services, such as diagnostic tests, and analysis.

This year, the Hospital has seen an impressive growth when it comes to patients. Although rates of many of the more deadly tropical diseases (dengue inpatient cases fell from 689 to 300, and total malaria-related inpatient cases fell from 141 to 107) has fallen, the Hospital has had a record number of patients overall.

Looking forward, the Hospital's central focus is to remain on this positive course, and continue to improve its patient care and services. As part of this goal, the Hospital hopes to obtain the Thailand Quality Award, given to the highest-quality service providers in the country. Many challenges remain, but the Hospital is in a unique position, with access to the world's leading tropical medicine researchers, state-of-the-art equipment and facilities, and a close relationship with the community, students, and research groups.

Support Offices

The Faculty's five support offices provide crucial administrative support to the Faculty's core research, teaching, and services activities, and allow the efficient operation of day to day activities:

The Office of the Dean is managed by the Secretary of the Faculty, Assistant Professor Kasinee Buchachart, who also serves as Assistant to the Dean for Student Affairs and Special Activities. It is the administrative nerve-center of the Faculty, and it enables the Faculty's operations to run smoothly by ensuring legal compliance, effective financial management, administrative and infrastructural support, and other specialist expertise through a broad range of services:

- Administration and General Affairs
- Human Resources
- Finance
- Procurement
- Educational Technology
- Information Technology
- Asset Management
- Legal and Property

The Office of Educational Administration coordinates all educational curriculums that the Faculty offers. Their responsibilities fall under eight main categories:

- General administration
- Finance and procurement
- Corporate communication
- Teaching/Learning Coordination
- Registration and evaluation
- Laboratory and A/V-media
- Educational quality development
- Student Services and Activities

The Office of International cooperation (OIC) is responsible for coordinating FTM's many different international partnerships, such as collaborations with other leading research institutions, visiting lecturers, and public relations, including:

- International Training
- Local International Center
- International Public Relations and ICT
- International cooperation and special projects
- Administrative Affairs

The Office of Research Services is a 'one stop shop' with the goal of supporting and coordinating research at FTM. The office consists of six units, each supporting different key components of research at the faculty:

- Research administration
- Ethics Committee secretariat
- Database and IT management
- Conference and event planning
- Publications and graphic design
- Biosafety

The Office of Policy and Strategic Planning, headed by Professor Rungsunn Tungtrongchitr, Deputy Dean for Central Management, and Ms. Yaowapa Pratoomsuwan, carries out a range of strategic duties at the Faculty:

- Planning and policy development
- Database and Quality Assurance
- Budgeting and Finance

TM360 Services was established to support the Faculty's strategic Customer and Community services. TM360 is responsible for:

- Conducting business mission outreach and external faculty promotion
- Increase the efficiency of the Faculty's intellectual asset management
- Tend to the faculty's service recipients and external stakeholders through socially responsible services

Awards

DATE:	NAME	AWARD
February	Arunee Sabchareon and team	Sujarti Jatanasen Award forOutstanding Achievement in Epidemiology on Research, for "Epidemiology Study of Dengue Infection in Children in Ratchaburi Province, Thailand, for Dengue Vaccine Efficacy Trial 2006-2011"
March	Yaowalark Sukthana	Preventive Medicine Physician of The Year, 2013
March	Saranya Wongngernyuang	Sood Sangvichein Sculpture Model Award from the Association of Medical Illustration of Thailand
March	Polrat Wilairatana	Distinguished Alumni Award 2013 from the Faculty of Graduate Studies, Mahidol University
April	Pornpimon Adams, Polrat Wilairatana, Kasinee Buchachart, Srisin Khusmith, Yaowalark Sukthana, Pongrama Ramasoota, Pratap Singhasivanon	MU Brand Ambassador awards
April	Pongrama Ramasoota	Highest Downloaded Article Award from Elsevier Science Publisher
June	Pongrama Ramasoota	Outstanding Research Award from the National Research Council of Thailand (NRCT) for "Therapeutic and Diagnostic Monoclonal Antibodies against Tropical Diseases"
July	Songsak Petmitr	Mahidol University Excellent Teacher Award
July	Punnee Pitisuttithum	Mahidol University Outstanding Research Award
September	Pongrama Ramasoota	2014 Taipei International Invention Show & Technomart Invention Contest for the invention of Therapeutic human monoclonal antibodies against 4 serotypes of Dengue Virus
September	Pongrama Ramasoota and Chonlatip Pipattanaboon	Honor of Invention award, World Invention Intellectual Property Association, for "Therapeutic Human Monoclonal Antibodies against 4 Serotypes of Dengue Virus"
September	Pongrama Ramasoota and Team	Leading Innovation Award for the invention of Therapeutic Human Monoclonal Antibodies against 4 Serotypes of Dengue Virus
September	Pongrama Ramasoota and Team	TIIIA Award for Excellent Invention, for Therapeutic Human Monoclonal Antibodies against 4 Serotypes of Dengue Virus
October	Pongrama Ramasoota	Thailand Research Fund Award
December	Alan Cowman	Sornchai Looareesuwan Medal at JITMM2014
December	Parnpen Viriyavejakul and Chuchard Punsawad	Outstanding Award from the National Research Council of Thailand, as an advisor to Dr. Chunchard Punsawad, who won the PhD Thesis Award, 2014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Faculty of Tropical Medicine, Mahidol University
Congratulations
to
Professor Arunee Sabchareon
Professor Songsak Petmitr
Professor Punnee Pitisuttithum
The award will be given at Mahidol Graduation Ceremony of Academic Year 2013
on 10 July 2014
Prince Mahidol Hall, Mahidol University, Salaya campus


คณะเวชศาสตร์เขตร้อน
ขอแสดงความยินดี
แด่คณะผู้วิจัย
Congratulations
to Researchers


Sornchai Looareesuwan
Medal Winner, 2014
Prof. Alan Cowman


Sornchai Looareesuwan
Medal Winners, 2013
Prof. Stephen Ward
Dr. Louis H. Miller


คณะเวชศาสตร์เขตร้อน
ขอแสดงความยินดี
ในโอกาสที่ได้รับคัดเลือกเป็น "ศิษย์เก่าดีเด่น"
Congratulations to
Prof. Yaowalark Sukthana : Dean, Faculty of Tropical Medicine and
Prof. Sasithon Pukrittayakamee : Deputy Dean for Education
For receiving the outstanding alumni awards
from Faculty of Graduate Studies, Mahidol University
On Saturday 21st March 2015, Time : 15.30 hrs.
At Royal River Hotel, Bangkok


คณะเวชศาสตร์เขตร้อน มหาวิทยาลัยมหิดล
Faculty of Tropical Medicine, Mahidol University
ขอแสดงความยินดี
congratulations to
Associate Prof. Dr. Pimpen Viriyavejakul
Department of Tropical Pathology
For Receiving an Outstanding Award from
The National Research Council of Thailand (NRCT),
as a Ph.D. advisor to Dr. Chuchard Punsawad
Ph.D. Thesis Award, Year 2014
Thesis title "Activation of Transcription Factor:
Nuclear Factor Kappa B (NF-KB) in Malaria"

Appendices

Publications 2014

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Presentations 2014

DEPARTMENT OF CLINICAL TROPICAL MEDICINE

International

Oral

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5.	Chotivanich K. *In vitro* drug susceptibility of *Plasmodium falciparum* in Thailand. Joint International Tropical Medicine Meeting 2014 (JITMM2014) 2-4 December 2014, Centara Grand&Bangkok Convention Centre at CentralWorld, Bangkok, Thailand.

Poster

1.	Eamsila C, Akapirat S, Nitayapan S, Perks-Ngarm S, Pitisutthithum P,Vasan S, Excler J-L, Karasavvas N, Ngauy V, Robb M.L, Michael N.L, Kim J.H, O'Cpmme R.J.Vaccine Induced Seroreactivity in RV144 Vaccine Recipients in RV305, a Placebo Controlled Assessment of late Boosts with ALVAC-HIV and AIDSVAX B/E. HIV Research for Prevention 2014 AIDS Vaccine, Microbicide and ARV-based Prevention Science ,28-31 October 2014,Cape Town, South Africa.
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International	
Poster	
5.	Piyaphanee W, Chanthavanich P. Development of Residency Training Program in Travel Medicine in Thailand. 10th Asia Pacific Travel Health Conference (APTHC 2014),7-10 may 2014 The Caravelle Hotel ,Ho Chi Minh City. Vietnam
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DEPARTMENT OF HELMINTHOLOGY	
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Poster	
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2.	Supaporn Nuamtanong, Paron Dekumyoy , Onrapak Reamtong , and Poom Adisakwattana. Immunomics analysis of excretory-secretory from 3rd stage Larva *Gnathostoma spinigerum* for development of Immunodiagnosis. Joint International Tropical Medicine Meeting 2014, Bangkok, Thailand.
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DEPARTMENT OF HELMINTHOLOGY (Continued)

International and National

Poster

5.	Tippayarat Yoonuan Marcello Otake Sato, Megumi Sato, Kittipong Chaisiri, Wanna Maipanich, , Surapol Sanguankiat, Tiengkham Pongvongsa, Boungnong Boupha, Kazuhiko Moji, Jitra Waikagul. Nematode infection among ruminants in monsoon climate (ban-lahanam, lao pdr) and its role as food-borne Zoonosis. Joint Conference 2014, 55th Annual Meeting of Japanese Society of Tropical Medicine and 29th Annual Meeting of Japan Association for International Health.
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Book Chapter

1.	Dekumyoy P, Watthanakulpaich D, Waikagul J. Helminth-Nematode: *Gnathoma spinigerum*. Encyclopedia of Food Safety. 2014 Vol. 2: 94-8.
2.	Y Nawa, U Thaenkham, P Ngoc Doanh, D Blari. Helminth-Trematode: *Paragonimus westermani* and *Paragonimus* species. Encyclopedia of Food Safety. 2014 Vol. 2: 179-88.

DEPARTMENT OF MEDICAL ENTOMOLOGY

International

Oral

1.	Subsuebwong T, Attrapadung S, Potiwat R, Komalamisra N. Adulticidal activity of essential oil from *Piper retrofractum* Vahl. against *Aedes aegypti* (Linn.) and *Culex quinquefasciatus* (SAY). The 26th Annual Meeting of the Thai Society for Biotechnology and International Conference "3Bs: Biodiversity, Biotechnology and Bioeconomy" On 26-29 November 2014 at Mae Fah Luang University, Chiang Rai, Thailand.

Poster

1.	Attrapadung S. Preparation of *Zanthoxylum myriacanthum* oil microcapsules for developing mosquito repellent. The Xth European Congress of Entomology hosted by The Royal Entomological Society, University of York, York, UK, 3-8 August 2014.
2.	Potiwat R, Apiwathnasorn C, Attrapadung S, Sungvornyothin S, Samung Y, Payakkapol A. Genetic marker tools for identifying tropical human bed bugs and bat bugs: *Leptocimex inordinatus*. The 5th International Meeting on Emerging Diseases and Surveillance; IMED 2014 at Hilton Vienna, Am Stadtpark, Vienna, Austria. October 31 - November 3, 2014.
3.	Sriwichai P, Saeung A, Sattabongkot J, Samung Y, Srisawatn R, Kiattibutr K, Sumruayphol S, Payakkapol A, Choochote W, Apiwathnasorn C. Susceptibility to *Plasmodium vivax* and Insecticide Resistance of *Anopheles campestris* and *Anopheles subpictus* along Thai-Cambodian border. The 63rd ASTMH Annual Meeting in New Orleans, Louisiana, USA. November 2-6, 2014

National

4.	Sriwichai P, Samung Y, Payakkapol A, Dathong P, Saeseu T, Chobson P, Sattabongkot J. Potential *Plasmodium vivax* malaria vector of *Anopheles campestris* in focal endemic area along Thai-Cambodian border. "Young generation researchers meet senior researcher: 14th meeting of Thailand Research Fund. Ambassador City Jomtien, Chonburi province, Thailand. October 23rd-25th, 2014.

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

International

Oral

1.	Rattanamahaphoom J, Leaungwutiwong P, Srikiatkhachorn A. Bystander effects of dengue specific T cell activation on endothelial cell morphology and function. Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
2.	Sriburin P, Leaungwutiwong P. Predicting of dengue severity by immunodiagnostic assay, molecular detection and clinical data. Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
3.	Leaungwutiwong P, Kosoltanapiwat N, Kelley JFU, Thippornchai N, Guiang K, Buddhirongawatr R, Changbunjong T, Weluwanarak T, Sedwisal P, Komalamisara C. Simultaneous detection of enteric viruses associated with gastroenteritis in farm animals and humans by multiplex reverse transcription polymerase chain reaction (RT-PCR) assay. Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
4.	Indrawattana N. Update the situation of food and water borne bacterial infection in Thailand**.** Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
5.	Indrawattana N, Sookrung N, Kong-ngoen T, Seesuay W, Onlamoon N, Chongsa-nguan M, Tungtongchitr A, Chaicumpa W. Recombinant staphylococcal enterotoxin A : A superantigen and its activity. Engineered proteins: from basic research to medical applications Thailand research fund (TRF), September 24, 2014.

Poster

6.	Chimma P, Sratongno P, Roussilhon C, Sakuntabhai A, Krudsood S, Tongshob J, Woradulayapinij W, Khusmith S. Potential association of blood monocyte phenotypes and pathology in *Plasmodium vivax* infection. Joint International Tropical Medicine Meeting2014, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
7.	Tangteerawatana P, Krudsood S, Kanchanakhan N, Blomberg MT and Khusmith S. Low monocyte to neutrophil ratio in peripheral blood associated with disease complication in prelimary *Plasmodium falciparum* infection. Joint International Tropical Medicine Meeting2014, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
8.	Chimma P, Sratongno P, Roussilhon C, Sakuntabhai A, Krudsood S, Khusmith S. A study on innate immunity of *Plasmodium vivax* infection in Thailand. The 3rd Thailand National Research Universities Summit, 2014: Prelude to World Class University, Centara Grand& Bangkok Convention Centre at Central World. Bangkok, Thailand, July 31-August 1, 2014.
9.	Hananantachai H, Nuchnoi P, Patarapotikul J. Study of human genetics associated with severe malaria in patients infected with *Plasmodium falciparum* in Thailand. National Research University Summit III: The 3rd Thailand National Research Universities Summit, 2014: Prelude to World Class University on 31 July – 1 August 2014 at Bangkok Convention Center, 22th floor Centara Grand Hotel, Central World, Bangkok. Received Best Presentation Award.
10.	Ngasang AS, Ohashi J, Naka I, Anantapreecha S, Sawanpanyalert P, and Patarapotikul J. Association of *IL1B* –31C/T and *IL1RA* variable number of an 86-bp tandem repeat with dengue shock syndrome in Thailand. International Meeting on Emerging Diseases and Surveillance (IMED 2014) organized by The International Society for Infectious Diseases held in Vienna, Austria from October 31 to November 3, 2014.
11.	Sawatwong P, Whistler T, Rhodes J, Makprasert S, Sangwichian O, Srisangchai P and Vanaporn M. Extended-spectrum beta-lactamase (ESBL) producing bacteria isolated from blood culture in Thai hospitals from 2007-2012. Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY (Continued)	
International	
Poster	
12	Pumirat P, Reamtong O, Chantratita N, Korbsrisate S. A study of the prevalence of *Burkholderia pseudomallei* cycle inhibiting factor and its role on host protein expression. A constructive relationship between young and senior researcher 2014, Ambassador City Jomtien Hotel, October 23-25, 2014.
13	Pumirat P, Reamtong O, Chantratita N, Korbsrisate S. The role of cycle-inhibiting factor in *Burkholderia pseudomallei*–host cell interaction. Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
14	Chantratita N. Characterization of *Staphylococcus aureus* isolates causing community-acquired sepsis in Northeast Thailand. Joint International Tropical Medicine Meeting, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.
National	
15	Tandhavanant S, Teerawattanasuk N and Chantratita N. Monoclonal antibody-based immunofluorescence microscopy for the rapid identification of *Burkholderia pseudomallei* in clinical specimens and blood cultures. The Association of Medical Technologists of Thailand , Centara Hotel & Convention Centre Udon Thani. April 23-25, 2014.

DEPARTMENT OF PROTOZOOLOGY	
International	
Oral	
1.	Mahittikorn A, Udonsom R, Chaichan P, Sukthana Y. *Toxoplasma gondii* in Thailand: seroprevalence by indirect fluorescent antibody and modified agglutination tests in free-range chickens. JITMM 2014, December 2-4,Centara Grand & Bangkok Convention Centre at CentralWorld, Bangkok, Thailand.
2.	Moonsom S, Leetachewa S, Khomkhum N, Nozaki T, Boonyaudomsart W and Chavalitshewinkoon Petmitr P. Production of specific monoclonal antibodies for differentiation of pathogenic *Entamoeba histolytica* and *E. moshkovskii* from non-pathogenic *E. dispar*. JITMM 2014, December 2-4,Centara Grand & Bangkok Convention Centre at Central World, Bangkok, Thailand.
Poster	
3.	Mahittikorn A, Mori H, Popruk S, Sukthana Y, Nacapunchai D. Loop-mediated isothermal amplification (LAMP) for rapid visual detection of *Naegleria fowleri*. Joint Conference 2014: the 55th Annual Meeting of the Japanese Society of Tropical Medicine and the 29th Annual Meeting of the Japan Association for International Health: 1-3 November 2014.
4.	Udonsom R, Mahittikorn A, Chaichan P, Sukthana Y. Comparison of toxoplasmosis diagnosis by indirect fluorescent antibody test and modified agglutination test in free-range chicken in Thailand. Joint Conference 2014: the 55th Annual Meeting of the Japanese Society of Tropical Medicine and the 29th Annual Meeting of the Japan Association for International Health: 1-3 November 2014.
5.	Phongchaipaiboon T, Boonyaudomsart W, and Moonsom S. Characterization of monoclonal antibody specific to *Entamoeba histolytica* cells and erythrophagosomes. JITMM 2014, December 2-4,Centara Grand & Bangkok Convention Centre at Central World, Bangkok, Thailand.

DEPARTMENT OF SOCIAL AND ENVIRONMENTAL MEDICINE	
Oral	
1.	Wangsuphachart V. GeoHealth Informatics Thai: Towards a Possible Networking From Watershed to Human Exposure. Oral presentation: The 1st International conference on Geo-Informatics for Graduate Students and Young Researchers; June 9-11, 2014. Mae Fah Luang University, Chiang Rai, Thailand.
2.	Limpanont Y, Okanurak K, Chusongsang P, Chusongsang Y, Charoenjai P, Limsomboon J, Sanpool O, Kaewkong W, Intapan PM, Janwan P, Sadaow L, Maleewong W. Distribution of *Neotricula aperta* (Gastropoda Pomatiopsidae), the snail host of Mekong schistosomiasis in the Mekong River Basin, Thailand and their susceptible to *Shistosoma mekongi*. This research was funded by Thailand Research Fund grant number MRG5680085 and TRF Senior Research Scholar Grant number RTA5580004 and partially supported by the ICTM grant of the Faculty of Tropical Medicine
Poster	
3.	Kitjaroentham A, Hananantachai H, Phonrat B, Preutthipan S, Tungtrongchitr R. Association of low density lipoprotein receptor related protein 5 genetic variation, A1330V and BMD in Thai menopausal women. Poster presentation: Joint International Tropical Medicine Meeting; 2-4 December 2014. Centara Grand & Bangkok Convention Centre at Central World, Bangkok, Thailand.
4.	Tantrakranapa K, Kiangchuay W, Nakhapakorn K, Rakwafin P, Morand S, Geohealth Thai platform (GEOHTP): Towards a network to gather expertise, knowledge and resources in health geography. Poster presentation: Joint International Tropical Medicine Meeting; 2-4 December 2014. Centara Grand & Bangkok Convention Centre at Central World, Bangkok, Thailand.

DEPARTMENT OF TROPICAL HYGIENE	
Oral	
1.	Direk Limmathurotsakul. The Global Distribution and Burden of Melioidosis. JITMM 2014, Bangkok
Poster	
2.	Wirichada Pan-ngum, Sarin Suwanpakdee, Jaranit Kaewkungwal, Norberto Asensio, Parntep Ratanakorn, Pratap Singhasivanon, Nicholas Day, Lisa White. Is Leptospirosis and Occupational Disease in Thailand?. The American Society of Tropical Medicine and Hygiene (ASTMH) 63rd Annual Meeting, New Orleans, LA USA. November 2-6, 2014
3.	Assoc.Prof.Dr.Jaranit Kaewkungwal. Major Ethical Issues in Clinical Trials of Malaria Drugs in Thailand. The American Society of Tropical Medicine and Hygiene (ASTMH) 63rd Annual Meeting, New Orleans, LA USA. November 2-6, 2014

TROPICAL NUTRITION AND FOOD SCIENCE	
Poster	
1.	Sirichaiyakul P*, Suthangkornkul R, Thepouyporn A, Okabayashi T, Matsuura Y, Takeda N, Motomura K, Arthan D. Expression And Characterization Of Antimicrobial Peptide Gambicin From *Culexquinquefasciatus* IN *Pichiapastoris*. Proceeding of the 2nd ASEAN Plus Three Graduate Research Congress (2ndAGRC), 5-7 February 2014, Miracle Grand Hotel, Bangkok.
2.	Suthangkornkul R, Sirichaiyakul P, Thepouyporn A, Svasti J, Arthan D*. Functional expression of *Aedes aegypti* and *Culex quinquefasciatus* α-glucosidases in *Pichia pastoris*. The Joint 7th AOHUPO Congress and 9th International Symposium of the Protein Society of Thailand - 9th PST. 6-8 Aug 2014, Miracle Grand Hotel, Bangkok.

TROPICAL NUTRITION AND FOOD SCIENCE (Continued)	
Poster	
3.	Apanchanid Thepouyporn, Chanita Napaswad and Chanpen Wiwat. Characterization and cloning of Anti-Hiv-1 protein from *Canna indica* l. leaves. The Joint 7th AOHUPO Longrees and 9th International Symposium of the Protein Society of Thailand 7th AOHUPO/9th PST Aug 6, 2014 – Aug 08, 2014, Miracle Hotel.

DEPARTMENT OF TROPICAL PATHOLOGY	
National	
Poster	
1.	Chuchard Punsawad, Srivicha Krudsood, Yaowapa Maneerat, Urai Chaisri, Noppadon Tangpukdee, Emsri Pongponratn, Kwannan Nantavisai, Rachanee Udomsangpetch, and Parnpen Viriyavejakul. Activation of nuclear factor kappa B in peripheral blood mononuclear cells (PBMCs) from malaria patients. The Third Thailand National Research Universities Summit (ThaiNRU III), July 31-August 1, 2014 (Poster presentation), and received "Best Presentation Award", under the super cluster "Health"
2.	Yaowapa Maneerat, Kesinee Chotivanich, Urai Chaisri, Kamolwan Wetchabut, Ratchanok Kumsiri. Hemozoin from blood stage *Plasmodium falciparum* induces T cell independent specific antibody production. The 3rd Thailand National Research Universities Summit, 2014: Prelude to World Class University, Centara Grand& Bangkok Convention Centre at Central World. Bangkok, Thailand, July 31-August 1, 2014.
3.	Chuchard Punsawad, Yaowapa Maneerat, Urai Chaisri, Kwannan Nantavisai, Parnpen Viriyavejakul. Nuclear factor kappa B modulates apoptosis in the brain endothelial cells and intravascular leukocytes of fatal cerebral malaria. The Third Thailand National Research Universities Summit (ThaiNRU III), July 31-August 1, 2014 (Poster presentation).
4.	Patamaporn Molee , Poom Adisakwattana , Onrapak Reamtong, Songsak Petmitr , Sanya Sukpanichnant and Urai Chaisri. Validation of plasma membrane proteins expressed in invading hepathocellular carcinoma. TRF Seminar Series in Basic Research, September 24th, 2014. Joint International Tropical Medicine Meeting2014, Centara Grand at Central World, Bangkok, Thailand, December 2-4, 2014.

DEPARTMENT OF TROPICAL PEDIATRICS	
International	
Poster	
1.	Sitcharungsi R, Chaicompa W, Pothiwat R, Samung Y, Benjaponpitak S, Manuyakorn W, Rerkpattanapipat T, Sirivichayakul C. Severe systemic hypersensitivity to ant among Thai children. E-poster Presentation, The 3rd Global Congress for Consensus in Pediatrics & Child Health, February 13-16, 2014, Millennium Hilton Hotel, Bangkok, Thailand
2.	Hattasingh W, Liulak W, Pengsaa K, Lawpoolsri S, Kaewkungwal J, Thisyakorn U. Evaluation of child vaccination coverage in the Bangkok Metropolitan Administration, 2012-2013. E-poster Presentation, The 3rd Global Congress for Consensus in Pediatrics & Child Health, February 13-16, 2014, Millennium Hilton Hotel, Bangkok, Thailand
3.	Hattasingh W, Thisyakorn U. Dengue virus infections during infancy. Poster Presentation, The 7th Asian Congress of Pediatric Infectious Diseases (ACPID 2014), October 12-15, 2014, Beijing International Convention Center (BICC), Beijing, China

Research in Progress

FACULTY OF TROPICAL MEDICINE RESEARCH PROJECTS FISCAL YEAR 2014 (1 October 2013 - 30 September 2014)

No.	Research Title	Grant	Principal investigator
Department of Clinical Tropical Medicine			
1	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
2	Effect of primaquine and its metabolite on the infectivity of *P. falciparum* gametocyte : validation technique	Wellcome Trust of Great Britain	Assoc. Prof. Kesinee Chotivanich
3	Bioequivalence study of 4 mg Perindopril tablets preparations in healthy Thai male volunteers	International Bio Service Co., Ltd	Assist. Prof. Weerapong Phumratanaprapin
4	Measurement of anogenital wart burden, and cost of illnesses in Bangkok	Merck Research Foundation	Prof. Punnee Pitisuttithum
5	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
6	VNTR-based PCR (VNTR Typing for *Plasmodium falciparum* and *Plasmodium vivax*	Biotech	Assoc. Prof. Mallika Imwong
7	Molecular characterization of drug resistance in the Human malarias	Intermediate level fellowship, Welcome Trust of Great Britain	Assoc. Prof. Mallika Imwong
8	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
9	Detection of artemisinin resistance *P. falciparum: in vitro*	Mahidol-Oxford Tropical Medicine Research Unit	Assoc. Prof. Kesinee Chotivanich
10	Safety and efficacy study of *Impomea pes-caprae ointment* produced by Faculty of Tropical Medicine	Faculty of Tropical Medicine, Mahidol University	Dr. Watcharapong Piyaphanee
11	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
12	Safety, Immunogenicity and Efficacy Studies of WRSS1, a Live Attenuated *Shigella sonnei* Vaccine Candidate, in Healthy Thai Adults	Merck & Co., Inc	Prof. Punnee Pitisuttithum
13	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	Ms. Vorada Choovichian

No.	Research Title	Grant	Principal investigator
Department of Clinical Tropical Medicine (*Continued*)			
14	Novel invention of induced pluripotent stem cells for prediction of drug toxicity in human	Government Budget	Assist. Prof. Apichart Nontprasert
15	Incidence and spectrum of health problems among travels to Lao PDR	Department of Clinical Tropical Medicine and Travel Medicine Unit	Dr. Watcharapong Piyaphanee
16	Rabies exposure risk among foreign backpackers from non-ASEAN countries traveling in Southeast Asia	N/A	Dr. Watcharapong Piyaphanee
17	The efficacy of antimalarial treatment for *Plasmodium vivax* at Thai -Cambodia border, Thailand.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Mrs. Prakaykaew Charunwatthana
18	Etiology and outcome of acute fever cases attending Hospital for Tropical Diseases	Faculty of Tropical Medicine, Mahidol University	Ms. Viravarn Luvira
19	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	Ms. Vorada Choovichian
20	Plasma antioxidant power and vitamin C level in patients with dengue infection	Faculty of Tropical Medicine, Mahidol University	Dr. Borimas Hanboonkunupakarn
21	The study of chronic kidney disease in elderly	Mahidol University (Government Budget)	Asst. Prof. Weerapong Phumratanaprapin
22	The efficacy antimalarial *Plasmodium vivax* patient	Mahidol University (Government Budget)	Mrs. Prakaykaew Charunwatthana
23	Influenza vaccine in elderly	Mahidol University (Government Budget)	Prof. Punnee Pitisuttithum
24	Measurement of hemoglobin in adult patients with dengue viral infection using non-invasive method	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Supat Chamnanchanunt
25	Causative agents of fever among patients presenting at urban Thai hospital	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Udomsak Silachamroon
26	Hemodynamic parameters in adult patients with dengue	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assoc Prof. Vipa Thanachartwet
27	Construction and characterization of recombinant full-length enterovirus-71 and coxsackievirus A16 encoding green fluorescences protein (GFP) viruses and its application for pathogenesis studies	Faculty of Tropical Medicine, Mahidol University	Dr. Kobporn Boonnak

No.	Research Title	Grant	Principal investigator
Department of Clinical Tropical Medicine (*Continued*)			
28	Treatment seeking behavoirs of Dengue patients	Faculty of Tropical Medicine, Mahidol University	Ms. Viravarn Luvira
29	The prevalence and correlates of self - reported anxiety and depression: a cross – sectional study in pruritic skin diseases patients	Faculty of Tropical Medicine, Mahidol University	Ms. Vorada Choovichian
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	*Angiostrongylus cantonensis* in freshwater snails collected from 18 different localities of Thailand: prevalence and parasitic burden, biochemical components, antigenicity and population genetics	Mahidol University (Government Budget)	Assoc. Prof. Chalit Komalamisra
4	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
5	Identification and characterization of Trichinella spiralis-derived immunomodulatory molecules for novel therapies of inflammatory diseases	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Poom Adisakwattana
6	Experimental Co-infection study of high virulence pathogenic Leptospira in Helminth infected Hamster	Faculty of Tropical Medicine, Mahidol University	Mr. Kittipong Chaisiri
7	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	Assist. Prof. Poom Adisakwattana
8	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
9	Production of recombinant Cathepsin L from *Paragonimus pseudoheterotremus* for diagnostic development of paragonimiasis	The Thailand Research Fund and Mahidol University	Dr. Tippayarat Yoonuan
10	Separation of *Toxocara* excretory-secretory antigens as a diagnostic antigens for human toxocariasis	National Science and Technology Development Agency	Dr. Dorn Watthanakulpanich
11	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 Helminthology (*Continued*)			
12	Proteomics and immununomics analysis of excretory-secretory products from infective Gnathostoma spinigerum for development of immunodiagnosis	Faculty of Tropical Medicine, Mahidol University	Mrs. Supaporn Nuamtanong
13	Pilot study: community-based comprehensive, multi-disciplinary surveillance of enteric/food and waterborne pathogens in Kanchanaburi and Nakhon Pathom Provinces, Thailand. (Pathogenic intestinal parasites, bacteria, enteric virus and insects)	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Chalit Komalamisra
14	Transcriptomics and proteomics analysis of potential secretory proteins of Schistosoma Mekongi for development of immunodiagmosis and vaccine	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Poom Adisakwattana
15	Study on the effect of phytochemical compounds in Stemona root from Thailand to *Gnathostoma spinigerum*	Agricultural Research Development Agency (Public Organization) : ARDA	Dr. Urusa Thaenkham
Department of Medical Entomology			
1	Feeding behavior, ecological studies, and molecular identification of *Anopheles dirus* complex in man-habitat	Faculty of Tropical Medicine, Mahidol University	Dr. Sungsit Sungwornyothin
2	Study of genetic variation for identification of mosquitoes in Thailand by malecular techniques	The Thailand Research Fund	Assist. Prof. Jiraporn Ruangsittichai
3	Tropic bebavior and ecological characteristics of *Anopheles dirus* complex in man-made habitat	The Thailand Research Fund	Dr. Sungsit Sungwornyothin
4	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
5	Proteomic profile associated with pyrethroid resistance in *Ades aegypti*	The Thailand Research Fund and Mahidol University	Dr. Raweewan Srisawat
6	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
7	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
8	Effect of temperature on development and insecticide susceptibility of dengue vectors.	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Narumon Komalamisra
9	Application of morphometrics and molecular biology to identify *Ae. scutellaris* in Thailand	Faculty of Tropical Medicine, Mahidol University	Dr. Suchada Samruaypol

No.	Research Title	Grant	Principal investigator
Department of Medical Entomology (*Continued*)			
10	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
11	The effects of different temperatures on the interaction between Aedes Mosquitoes and Dengue Virus especially Viral Susceptibility, Dissemination, Transmission and Disease Pathogenesis.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Supatra Thongrungkiat
12	*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
13	Exploring transmission-blocking vaccine target in *Anopheles dirus* for inhibition of malaria transmission	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Patchara Srivichai
14	Production and characterization of rhamnolipid, biosurfactant, trom *Pseudomonas aeruginosa* B189 for mosquitoes control	Faculty of Tropical Mecicine, Mahidol University	Dr. Siriluck Attrapadung
15	Molecular identification of Endosymbiotic bacteria from Bat Bugs (*Leptocimex inordinatus*)	Faculty of Tropical Mecicine, Mahidol University	Dr. Rutcharin Potiwat
16	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
17	Detection of viral disease and molecular distinguish of the natural Bat Bug species from the cave	Mahidol University	Dr. Rutcharin Potiwat
18	Stability enhancement of mosquito repellency from Zngthoxy limonella oil by using encapsulation technique	Mahidol University	Dr. Siriluck Attrapadung
19	Identification of transmission-blocking compounds from the Malaria Box	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Suchada Sumruaypol
20	Herbal Mosquito Repellents Masts	Faculty of Tropical Mecicine, Mahidol University	Mrs. Keawmala Palakul
21	A surveillance of Bat Bugs species and Discovery of genetic relationships among human Bed Bug	Faculty of Tropical Mecicine, Mahidol University	Dr. Rutcharin Potiwat
22	Study of the physiological sensitivity to chemical stimuli in different species of mosquitoes	Kao Corporation, Japan	Assoc. Prof. Narumon Komalamisra

No.	Research Title	Grant	Principal investigator
Department of Microbiology and Immunology			
1	Genotypic Diversity and the ability to invade host cell among environmental *Legionella isolates* in Thailand	Mahidol University (Government Budget)	Assist. Prof. Tareerat Kalambaheti
2	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	Assoc. Prof. Narisara Chantratita
3	Genetic polymorphisms in HIV infected patients receiving antiretrovaral therapy	The Thailand Research Fund	Prof. Srisin Khusmith
4	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
5	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	Assist. Prof. Nitaya Indrawattana
6	Genetic diversity of *Brucella strains* isolated from cow and goat farm	Mahidol University (Government Budget)	Assist. Prof. Tareerat Kalambaheti
7	Inhibiton of *Aeromonas hemolysin* by monoclonal antibodies	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Yuwadee Mahakunkijjaroen
8	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
9	Gemomic approaches to metabolite exploitation from Xenorhabdus, Photorhabdus	Johann Wolfgang Goethe Universitaet Frankfurt Am Main	Assoc. Prof. Narisara Chantratita
10	Holistic approach to malaria prevention and management: from bio-molecular to community research	The Commission on Higher Education (National Research University)	Prof. Srisin Khusmith
11	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
12	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 Kosoltanapiwat
13	*In vitro* activity of *Psidium guajava* crude extracts against clinically isolated pathogenic fungi	Faculty of Tropical Mecicine, Mahidol University	Assist. Prof. Natthanej Luplertlop

No.	Research Title	Grant	Principal investigator
Department of Microbiology and Immunology (*Continued*)			
14	Immunoproteomics for identification of MHC class I-restricted epitopes of enterovirus 71	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Nathamon Kosoltanapiwat
15	Ultrasonic observation and 'Omics technological application for invasive virulence factors identification, cytokines and secreted extracellular reactive oxygen species expression that provokes the pathogenesis of Trichophyton rubrum in primary dendritic cells and continuous monocyte derived cells model	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Natthanej Luplertlop
16	The antibiotic resistance profile and its mechanisms in *Escherichia coli* and *Klebsiella pneumoniae* from hospital isolations in 2007-2012	Faculty of Tropical Medicine, Mahidol University	Dr. Muthita Vanaporn
17	Detection of hepatitis E virus in raw pork, pig liver and pork products	Faculty of Tropical Medicine, Mahidol University	Mr. Narin Thippornchai
18	Development of monoclonal antibody-based dot-blot ELISA for the detection of Listeria monocytogenes in food	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Nitaya Indrawattana
19	Determination of antibody titer among children vaccinated with heptavalent pneumococcal conjugate vaccine by Opsonophagocytic Killing Assay	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Tareerat Kalambaheti
20	The potential implications of Nisin in common dermatological problems on the *in vitro* characterizations	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Natthanej Luplertlop
21	Variation of *Burkholderia pseudomallei* lipopolysaccharide and impact on innate immune response	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Narissara Chantratita
22	Role of biofilm in antifungal drug resistance in *Aspergillus fumigatus* and other species	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Natthanej Luplertlop
23	Analysis of protein profiling, virulence and immune activation of *Burkholderia pseudomallei* isolated from blood culture during the passages	Faculty of Tropical Medicine, Mahidol University	Dr. Pornpan Pumirat
Department of Molecular Tropical Medicine and Genetics			
1	Proteomics profile of cholangiocarcinoma cell line treated with isoflavones and its derivatives	Mahidol University	Dr. Charin Thawornkuno
2	The study of biotransformation of oseltamivir analogue by Carboxylesterase 1 (CES1).	Faculty of Tropical Medicine, Mahidol University	Dr. Usa Dokprom Boonyuen
3	The qualification and quantification of proteins of mefloquine resistant *Plasmodium falciparum*	Mahidol-Oxford Tropical Medicine Research Unit	Dr. Onrapak Riumthong

No.	Research Title	Grant	Principal investigator
Department of Molecular Tropical Medicine and Genetics (*Continued*)			
4	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
5	Optimization of protein sample preparation techniques for proteomic study of *Plasmodium vivax* in liver stage	Faculty of Tropical Medicine, Mahidol University	Dr. Supachai Topanurak
6	Development of Antigens-base immunodiagnosis test for acute febrile illness caused by *Leptospira* spp.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Santi Maneewatchararangsri
7	Molecular detection of *Burkholderia pseudomallei* in crude soil sample for environmental survey	Li Ka Shing Foundation - University of Oxford Global Health Foundation	Assist. Prof. Piengchan Sonthayanon
8	Molecular study of antimalarial drug target genes in *Plasmodium malariae* and *Plasmodium ovale* from infected patients in Thailand	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Naowarat Tanomsing
9	Molecular characterization of drug resistance in *P. vivax*.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Mallika Imwong
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	Assist. Prof. Piengchan Sonthayanon
11	Prevalence of pathogenic *Leptospira* spp. from rodents in Thailand	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Piengchan Sonthayanon
12	Effect of additional mutation (Mahidol) in G6PD Viangchan	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Usa Dokprom Boonyuen
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
14	Molecular epidemiology of drug resistance in human malarias in Thailand	Mahidol University (Government Budget)	Assoc. Prof. Mallika Imwong
15	Discoery of Lipid Acquisition Machinery of Plasmodium in Liver Stage with Host-Parasite Interactome Technology for New Antimalarial Targeting	National Science and Technology Development Agency (NSTDA)	Dr. Supachai Topanurak
16	Development of magnetic nanoparticles as the prototype for the enrichment of *Leptospira* spp.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol Universityy	Dr. Charin Thawornkuno

No.	Research Title	Grant	Principal investigator
Department of Molecular Tropical Medicine and Genetics (*Continued*)			
17	Molecular characterization of antigenic surface protein genes of *Plasmodium malariae*	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol Universityy	Dr. Naowarat Tanomsing
18	Discovery of essential host factors for the development of *P. falciparum* and *P. vivax* in liver stage	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol Universityy	Dr. Supachai Topanurak
19	Expression profiling of reticulocyte binding proteins of *Plasmodium vivax*	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol Universityy	Dr. Wang Nguitragool
20	Elucidating the function of plasmodium perforin-like proteins in infection of *Anopheles* mosquitoes	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol Universityy	Dr. Wang Nguitragool
21	Transfection of liver-stage *Plasmodium vivax* for studies of parasite biology, drug screening, and vaccine development	The Thailand Research Fund	Dr. Wang Nguitragool
22	Identification of novel biomarker genes for cholangiocarcinoma detection	Faculty of Tropical Medicine, Mahidol University	Dr. Panee Chaksangchaichot
23	Molecular detection and typing of *Orientia tsutsugamushi* in chigger mites from wild-caught rodents in Thailand	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Piengchan Sonthayanon
24	The identification and characterization of the target proteins of a candidate antimalarial drug	Faculty of Tropical Medicine, Mahidol University	Dr. Onrapak Riumthong
25	Elucidating the mechanism of reticulocyte-specific invasion by *Plasmodium vivax*	Wellcome Trust of Great Britain	Dr. Wang Nguitragool
26	Biochemical characterization of the most common G6PD variants in Thailand	Mahidol University	Dr. Usa Dokprom Boonyuen
27	Roles of the cytoplasmic domain of reticulocyte binding protein homologs of malaria parasites	Mahidol University : Talent Management	Dr. Wang Nguitragool
28	Use of mapl and csp DNA sequences as genetic markers for *P. ovale* curtisi and *P. ovale* wallikeri	Mahidol University : Talent Management	Dr. Naowarat Saralamba
29	Characterization of IgM/IgG-specific LipL32 immunodominant epitopes of *Leptospira* spp.	Faculty of Tropical Medicine, Mahidol University	Dr. Santi Maneewatchararangsri
30	Identification of host proteome caused by human papillomavirus (HPV) E7 protein interaction for host-virus interaction study	Faculty of Tropical Medicine, Mahidol University	Dr. Supachai Topanurak

No.	Research Title	Grant	Principal investigator
Department of Protozoology			
1	*Toxoplasma gondii* genotyping in domestic and wild felids in Thailand	Commission on Higher Education	Prof. Yaowalark Sukthana
2	Molecular characterization of *Plasmodium falciparum* polynucleotide kinase	The Thailand Research Fund	Assoc. Prof. Porntip Petmitr
3	PCR assays for detection of *Toxoplasma gondii* in Thai commercial meat products	Mahidol University	Ms. Rachatawan Chiabchalard
4	Molecular characterization of DNA polymerase δ of *Plasmodium falciparum* and Its role in DNA peplication and DNA repair	Biotech	Assoc. Prof. Porntip Petmitr
5	Development of intestinal protozoan diagnosis by Multiplex Real Time PCR	The National Research Concil of Thailand	Ms. Rachatwan Chiabchalard
6	Identifying the Sources of Environmental Contamination by *Cryptosporidium*	The Thailand Research Fund	Prof. Yaowalark Sukthana
7	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
8	Development Technique of Differentiation of Free-living Amoebae	The Thailand Research Fund	Prof. Yaowalark Sukthana
9	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	Prof. Yaowalark Sukthana
10	The Detection and Quantification of *Toxoplasma gondii* Captive Wildlife in Thailand	Department of Protozoology	Dr. Ongart Mahitikorn
11	Development of a loop-mediated isothermal amplification (LAMP) for rapid identification of *Naegleria fowleri*	Faculty of Tropical Medicine, Mahidol University	Dr. Ongart Mahitikorn
12	Development of nested PCR and real-time PCR assays for diagnosis of *Plasmodium knowlesi*	Faculty of Tropical Medicine, Mahidol University	Mr. Pongrut Ratprasert
13	Development of differential diagnosis of *Entamoeba histolytica*, *E. moskovskii*, and *E. dispar* by specific monoclonal antibodies	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Saengduen Moonsom
14	Antiprotozal acitivity of essential oil from Thai Medical plants against *Giardia duodenalis*	Mahidol University	Dr. Supaluk Popruk
Department of Social and Environmental Medicine			
1	Development of Microorganism Killing Activity for Electronic Air Filter	The Thailand Research Fund	Assoc. Prof. Pongrama Ramasoota
2	Development of monoclonal antibody specific to 3 ABC protein of foot and mouth disease virus using phage display technology	The Thailand Research Fund	Assoc. Prof. Pongrama Ramasoota

No.	Research Title	Grant	Principal investigator
Department of Social and Environmental Medicine (*Continued*)			
3	Effect of climate change on Gastro-intestinal Infectious Diseases	The Commission on Higher Education (National Research University)	Assist. Prof. Suwalee Worakunpiset
4	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
5	Therapeutic and diagnostic human monoclonal antibodies against Chikungunya virus.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Dr. Pannamtip Pitaksajakul
6	Public Health Assessment of the Nam Theun 2 dydroelectric dam, Laos	Bureau de Project de l' Institut Pasteur au Laos	Mrs. Pusadee Sri-aroon
7	Malacological Investigation of Nam Theun 2 Hydroelectric Project in Khammouane Province, Central Lao PDR (Phasell)	Bureau de Project de l' Institut Pasteur au Laos	Mrs. Pusadee Sri-aroon
8	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
9	Genetic variation of High susceptible and low susceptible snail intermediate host *Neotricula aperta*, from Mekong River, Nong Khai to blood fluke *Schistosoma mekongi*	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Dr. Yanin Limpanon
10	Epitope mapping of Neutralizing human monoclonal antibody against Dengue viruses	The Thailand Research Fund and Mahidol University	Assoc. Prof. Pongrama Ramasoota
11	Dengue vaccine development based on epitope from human monoclonal antibodies that nutrallized all 4 serotype of Dengue virus	National Research Consil of Thailand (NRCT)	Assoc. Prof. Pongrama Ramasoota
12	Social and Environmental Factors affecting The Preventive Behaviors of Dengue Hemorrhagic Fever	Faculty of Tropical Medicine, Mahidol University	Mr. Wiwat Wanarangsikul
13	Health Risk Assessment of Heavy Metals Contamination in the Environment near Industrial Estate Area, Ayutthaya	Faculty of Tropical Medicine, Mahidol University	Ms. Rachaneekorn Mingkhwan
14	Distribution and seasonal variation of *Neotricula aperta*, snail intermediate host of blood Fluke *Schistosoma mekongi*, along Mekong River, Thailand	Faculty of Tropical Medicine, Mahidol University	Dr. Yanin Limpanon
15	Reduction of ADE activity for neutralizing human monoclonal antibody against dengue virus by Fc modification	Faculty of Tropical Medicine, Mahidol University	Dr. Pannamthip Pitaksajjakul

No.	Research Title	Grant	Principal investigator
Department of Social and Environmental Medicine (*Continued*)			
16	Assessment of the carcinogenic potential of chemicals release from plastic food containers and packaging through cell transformation assay	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Suwalee Worakunpiset
17	Critical Proteins of Non-Alcoholic Fatty Liver Disease After Bisphenol A Exposure	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Prapin Tharnpoophasiam
18	Development of Rapid Immunochromatography strip test for Dengue virus	The Thailand Research Fund	Dr. Pannamthip Pitaksajjakul
19	Development of competitive ELISA test for differentiate between foot and mouth disease infected animal from vaccinated animal	The Thailand Research Fund	Assoc. Prof. Pongrama Ramasoota
20	Strengthen Research Collaboration on Dengue between Thailand and Lao PDR	Mahidol University (AEC)	Assoc. Prof. Pongrama Ramasoota
21	Contstruction of scFv antibody phage library and selection of dengue virus-specific monoclonal antibodies using phage display technology	Faculty of Tropical Medicine, Mahidol University	Ms. Hathairad Hananantachai
22	Dynamic Modeling of Loading Capacity for Fecal Coliform Bacteria of the Mekong River in Chaing Khong City, Chiang Rai Province	Asia Research Center, Chulalongkorn University	Assist. Prof. Voranuch Wangsuphachart
Department of Tropical Hygiene			
1	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	Prof. Srivicha Krudsood
2	Proteomics characterization of *Aedes aegypti*	Bourse Scholarship, IRD, France	Assist. Prof. Natthanej Luplerdlop
3	Evaluation of fosmidomycin, when administered concurrently to adult subjects with acute uncomplicated *Plasmodium malaria*	Jomaa Pharma GmbH, Hamburg, Germany	Prof. Srivicha Krudsood
4	Th1 and Th2 cytokine expression in common mosquito borne infected samples in Thailand	The Thailand Research Fund	Assist. Prof. Natthanej Luplerdlop
5	Role of phosphoinositide 3-kinase and matrix metalloproteinases induce chronic arthritis in Chikungunya pathogenesis	Faculty of Tropical Medicine, Mahidol University	Ms. Suntaree Sangmukdanun
6	Molecular techniques for identification of protective epitope and pathogenic peptides of LipL32 protein of *Leptospira* spp.	The Thailand Research Fund	Dr. Santi Maneewatcharangsri
7	Dynamics of microscopic and submicroscopic *P. falciparum* gametocytemia after early treatment of artesunate-mefloquine	The Thailand Research Fund	Dr. Saranath Lawpoolsri

No.	Research Title	Grant	Principal investigator
Department of Tropical Hygiene (*Continued*)			
8	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
9	Mathermatical modeling of optimal combinations of dengue diagnosis strategies	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Assist. Prof. Wirichada Panngam
10	Investigating Urine Protein Markers in Acute Renal failure Complicating Severe Malaria	The National Research Concil of Thailand	Assist. Prof. Natthanej Lublertlop
11	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
12	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
13	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
14	Effect of land use change on malaria transmission in Suanphung district Ratchaburi.	Faculty of Tropical Medicine, Mahidol University	Mr. Patiwat Sa-angchai
15	Forecasting model of malaria incidence with climate variables: a case study in Ratchaburi, Thailand.	Mahidol University	Dr. Ngamphol Soonthornworasiri
16	Integrated Studies of Epidemiological, Clinical, and Biomolecular Aspects of Dengue Virus	The Commission on Higher Education (National Research University)	Assoc. Prof. Pratap Singhasivanon
17	Study of lipopolysaccharide and biofilm formation in relapsing meliodosis	The Thailand Research Fund, Commission on Higher Education and Mahidol University	Assist. Prof. Direk Limmathurotsakul
18	Long-term continuous culture of *Plasmodium vivax* stages	University of South Florida, USA	Assoc. Prof. Pratap Singhasivanon/ Dr. Jetsumon Prachumsri
19	Mathematical modeling to design a preparedness plan for the emergence of leptospirosis due to flooding and other environmental changes in Thailand.	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Wirichada Panngam

No.	Research Title	Grant	Principal investigator
Department of Tropical Hygiene (*Continued*)			
20	Impact of diabetes mellitus on treatment response for tuberculosis among pulmonary tuberculosis patients in Upper North Thailand	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Saranath Lawpoolsri
21	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
22	DENFREE-Dengue Research Framework for Resisting Epidemics in Europe	Institute Pasteur, France	Assoc. Prof. Pratap Singhasivanon
23	Cell Phone-Based Vaccination Program for Stateless Children	Bill & Melinda Gates Foundation	Assoc. Prof. Jaranit Kaewkungwal
Department of Tropical Nutrition and 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	Mahidol University (Government Budget)	Prof. Songsak Petmitr
2	Development of health behaviors and nutritional status of the Tsunami victims in Phang-nga Province	Brescia University, Italy	Assoc. Prof. Karunee Kwanbunjan
3	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
4	Effect of torvoside in cholesterol synthesis in HepG2 cells	The Vejdusit Foundation	Ms. Anong Kitjaroentham
5	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
6	Diversities of related-genes and protiens in obese children with family history obese children with family history of obesity	Mahidol University (Government Budget)	Prof. Rungsunn Tungtringchitr
7	A novel *Solanum torvum* GH3 beta-glucosidase: molecular characterization, physiological functions, structural elements responsible for its natural substrate specificity, its applications	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Dumrongkiat Ar-tharn
8	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

No.	Research Title	Grant	Principal investigator
Department of Tropical Nutrition and Food Science (*Continued*)			
9	Study of Gambicin: anti-microbial peptides from *Culex quinquefasciatus*	Faculty of Tropical Medicine, Mahidol University	Dr. Apanchanid Thepouyporn
10	The study of methylation level in osteoporosis in menopause by pyrosequencing	Faculty of Tropical Medicine, Mahidol University	Dr. Pornrutsami Jintaridth
11	Case control study of diet, lifestyle, insulin resistance, inflammatory markers, and risk of developing type-2 diabetes mellitus in rural Thais	Dean's Research Fund, Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Karunee Kwanbunjan
12	Effect of lactic acid bacteria on immunomodulation of human colon cell against *Clostridium difficile* infection	Faculty of Tropical Medicine, Mahidol University	Dr. Amornrat Aroonnual
13	Survey of dietary pattern and nutritional status particularly multivitamin deficiencies in relation to cardiovascular disease and diabetes in Thai elderly	Faculty of Tropical Medicine, Mahidol University	Dr. Sarunya Kaewprasert
14	Identification of plant natural products with inhibition of recombinant mosquito alpha-glucosidase	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Damrongkiat Art-harn
15	Prospective study of diet, Life style, Insulin resistance, Inflammatory markers and Risk of Developing Type 2 Diabetes Mellitus in rural Thais	Mahidol University (Government Budget)	Assoc. Prof. Karunee Keanboonjan
16	The mathylation study in replicative periodontal cellular aging and gene expression modification in the development of novel treatment modalities	The Thailand Research Fund	Dr. Pornrutsami Jintaridth
17	Comparison of anti-HIV activity of plastocyanin protein from plants and cyanobacterium	The Thailand Research Fund	Dr. Apanchanid Thepouyporn
18	Health benefit effects of Mao-Luang (*Antidesma Bunius*) crude extract against cardiovascular disease in hyperlipidemic rats	Faculty of Tropical Medicine, Mahidol University	Dr. Pattaneeya Prangthip
19	DNA Methylation Signatures within the Human Brain Cell during Aging	Faculty of Tropical Medicine, Mahidol University	Dr. Pornrutsami Jintaridth
20	Effectiveness of β – glucan supplementation to interleukin-6, interleukin-10 and tumour necrosis factor-alpha levels in overweight and obese subjects	Core Chematis Co., Ltd., Thailand	Dr. Pattaneeya Prangthip
Department of Tropical Pathology			
1	Vascular model for atherosclerosis by ex vivo support system (EVVSS)	Mahidol University (Government Budget)	Assoc. Prof. Yaowapa Maneerat
2	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
3	Investigating Causes of Acute Renal Failure in Severe Malaria by Histopathology and Immunohistochemistry	The National Research Concil of Thailand	Assoc. Prof. Parnpen Viriyavejakul

No.	Research Title	Grant	Principal investigator
Department of Tropical Pathology (*Continued*)			
4	Induction of apoptosis in human peripheral blood mononuclear cells in vitro by excretory secretory products from the third stage *Gnathostoma spinigerum* larvae	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Yaowapa Maneerat
5	Gene expression profiles in volve in pathogenesis of atherosclerosis and acute coronary heart disease: A study in Thai patients	Mahidol University (Government Budget)	Assoc. Prof. Yaowapa Maneerat
6	Investigating endothelial cell permeability in severe *P. falciparum* malaria and exploring the role of sphingosine 1 phosphate as a therapeutic agent in protecting severe malaria complications	Faculty of Tropical Medicine, Mahidol University	Assoc. Prof. Parnpen Viriyavejakul
7	Comparison of Protein C System Expression in the Lung between Pulmonary Edema and Non Pulmonary Edema Cases in Severe (Falciparum) Malaria	Faculty of Tropical Medicine, Mahidol University	Dr. Sumate Ampawong
Department of Tropical Pediatrics			
1	Evaluation of long-term immunity against *Japanese encephalitis* in Children vaccinated with *Japanese encephalitis* Vaccine	Department of Tropical Pediatrics	Assoc. Prof. Pornthep Chanthavanich
2	Favirab™ post prescription event monitoring	Sanofi Pasteur Co., Ltd.	Assoc. Prof. Pornthep Chanthavanich
3	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
4	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
5	Efficacy and safety of Dengue vaccine in healthy children aged 4 to 11 years in Thailand (CYD23)	Sanofi Pasteur Co., Ltd.	Prof. Arunee Sabchareon
6	Protective Antibodies Against Erythrocyte Invasion Ligands in *Plasmodium falciparum* in Thailand	Faculty of Tropical Medicine, Mahidol University	Assist. Prof. Watcharee Chokejindachai
7	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
8	Accuracy assessment of using WHO criteria in diagnosis of dengue infection	Department of Tropical Pediatrics	Assoc. Prof. Pornthep Chanthavanich
9	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

No.	Research Title	Grant	Principal investigator
Department of Tropical Pediatrics (*Continued*)			
10	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
11	EPI coverage survey in Thai and foreign children, since birth to grade 6, in Bangkok	Mahidol University	Mrs. Weerawan Hattasingh
12	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	Assist. Prof. Raweerat Sitcharungsri
13	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 Pediatric Subjects (V89_11)	Novartis Thailand	Assoc. Prof. Pornthep Chanthavanich
14	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 Adult Subjects (V89_04)	Novartis Thailand	Assoc. Prof. Pornthep Chanthavanich
15	Burden of dengue infection in children and adults of Bang Phae distric, Ratchaburi province, Thailand	IVI, South Korea	Assoc. Prof. Pornthep Chanthavanich
16	A phase III, Stratified, Randomized, Double-blind, Multi-center study to evaluate safety, tolerability and non-inferior immunogenicity of adjuvanted quandrivalent subunit influenza virus vaccine to adjuvanted trivalent subunit influenza virus vaccines in children ages 6 month to <9 years	Novartis Thailand	Assoc. Prof. Pornthep Chanthavanich
17	A Phase II, open, randomized, control, multicenter study to assess the immunogenicity and reactogenicity of GSK Biologicals' meningococcal serogroups A, C, W-135, Y tetanus toxoid conjugate vaccine (MenACWY-TT) administered alone as compared to MenACWY-TT co-administered with GSK Biologicals' HPV vaccine Cervarix or co-administered with Cervarix and GSK Biologicals' tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine adsorbed (Tdap) (Boostrix) in female adolescents and young adults at 9-25 years of age	GlaxosmithKline (Thailand) Ltd.	Assoc. Prof. Pornthep Chanthavanich

No.	Research Title	Grant	Principal investigator
Department of Tropical Pediatrics (*Continued*)			
18	Long-Term Follow-Up of Hospitalized Dengue and Safety in Thai Children Who Were Included in an Efficacy Study of a Tetravalent Dengue Vaccine	Sanofi Pasteur Co., Ltd.	Assist. Prof. Kriengsak Limkittikul
19	A Phase I/II, Randomized, Observer-Blind, Multi-Center, Study to Evaluate Immunogenicity and Safety of Four Influenza Vaccine in Healthy Pediatric Subjects 6 to < 48 Months of Age Protocol No.V58P16	Novartis Thailand	Assoc. Prof. Pornthep Chanthavanich
20	Phase 3, Randomized, Open Label, Multicenter, Controlled Clinical Study to Evaluate Safety and Immunogenicity of a Rabies Vaccine Administered, with and without Human Rabies Immunoglobulin, Using the New "4-sites, 1-week" Intradermal Regimen for Postexposure Prophylaxis Compared to the Currently Recommended "2-sites, TRC" Intradermal Regimen in Children and Adults Subjects)" protocol no.V49_30	Novartis Thailand	Assoc. Prof. Pornthep Chanthavanich
21	A Double-Blind, Randomized, Placebo-Controlled, Age Descending and Expansion Phase 2 Study to Investigate the Safety and Immunogenicity of a Tetravalent Chimeric Dengue Vaccine in Healthy Volunteers Between the Ages of 1.5-45 years	Inviragen Inc., USA	Assoc. Prof. Chukiat Sirivichayakul
22	Detection of asymptomatic dengue infection in school children in Muang district, Ratchaburi province, and dengue serotype2-specific and cross reactive antibody	National Science and Technology Development Agency (NSTDA)	Assoc. Prof. Chukiat Sirivichayakul
23	A phase I/II randomized, observer-blind, controlled study to assess safety and immunogenicity of acellular Pertussis vaccine given alone or in combination with Tetanus-diphtheria vaccine in healthy adults aged 18-35 years	Bionet Asia co., Ltd., Thailand	Assoc. Prof. Chukiat Sirivichayakul
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	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
3	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

No.	Research Title	Grant	Principal investigator
Vaccine Trial Centre (*Continued*)			
4	Phase I safety and immunogenicity of live attenuated influenza H5 candidate vaccine strain A/17/ turkey/05/133 (H5N2) in healthy Thai volunteers	World Health Organization	Dr. Supachai Rueknga m/ Prof. Punnee Pitisuttithum
5	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 Rueknga m/ Prof. Punnee Pitisuttithum
6	Randomized, Double Blind Evaluation of Late Boost Strategies for HIVuninfected 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		Dr. Supachai Rueknga m/ Prof. Punnee Pitisuttithum
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
2	Development of an Invasion inhibition Assay for Vaccine Screening against *Plasmodium vivax*	Faculty of Tropical Medicine, Mahidol University	Dr. Wanlapa Roobsoong
3	Identification of Plasmodium species in oocysts of infected Anopheles mosquitoes	Faculty of Tropical Medicine, Mahidol University	Mr. Chalermpon Kumpitak
4	Discovery & validation of novel *P. vivax* antigens for identification and monitoring of transmission 'hot spots'	NIH	Dr. Jetsumon Prachumsri
5	Production of *P. vivax* infected mosquitoes to support *in vitro* liver-stage research	Bill & Melinda Gates Foundation	Dr. Jetsumon Prachumsri
6	Secretome of hepatocyte cell line (HC04) injected with *Plasmodium vivax*	Mahidol University : Talent Management	Dr. Rapatbhorn Patrapuvich
7	A mouse model for human malaria infection	Seattle Biomedical Research Institute, USA	Dr. Jetsumon Prachumsri
8	Development of cross-species synthetic saccharide vaccine for malaria	Walter and Eliza Hall Institute of Medical Research (WEHI), Australia	Dr. Jetsumon Prachumsri
9	Antibody Testing	Walter and Eliza Hall Institute of Medical Research (WEHI), Australia	Dr. Jetsumon Prachumsri
10	Investigation of infectivity of *P. vivax* sporozoite during development in mosquito's salivary glands	Faculty of Tropical Medicine, Mahidol University	Dr. Rapatbhorn Patrapuvich

No.	Research Title	Grant	Principal investigator
Center of Excellence for Antibody Research (CEAR)			
1	Development of scFv-antibodies against Rabies virus using phage display technology	Faculty of Tropical Medicine, Mahidol University	Mr. Surachet Benjathummarak
2	Epitope mapping of Neutralizing human monoclonal antibody against Dengue virus using Escape Mutant Strategy	Faculty of Tropical Medicine, Mahidol University	Ms. Sujitra Keadsanti
Malaria Research Center			
1	Development of scFv-antibodies against Rabies virus using phage display technology	Grand Challenges Canada, Canada	Assist. Prof. Thanat Chookajorn

Bangkok School of Tropical Medicine

NEW ENROLLMENTS 2014

NAME - SURNAME	COUNTRY
D.T.M. & H. 2014	
1. Dr. MD Rofiqur Rahman	Bangladesh
2. Dr. Kresnawati Wahyu Setiono	Indonesia
3. Dr. Nazuna Mizuno	Japan
4. Dr. Kazuhisa Yokota	Japan
5. Dr. Yoshiro Hadano	Japan
6 Dr. Aya Yumino	Japan
7. Dr. Kaori Ohara	Japan
8. Dr. Nant The Su Mon	Myanmar
9. Dr. Nyan Oo	Myanmar
10. Dr. Kyaw Swar Oo	Myanmar
11. Dr. Win Mo Mo	Myanmar
12. Dr. Aung Myint Thu	Myanmar
13. Dr. Kyi Maw Than	Myanmar
14. Dr. Sanjaya Acharya	Nepal
15. Dr. Anup Bastola	Nepal
16. Dr. Shakil Ibrahim	Pakistan
17. Dr. Supawat Chatchen	Thailand
18. Dr. Daniel Youkee	United Kingdom
19. Dr. Matthew Ryan Campbell	USA
D.B.H.I. 2014	
1. Ms. Mikiko Sasayama	Japan
2. Mr. Sai Hseing Pha	
3. Mr. Chris Erwin G. Mercado	
4. Mr. Darius R. Dela Cruz	
M.C.T.M. 2014	
1. Dr. Lapakorn Chatapat	Thailand
2. Dr. Wasin Matsee	Thailand
3. Dr. Kresnawati Wahyu Setiono	Indonesia
4. Dr. Yoshiro Hadano	Japan
5. Dr. Nant The Su Mon	Myanmar
6. Dr. Nyan Oo	Myanmar
7. Dr. Kyaw Swar Oo	Myanmar
8. Dr. Win Mo Mo	Myanmar
9. Dr. Aung Myint Thu	Myanmar
10. Dr Kyi Maw Than	Myanmar
11. Dr. Sanjaya Acharya	Myanmar

NAME - SURNAME	COUNTRY
M.C.T.M. 2014 (Cont.)	
12. Dr. Anup Bastola	Nepal
13. Dr. Hariharan Subramony	Singapore
14. Dr. Ga young Lee	South Korea
15. Dr. Tobias Karl Brummaier	Austria
16. Dr. Andrea Danielle Allgower	Switzerland
M.C.T.M. (Tropical Pediatrics) 2014	
1. Dr. Nazuna Mizuno	Japan
2. Dr. Kaori Ohara	Japan
3. Dr. Shakil Ibrahim	Pakistan
M.Sc. (Trop.Med.) 2014	
1. Mr. Wiriya Mahikul	Thailand
2. Miss Taksaon Duangurai	Thailand
3. Mr. Suntorn Sudsandee	Thailand
4. Miss Porntida Kobpornchai	Thailand
5. Mr. Pongpun Suwannachat	Thailand
6. Mr. Thekhawet Weluwanarak	Thailand
7. Miss Pornpisut Sriworanun	Thailand
8. Mr. Nopadol Precha	Thailand
9. Mr. Thanawan Pholsonglhram	Thailand
10. Mr. Eakanan Nitiyamatawat	Thailand
11. Miss Ubonwan Jaihan	Thailand
12. Miss Sitang Maknitikul	Thailand
13. Miss Preeyarat Malaithong	Thailand
14. Mr. Nattapon Simanon	Thailand
15. Mr. Kiatgawin Chatpiyaphat	Thailand
16. Miss Sutharinee Ngernna	Thailand
17. Mr. Aekkachai Tuekprakhon	Thailand
18. Miss Wilarat Puangmanee	Thailand
19. Miss Monthatip Sudsawang	Thailand
20. Ms. Alidha Nur Rakhmani	Indonesia
21. Ms. Nicharee Income	Thailand
M.Sc. (B.H.I.)	
1. Mr. Fazal Yamin	
2. Mr. Sreang Kosal	
3. Mr. Ma Shaojin	
4. Mr. Nana Suryana	

NEW ENROLLMENT 2014 (Continued)

NAME - SURNAME	COUNTRY
M.Sc. (B.H.I.) (Cont.)	
5. Mrs. Yadanar Aung	
6. Ms. Chanthavy Soulaphy	
7. Mr. Paul Adrian V. Pinlac	Philippines
8. Mrs. Nguyen Thi Linh Ha	Vietnam
9. Mr. Sharmake Hassan Ali	Somalia
10. Mr. Natdanai Thaipipat	Thailand
11. Mr. Lujisak Voradetwittaya	Thailand
12. Mrs. Wilasinee Salelanont	Thailand
Ph.D. (Trop.Med.) 2014	
1. Mr. San Suwanmanee	Thailand
2. Miss Sirijan Santajit	Thailand
3. Mr. Suthee Mangmee	Thailand
4. Mr. Pisit Pittapundu	Thailand
5. Mr. Nathaphat Harnkit	Thailand
6. Mr. Atapol Leetrakul	Thailand
7. Miss Sudaporn Kengkarn	Thailand
8. Miss Utsanee Supcharoengoon	Thailand
9. Miss Rawadee Kumlert	Thailand
10. Mr. Pathavee Waewwab	Thailand
11. Mr. Natapol Pumpuntu	Thailand
12. Miss Kanokwan Suwannarong	Thailand
13. Mr. Weerawat Phuklia	Thailand
14. Ms. Samorn Numpong	Thailand
15. Ms. Narumol Khomkhum	Thailand

NAME - SURNAME	COUNTRY
Ph.D. (Trop.Med.) 2014 (Cont.)	
16. Mr. Wissanupong kliengchuay	Thailand
17. Mr. Dusit Promrug	Thailand
18. Miss Sirilak Arthithanyaroj	Thailand
1.9 Mr. Pisit Pittapundu)	Thailand
20. Mr. Anek Kaewpan	Thailand
21. Ms. Sunna Vyatra Hutagalung	Indonesia
22. Mr. Myo Thiha Zaw	Myanmar
23. Mr. Komal Raj Rijal	Nepal
24. Ms. Norma Pinder	Bahamas
25. Miss Karnrawee Kaewkhao	Thailand
26. Mr. Palang Chotsiri	Thailand
27. Mr. Wiwatchai Chanbanchong	Thailand
28. Miss Yupawadee Pimpat	Thailand
29. Miss Thanaporn Wttanakul	Thailand
30. Miss Orawan Phuphisut	Thailand
31. Mr. Tanawat Chaiyaphongpachara	Thailand
32. Ms. Rapeepun Prasertbun	Thailand
33. Ms. Ai-rada Pintong	Thailand
34. Ms. Nipa Thammasonthijarern	Thailand
35. Ms. Arunwan Udomkasemsab	Thailand
36. Ms. Nipaporn Khamhlom	Thailand
Ph.D. (Clin.Trop.Med.) 2014	
1. Dr. Hisham Ahmed Imad	Maldives
2. Dr. Win Lai May	Myanmar

Graduates - Academic Year 2014

NAME - SURNAME	COUNTRY
Ph.D. (Trop.Med.)	
1. Dr. Hirotake Mori	Japan
2. Miss Chuenrutai Yeekian	Thailand
3. Miss Chonlatip Pipattanaboon	Thailand
4. Miss Duangjai Duangrithi	Thailand
5. Mr. Siriwat Akapirat	Thailand
6. Miss Pikun Thepsuriyanont	Thailand
7. Mrs. Amornrat Anuwatnonthakate	Thailand
8. Miss Supinya Thanapongpichat	Thailand

NAME - SURNAME	COUNTRY
Ph.D. (Trop.Med.) (Cont.)	
9. Miss Saithip Bhengsri	Thailand
10. Pol.Capt. Natsuda Jamornthanyawat	Thailand
11. Col Pasra Arnutti	Thailand
12. Mrs. Areerat Sa-Ngasang	Thailand
M.Sc. (Trop.Med.)	
1. Miss. Nataya Muenngern	Thailand
2. Miss Khwanchit Boonha	Thailand
3. Mr. Kasemsak Jandee	Thailand

Graduates - Academic Year 2014 (Continued)

NAME - SURNAME	COUNTRY
M.Sc. (Trop.Med.) (Cont.)	
4. Miss Ai-Rada Pintong	Thailand
5. Mr. Tenzin Wangdi	Bhutan
6. Mr. Saranyoo Sotawong	Thailand
7. Miss Hathai Nochot	Thailand
8. Miss Orawan Sungkhachat	Thailand
9. Miss Nattaka Chumsang	Thailand
10. Mr. Atcha Montree	Thailand
M.C.T.M.	
1. Dr. Mohammed Yasein Elamin Mohammed Ali	Sudan
2. Dr. Hisham Ahmed Imad	Maldives
3. Dr. Nestor S. Arce Jr.	Philippines
4. Dr. Thu Zar Myint Than	Myanmar
5. Dr. Min Thet Phyo San	Myanmar
6. Dr. Nang Noam Mo	Myanmar
7. Dr. Aye Thidar Kyaw	Myanmar
8. Dr. Taiichiro Kobayashi	Japan
9. Dr. Anastasia Putri	Indonesia
10. Dr. Myat Thu Soe	Myanmar
11. Dr. Ei Khine Kyaw	Myanmar
12. Dr. Zizawur Aye Maung	Myanmar
13. Dr. Takashi Ueji	Japan
14. Dr. Muhammad Luthfi Al Manfaluthi	Indonesia
M.C.T.M. (Tropical Pediatrics)	
1. Dr. Mya Yee Nyo	Myanmar
2. Dr. Kaung Zaw	Myanmar
M.Sc. (B.H.I.)	
1. Miss Sengphachanh Phienphommalinh	Lao PDR
2. Mr. Nguyen Trung Kien	Vietnam
3. Mrs. Win Min Thit	Myanmar

NAME - SURNAME	COUNTRY
M.Sc. (B.H.I.) (Cont.)	
4. Miss Khansoudaphone Phakhounthong	Lao PDR
5. Miss Siriporn Monyarit	Thailand
Ph.D. (Clin. Trop.Med.)	
1. Dr. Instiaty	Indonesia
2. Mrs Ayodhia Pitaloka Pasaribu	Indonesia
D.T.M. & H.	
1. Dr. Mohammed Yasein Elamin Mohammed Ali	Sudan
2. Dr. Ga Young Lee	Korea
3. Dr. Hisham Ahmed Imad	Maldives
4. Dr. Hariharan Subramony	Myanmar
5. Dr. Nestor Salcedo Arce Jr.	Philippines
6. Dr. Kaung Zaw	Myanmar
7. Dr. Nilar Htun	Myanmar
8. Dr. Mya Yee Nyo	Myanmar
9. Dr. Thuzar Myint Than	Myanmar
10. Dr. Min Thet Phyo San	Myanmar
11. Dr. Nang Noam Mo	Myanmar
12. Dr. Aye Thidar Kyaw	Myanmar
13. Dr. Ken Ito	Japan
14. Dr. Taiichiro Kobayashi	Japan
15. Dr. Kaku Tamura	Japan
16. Dr. Anastasia Putri	Indonesia
17. Dr. Oei, Stefani Yuanita Widodo	Indonesia
18. Dr. Md. Motahar Hossain	Bangladesh
19. Dr . Laura Amanda Francis	Canada
D.B.H.I.	
1. Miss Huiyu Lv	PR China
2. Mrs. Keokenechanh Haikham	Lao PDR
3. Mrs. Maria Corazon C. Dumlao	Philippines

Thematic Paper

Master of Science Program in Biomedical and Health Informatics
M.Sc. (Biomedical and Health Informatics)

DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Tropical Hygiene	Mr. Sai Hseing Pha 5738250 TMBI/M	Developing data visualization tools by using business intelligence application to monitor malaria drug resistance in Thailand	Asst.Prof. Dr. Saranath Lawpoolsri Niyom
Tropical Hygiene	Dr. Fazal Yamin 5738253 TMBI/M	Women's perception regarding the usage of mobile phones for supporting mother and child health (mch) in Afghanistan	Asst.Prof. Dr. Saranath Lawpoolsri Niyom
Tropical Hygiene	Mr. Sreang Kosal 5738254 TMBI/M	Data quality in influenza like illness (ILI) surveillance system in Cambodia	Assoc.Prof. Jaranit Kaewkungwal
Tropical Hygiene	Mr. Ma Shaojin 5738255 TMBI/M	Evaluation of the electronic malaria information system (eMIS) in Thailand	Assoc.Prof. Jaranit Kaewkungwal
Tropical Hygiene	Mr. Nana Suryana 5738256 TMBI/M	Evaluation of electronic medical record (EMR) used in public health center (PHC) in Indonesia	Assoc.Prof. Jaranit Kaewkungwal
Tropical Hygiene	Mrs.(Dr.) Yadanar Aung 5738257 TMBI/M	Predicting acute kidney injury (AKI) on intensive care unit (ICU) admission, Thailand; applications of data mining and logistic regression models	Asst. Prof. Dr. Wirichada Pan-ngum
Tropical Hygiene	Dr. Chanthavy Soulaphy 5738258 TMBI/M	Prediction of clinical factors associated with influenza like illness (ILI) and severe acute respiratory infection (SARI) in Lao PDR	Asst. Prof. Dr. Wirichada Pan-ngum
Tropical Hygiene	Dr. Paul Adrian V. Pinlac 5738259 TMBI/M	Interrupted time series analysis of premature mortality from noncommunicable disease among Filipinos	Lect. Dr. Ngamphol Soonthornworasiri
Tropical Hygiene	Mrs. Nguyen Thi Linh Ha 5738260 TMBI/M	Data quality and users' attitude toward using upprease software in Vietnam	Assoc.Prof. Jaranit Kaewkungwal
Tropical Hygiene	Mr. Sharmake Hassan Ali 5738261 TMBI/M	User acceptance for electronic disease early warning system in Puntland State of Somalia	Asst. Prof. Dr. Wirichada Pan-ngum
Tropical Hygiene	Dr. Lujisak Voradetwittaya 5738520 TMBI/M	Forecast of patient visits at Chaloermphrakiat Hospital, Nan, Thailand	Lect. Dr. Ngamphol Soonthornworasiri
Tropical Hygiene	Mr. Natdanai Thaipipat 5738521 TMBI/M	User acceptance of Thai medicines terminology (TMT) adoption in hospitals of Thailand	Asst.Prof. Dr. Saranath Lawpoolsri Niyom
Tropical Hygiene	Mrs. Wilasinee Salelanont 5738522 TMBI/M	Data quality of the health care reporting standard data among primary care facilities, provincial health offices and the national health security office	Lect. Dr. Ngamphol Soonthornworasiri

Thesis Paper

DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Protozoology	4737003 TMTM/D Miss Ruangrat Buddhirongawatr	*Toxoplasma gondii* genotyping in domestic and wild felids in Thailand	Prof. Yaowalark Sukthana
Clinical Tropical Medicine	4737536 TMTM/D Dr. Srivicha Krudsood	New method for measurement of red blood cell destruction in malaria	Prof. Polrat Wilairatana
Medical Entomology	4837561 TMTM/D Miss Namtip Trongnipatt	Analysis of transcriptome and proteome of *Plasmodium vivax* sporozoite in anopheles dirus mosquito	Assoc. Prof. Chamnan Apiiwatanasorn
Protozoology	5036135 TMTM/D Miss Jitlada Vasuvat	Biochemical and functional characterization of *Plasmodium falciparum* DNA polymerase & catalytic subunit	Assoc. Prof. Porntip Petmitr
Clinical Tropical Medicine	5101168 TMTM/D Miss Rawipun Worasathit	Acceptability of an influenza vaccine among the elderly in Bangkok, Thailand	Prof. Punnee Pitisuttithum
Helminthology	5137442 TMTM/D Miss Kanokkarn Pothong	Analysis of paragonimus heterotremus specific antigen prepared by CDNA cloning for serodiagnosis of human paragonimiasis in Thailand	Assoc.Prof. Paron Dekumyoy
Social and Environmental Medicine	5138448 TMTM/D Maj. Jittima Hirunrussamee	Translocation of chemical residues from agriculture to ecosystem and potential health hazard in rose farmers in Phop Phra District, Tak Province.	Assoc. Prof. Waranya Wongwit
Microbiology and Immunology	5237217 TMTM/D Miss Khurawan Kumkrong	Multiple locus variable number tandem repeat analysis (MLVA) for typing brucella isolates	Asst. Prof. Thareerat Kalambaheti
Clinical Tropical Medicine	5237218 TMTM/D Miss Narumon Chanwimalueang	A study to evaluate effectiveness of twisting tourniquet decongestive technique in lymphedema patients	Lect. Wichai Ekataksin
Clinical Tropical Medicine	5237221 TMTM/D Miss Ingfar Soontarawirat	Genotyping of individual *Plasmodium vivax* oocyst and linkage analysis of g-6-pd versus color blindness gene	Assoc. Prof. Mallika Imwong
Medical Entomology	5237224 TMTM/D Mr. Boonruam Chittsamart	Population dynamics of phlebotomine sandflies inhabiting a swiftlet cave on isolated islands in Chumphon Province	Lect. Suchada Sumruayphol
Tropical Nutrition and Food Science	5237298 TMTM/D Miss Sivaporn Wannaiampikul	The variations of melanocortin-3 receptor (mc3r) and melanocortin-4 receptor (mc4r) genes in obese children and their relatives	Prof. Rungsunn Tungtrongchitr
Medical Entomology	5237728 TMTM/D Miss Thipruethai Phanitchat	Influencing of temperature to life history and some antimicrobial peptides gene expression of *Ae. albopictus* in Thailand	Lect. Sungsit Sungvornyothin

Thesis Paper (Continued)

DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Clinical Tropical Medicine	5237729 TMTM/D Miss Supatchara Nakeesathit	Isolation and characterization of the merozoite surface protein family from *P. malaraie*	Assoc. Prof. Mallika Imwong
Protozoology	5237730 TMTM/D Miss Paviga Limudomporn	Molecular characterization of *Plasmodium falicparum* ATP-dependent DNA helicase	Assoc. Prof. Porntip Petmitr
Tropical Nutrition and Food Science	5237731 TMTM/D Mr. Nopphanath Chumpathat	Nutritional assessment by anthropometry in Thai adults and height estimated equations development	Assoc. Prof. Karunee Kwanbunjan
Medical Entomology	5336043 TMTM/D Mr. Narenrit Wamaket	Development of insect growth regulator microcapsule formulations for *Aedes aegypti* control	Lect. Siriluck Attrapadung
Social and Environmental Medicine	5336046 TMTM/D Miss Woranich Hinthong	Influence of temperature on virulence of enteroaggregative escherichia coli	Asst. Prof. Suwalee Worakhunpiset
Medical Entomology	5336050 TMTM/D Miss Arunrat Thepparat	Fauna of culicoides and leptoconops in Trang province with special emphasis on seasonal prevalence and molecular identification	Assoc. Prof. Chamnan Apiiwatanasorn
Tropical Nutrition and Food Science	5336051 TMTM/D Miss Sirikul Kulanuwat	Effects of proprotein convertase subtilisin/ kexin type 1 gene variations on obesity and biochemical profiles of obese Thai children; family-based study	Prof. Rungsunn Tungtrongchitr
Tropical Hygiene	5336053 TMTM/D Miss Wilawan Somsong	Adverse drug reactions and treatment outcomes in the elderly pulmonary tuberculosis patients	Assoc. Prof. Jaranit Kaewkungwal
Tropical Hygiene	5336054 TMTM/D Miss Jareonsri Satung	The effect of diabetes mellitus on response to tuberculosis treatment among new pulmonary tuberculosis patients in Upper North Thailand	Asst. Prof. Saranath Lawpoolsri
Tropical Pathology	5336055 TMTM/D Miss Patamaporn Molee	Identification of plasma membrane associated proteins expressed in invading hepatocellular carcinoma	Asst. Prof. Urai Chaisri
Helminthology	5337896 TMTM/D Mr. Bandid Mangkit	Identification of *Haemonchus* spp. from domestic ruminants in Thailand: based on morphological examinations and molecular techniques	Assoc. Prof. Chalit Komalamisra
Molecular Tropical Medicine and Genetics	5337897 TMTM/D Mr. Pannatat Areekul	Epitopes identification and affinity study of neutralizing human monoclonal antibodies against dengue virus	Assoc. Prof. Pongrama Ramasoota
Helminthology	5337898 TMTM/D Miss Sirilak Dusitsittipon	Genetic diversity and phylogeography of angiostrongylus species in Thailand	Asst. Prof. Urusa Thaenkham

Thesis Paper (Continued)

DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Protozoology	5337899 TMTM/D Miss Chantira Suttikornchai	"The role of Thai marine bivavles as a sentinel for monitoring food and water-borne protozoa"	Prof. Yaowalark Sukthana
Tropical Nutrition and Food Science	5337902 TMTM/D Miss Charunee Thiabpho	Effects of the intensive lifestyle modification program on weight management and metabolic syndrome components among obese women at Khonkaen Province	Assoc. Prof. Karunee Kwanbunjan
Tropical Nutrition and Food Science	5337903 TMTM/D Miss Wanida Chuenta	"Fat mass and obesity-associated (FTO) gene variation and obesity in Thai obese children and their relatives"	Prof. Rungsunn Tungtrongchitr
Clinical Tropical Medicine	5337905 TMTM/D Miss Somporn Saiwaew	Effects of low molecular weight heparin and antimalrial drugs on cytoadhesion of *Plasmodium falciparum*	Assoc. Prof. Kesinee Chotivanich
Clinical Tropical Medicine	5338179 TMTM/D Mrs. Tatiana Metcalf	Evaluation of diagnostic techniques in presumptive tuberculous meningitis patients with and without HIV infection	Prof. Sasithon Pukrittayakamee
Helminthology	5338864 TMTM/D Mr. Teera Kusolsuk	Taeniasis and cysticercosis solium : parasitological survey, immunological and molecular identification in Thasongyang District, Tak Province, Thailand.	Assoc. Prof. Chalit Komalamisra
Helminthology	5436328 TMTM/D Miss Issariya Ieamsuwan	Comparison of different sero - diagnosis for major human gnathostomiasis and study of immunoglobulin profile after post treatment	Assoc. Prof. Paron Dekumyoy
Tropical Hygiene	5436338 TMTM/D Mr. Komchaluch Taweeseneepitch	Dengue infection pattern among school absentees in Bangkok, Lopburi and Saraburi: cohort study	Asst. Prof. Saranath Saranath
Microbiology and Immunology	5436343 TMTM/D Miss Sarunya Maneerattanasak	Parasite molecular patterns and host immune response in relapse *Vivax malaria*	Prof. Srisin Khusmith
Microbiology and Immunology	5437625 TMTM/D Mr. Pongpun Sawatwong	The antibiotic resistance profile and its mechanism in escherichia coli and *Klebsiella pneumoniae* isolated from blood culture from Thailand during 2007-2012	Lect. Muthita Vanaporn
Social and Environmental Medicine	5438235 TMTM/D Miss Neelima Afroz Molla	Climate refugees : disease burden among children under 5 years old in slum communities of Dhaka, Bangladesh	Assoc. Prof. Waranya Wongwit
Tropical Nutrition and Food Science	5438739 TMTM/D Miss Supannee Kaewsutthi	Identification of the gene(s) associated with familial early-onset obesity in Thai children	Prof. Rungsunn Tungtrongchitr
Helminthology	5438740 TMTM/D Miss Nantana Suwandittakul	Proteomics studies of cytoplasmic membrane and lysosomal proteins expressed on TNF-& induced cholangiocarcinoma cell-line	Asst. Prof. Poom Adisakwattana

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DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Tropical Nutrition and Food Science	5536088 TMTM/D Mr. Surasak Chaikhiandee	The distribution of adiponectin gene variants and its protein in Thai type 2 diabetes.	Prof. Rungsunn Tungtrongchitr
Tropical Nutrition and Food Science	5536093 TMTM/D Mr. Chirawat Paratthakonkun	Nutritional status particularly folate and vitamin B12 deficiencies and genetic factors in relation to cardiovascular disease and diabetes in Thai elderly.	Asst. Prof. Dumrongkiet Arthan
Molecular Tropical Medicine and Genetics	5536094 TMTM/D Miss Krongkan Srimuang	Exploring the molecular mechanism of mefloquine resistance in *Plasmodium falciparum*.	Assoc. Prof. Mallika Imwong
Molecular Tropical Medicine and Genetics	5536095 TMTM/D Mr. Suttipat Srisutham	Molecular characterization of *Plasmodium malariae*: development of novel detection methodology and genetic variation in surface proteins.	Assoc. Prof. Mallika Imwong
Social and Environmental Medicine	5536096 TMTM/D Mr. Peerut Chienwichai	Effect of low concentration bisphenol a on lipid accumulation and redox proteome in HEPG2 cell line.	Asst. Prof. Prapin Tharnpoophasiam
Social and Environmental Medicine	5536101 TMTM/D Miss Subenya Injampa	Production of neutralizing human monoclonal antibody for four serotypes of dengue virus without enhancing activity and cellular immune response.	Lect. Pannamthip Pitaksajjakul
Microbiology and Immunology	5537183 TMTM/D Mr. Vichaya Suttisunhakul	Evaluation of improved methods for detection and identification of *Burkholderia pseudomallei* infection	Assoc. Prof. Narisara Chantratita
Microbiology and Immunology	5537185 TMTM/D Miss Sineenart Sengyee	Variation of *Burkholderia pseudomallei* lipopolysaccharide and impact on innate immune response	Assoc. Prof. Narisara Chantratita
Microbiology and Immunology	5537188 TMTM/D Mr. Chakkaphan Runcharoen	Molecular analysis of antibiotic - resistant bacteria isolated from patients, animal farms and the environment.	Assoc. Prof. Narisara Chantratita
Tropical Hygiene	5538155 TMTM/D Mr. Chan Nyein Maung	Empowering the community for malaria prevention and control in Mandalay Region Myanmar	Assoc. Prof. Jaranit Kaewkungwal
Microbiology and Immunology	5637841 TMTM/D Miss Atchareeya Anuegoonpipat	Antibody - dependent enhancement (ADE) phenomenon and related chemokines in clinic specimen and genotype distribution of dengue virus in Thailand	Asst. Prof. Pornsawan Leaungwutiwong
Master of Science in Tropical Medicine (M.Sc. (Trop.Med.)			
Helminthology	5237226 TMTM/M Mr. Sitthithana Adam	Sero-differentiation of creeping eruption and other parasite infections by indirect elisa and immunoblot	Assoc. Prof. Paron Dekumyoy
Tropical Pathology	5237726 TMTM/M Miss Klairoong Thonsranoi	The expression of synapsin I in cerebral malaria	Assoc. Prof. Parnpen Viriyavejakul

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DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Molecular Tropical Medicine and Genetics	5336038 TMTM/M Miss Benchawan Wihokhoen	Real-time PCR to detect bacterial co-infection in African children with malaria	Assoc. Prof. Mallika Imwong
Microbiology and Immunology	5336045 TMTM/M Mr. Witawat Tunyong	Antibody detection among children vaccinated with heptavalent pneumococcal conjugate vaccine by opsanophagocytic assay.	Asst. Prof. Thareerat Kalambaheti
Microbiology and Immunology	5337887 TMTM/M Miss Jittraporn Rattanamahaphoom	"*In vitro* studies on the mechanisms of vascular leakage in dengue hemorrhagic fever"	Asst. Prof. Pornsawan Leaungwutiwong
Protozoology	5337893 TMTM/M Miss Kanthinich Thima	Studies on *Plasmodium falciparum* gametocyte speccific proteins	Assoc. Prof. Porntip Petmitr
Tropical Hygiene	5338183 TMTM/M Dr. Tran Viet Anh	Pattern of drug use and sexual behavior among young males 15-24 years old in Quangninh Province, Vietnam	Assoc. Prof. Jaranit Kaewkungwal
Helminthology	5436337 TMTM/M Miss Pattarakul Pakchotanon	Identification and characterization of potential immunomodulatory molecules, serine protease inhibitors, from schistosoma mansoni	Asst. Prof. Poom Adisakwattana
Helminthology	5436340 TMTM/M Miss Siritavee Pornruseetriratn	Systematics of genus metagonimus katsurada, 1912 (digenea, heterophyidae) using molecular and morphological characteristics	Asst. Prof. Urusa Thaenkham
Microbiology and Immunology	5436342 TMTM/M Miss Wireeya Chawjiraphan	Multilocus sequence typing of *Brucella isolates* in Thailand	Asst. Prof. Thareerat Kalambaheti
Medical Entomology	5436344 TMTM/M Acting 1Lt Tatchai Subsuebwong	Insecticidal activities of piper retrofractum (VAHL.) against *aedes aegypti* (LINN.) And *Culex quinquefasciatus* (SAY).	Assoc. Prof. Narumon Komalamisra
Medical Entomology	5437621 TMTM/M Mr. Kirakorn Kiattibutr	Association of gametocyte density, in symptomatic and asymptomatic malaria populations, and infectivity to anopheles dirus	Lect. Patchara Sriwichai
Microbiology and Immunology	5437622 TMTM/M Miss Pimolpachr Sriburin	Predicting of dengue severity by immunodiagnostic assay, molecular detection and clinical data	Asst. Prof. Pornsawan Leaungwutiwong
Tropical Hygiene	5438231 TMTM/M Mr. Wai Yan Aung	Adherence to three days course of artemether-lumefantrine treatment in Myanmar	Assoc. Prof. Pratap Singhasivanon
Molecular Tropical Medicine and Genetics	5536100 TMTM/M 2LT Maneerat Kityapan	Development of immuno-magnetic nanoparticles as the prototype for enrichment of *Leptospira* spp.	Lect. Usa Boonyuen
Molecular Tropical Medicine and Genetics	5537190 TMTM/M Mr. Patthamaphong Jaiklom	Establishment of stable mammalian cell expression for large scale production of monoclonal antibodies against dengue virus and foot and mouth disease	Assoc. Prof. Pongrama Ramasoota

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DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Tropical Hygiene	5537191 TMTM/M Miss Nutchavadee Vorasan	Long-term impact of childhood malaria infection on school performance and anthropometric indices among schoolchildren in a malaria endemic area along the Thai-Myanmar border	Asst. Prof. Saranath Lawpoolsri
Microbiology and Immunology	5537192 TMTM/M Miss Natnaree Saiprom	Trimethoprim-sulfamethoxazole resistance in *Burkholderia pseudomallei* isolates from Thailand	Assoc. Prof. Narisara Chantratita
Microbiology and Immunology	5537910 TMTM/M Miss Manivanh Vongsouvath	Assessment of dengue real-time RT-PCR from rapid diagnostic test and filter paper to be used on samples from remote areas in Lao PDR	Lect. Nathamon Kosoltanapiwat
Clinical Tropical Medicine	5636938 TMTM/M Miss Jutarmas Olanwijitwong	Health problem among Thai tourists traveling to India.	Lect. Watcharapong Piyapanee
Tropical Nutrition and Food Science	5636953 TMTM/M Miss Lalitra Udomrak	Optimization for expression of *Culex quinquefasciatus* gambicin antimicrobial peptide and its application.	Asst. Prof. Dumrongkiet Arthan
Doctor of Philosophy Program in Cinical Tropical Medicine (Ph.D (Clinical Tropical Medicine)			
Tropical Pediatrics	5438806 TMCT/D Mr. C. Thu Win	Kinetic of dengue viral load and antigen and their predictive potentials of severe disease	Asst. Prof. Kriengsak Limkittikul
Clinical Tropical Medicine	5538156 TMCT/D Miss Aye Aye Win	Distribution of drug resistance associated genes of *Plasmodium falciparum* in Myanmar	Prof. Sasithon Pukrittayakamee
Clinical Tropical Medicine	5538157 TMCT/D Mr. Haruhiko Ishioka	Optimal fluid management in adult severe malaria-development of renal impairent and pulmonary edema in complicated malaria under conventional fluid strateg	Lect. Prakaykaew Charunwatthana
Clinical Tropical Medicine	5637148 TMCT/D Mrs. Rattanaphone Phetsouvanh	Clinical epidemiology and genetic diversity of scrub typhus in Lao PDR	Prof. Sasithon Pukrittayakamee
Clinical Tropical Medicine	5638628 TMCT/D Capt Chatchai Pruksapong	Leptin levels in patients undergoing liposuction	Asst. Prof. Supat Chamnanchanunt
Master of Cinical Tropical Medicine in Tropical Pediatrics (M.C.T.M. (Tropical Pediatrics)			
Tropical Pediatrics	5738683 TMCP/M Miss Kaori Ohara	Prevalence of zika virus in dengue - like syndrome in Thai children.	Asst. Prof. Watcharee Chokejindachai

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DEPARTMENT	NAME	TITLE OF THESIS	ADVISOR
Master of Cinical Tropical Medicine (M.C.T.M.)			
Clinical Tropical Medicine	5737134 TMCT/M Mr. Hariharan Subramony	Trends in chloroquine and primaquine efficacy in the treatment of *Vivax malaria* at Bangkok Hospital for Tropical Diseases.	Prof. Polrat Wilairatana
Clinical Tropical Medicine	5738669 TMCT/M Miss Gayoung Lee	Acceptability of microbicide gel as a new HIV prevention method among women at potentially high risk of hiv infection in Kanchanaburi, Thailand.	Prof. Punnee Pitisuttithum
Clinical Tropical Medicine	5738670 TMCT/M Mr. Tobias Brummaier	Clinical manifestations and treatment outcomes of scrub typhus in Umphang Hospital, Thailand.	Assoc. Prof. Yupaporn Wattanagoon
Clinical Tropical Medicine	5738671 TMCT/M Miss Allgower Andrea Danielle	The outcome of antimalarial treatment in Umphang Hospital, Tak Province, Thailand: a retrospective study	Lect. Prakaykaew Charunwatthana
Clinical Tropical Medicine	5738672 TMCT/M Miss Kresnawati Wahyu Setiono	Malaria infection in high risk people.	Prof. Sasithon Pukrittayakamee
Clinical Tropical Medicine	5738673 TMCT/M Mr. Yoshiro Hadano	Comparison of ceftazidime and carbapenem as therapy for patients with neurological or rheumatological melioidosis	Lect. Wirongrong Chierakul
Clinical Tropical Medicine	5738674 TMCT/M Miss Nant The Su Mon	Platelet indices monitoring in malaria infection	Assoc. Prof. Wattana Leowattana
Clinical Tropical Medicine	5738675 TMCT/M Mr. Nyan Oo	A retrospective study on the spectrum of diseases in foreign travelers that visited the Hospital for Tropical Diseases, Thailand	Lect. Borimas Hanboonkunupakarn
Clinical Tropical Medicine	5738676 TMCT/M Mr. Kyaw Swar Oo	A retrospective study on estimating malaria parasitemia by different formulas.	Prof. Polrat Wilairatana
Clinical Tropical Medicine	5738677 TMCT/M Miss Win Mo Mo	Warning signs to predict severe dengue in adult patients at hospital for tropical diseases, Thailand.	Asst. Prof. Weerapong Phumratanaprapin
Clinical Tropical Medicine	5738678 TMCT/M Mr. Aung Myint Thu	Nephrotoxicity from oral antiviral agents among chronic hepatitis B patients in hospital for tropical diseases.	Lect. Kittiyod Poovorawan
Clinical Tropical Medicine	5738679 TMCT/M Mr. Kyi Maw Than	Malaria and intestinal parasitic infections.	Prof. Sasithon Pukrittayakamee
Clinical Tropical Medicine	5738680 TMCT/M Mr. Sanjaya Acharya	Post exposure prophylaxis to prevent hiv infection among health care personnel at Kamphaeng Phet Hospital	Prof. Punnee Pitisuttithum
Clinical Tropical Medicine	5738681 TMCT/M Mr. Anup Bastola	Outcome of lopinavir/ ritonavir plus lamivudine as a maintenance therapy among HIV-1 infected thai adult patients.	Prof. Punnee Pitisuttithum

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