

**e-ASIA Joint Research Program (e-ASIA JRP)**  
**Joint Research Project in the field of “Health Research”**  
**on the topic of**  
**“Infectious Diseases, Antimicrobial and Multidrug Resistance, and Cancer**  
**Research”.**

It is our great pleasure to announce the selected projects of the e-ASIA Joint Research Program (e-ASIA JRP)\*<sup>1</sup> 8<sup>th</sup> Call for Proposals in the field of “Health Research” on the topic of “Infectious Diseases, Antimicrobial and Multidrug Resistance, and Cancer Research”.

A total of 38 proposals was submitted in response to the 8<sup>th</sup> joint call for proposals. After careful consideration based on the peer review results by the 11 funding organizations from 10 countries participating in the call\*<sup>2</sup>, the following 6 collaborative projects were selected for support with the approval of the e-ASIA JRP Board. Support to the projects will continue for three years.

**“The Predict-XDR Project: Predicting genetic markers for pre-XDR and XDR tuberculosis”**

to be conducted jointly by:

Philippines: Raul Destura, Deputy Executive Director, Philippine Genome Center (UP System)

USA: Midori Kato-Maeda, Associate Professor, University of California San Francisco

Japan: Satoshi Mitarai, Professor, Research Institute of Tuberculosis

This cooperative research project aims to identify novel markers that predict pre-extensively drug-resistant (pre-XDR) and XDR tuberculosis (TB). Genetic markers associated with fluoroquinolones (FQ) and second line injectables (SLI) resistance are incompletely characterized, contributing to the variable sensitivity of molecular assays. We will perform comparative genomic analyses to identify novel mutations and DNA-methylation patterns associated with FQ and SLI resistance.

**“An international platform for discovery of novel chemotypes against flaviviral infection”**

to be conducted jointly by:

Thailand: Sarin Chimnaronk, Assistant Professor, Mahidol University

Japan: Ryuichi Sakai, Professor, Hokkaido University

USA: Daniel Romo, Schotts Professor of Chemistry, Baylor University

This research project will establish a unique and modern pipeline for novel drug lead discovery for flaviviruses including dengue and Zika viruses. Goals of the project include collection of bioactive libraries from marine organisms, establishment of reliable high-throughput bioassays, structural and phenotypic validation of mechanisms of action, and chemical synthesis and modifications to identify pharmacophores and improve potency and selectivity.

**“Integrated application of human and pathogen genomic information for improvement of treatment outcome and control of drug-resistance in Asian tuberculosis patients”**

to be conducted jointly by:

Japan: Katsushi Tokunaga, Director, Genome Medical Science Project (Toyama), National Center for Global Health and Medicine (NCGM)

Thailand: Surakameth Mahasirimongkol, Medical Doctor, Ministry of Public Health

Philippines: Ma. Cecilia Ama, Head, Research Institute for Tropical Medicine

Indonesia: Rika Yuliwulandari, Dean, YARSI University

The integrated analysis of human and *Mycobacterium tuberculosis* aims to identify genomic biomarkers associated with efficacy of anti-tuberculosis (TB) treatment, risk of adverse drug reactions (ADRs), systemic exposure of anti-TB drugs, and occurrence of drug-resistance strain of *M. tuberculosis*.

Biomarkers will be used for establishment of precision medicine for successful treatment and reduction of drug resistance in Asian TB patients.

**“Tools to diagnose carcinogenic liver fluke infection”**

to be conducted jointly by:

Australia: Alexander Loukas, Distinguished Professor, James Cook University

Russia: Olga Fedorova, Department Head, Siberian State Medical University

USA: Philip Felgner, Professor, University of California, Irvine

Thailand: Thewarach Laha, Associate professor, Khon Kaen University

This program aims to develop molecular tests to diagnose carcinogenic infections with parasitic liver flukes. Throughout Eurasia, ingestion of raw or undercooked fish infected with *Opisthorchis* species flukes leads to infection, which over decades culminates in fatal liver cancer. Sensitive point-of-care tests to diagnose fluke infection are urgently needed and will be the focus of this proposal.

**“Eliminating the major Helminth Neglected Tropical Diseases from the Lower Mekong Basin”**

to be conducted jointly by:

Australia: Darren Gray, Professor, Australian National University

Thailand: Banchob Sripana, Professor, Khon Kaen University

Lao PDR: Somphou Sayasone, Head of Department, Lao Tropical and Public Health Institute

Cambodia: Virak Khieu, Vice Chief of Technical Bureau, Ministry of Health, Cambodia

This cooperative research project aims to eliminate the major helminth NTDs (Soil transmitted helminths (STH), and *Opisthorchis viverrini* (OV)) in Lao PDR, Cambodia and Thailand - the Lower Mekong Basin. Our research project will trial

a novel multifaceted elimination program, and use mathematical modelling and mapping techniques to predict impacts over time and for targeting of the interventions.

**“Are TB neighbourhoods a high risk population for active intervention?”**

to be conducted jointly by:

New Zealand: Susan McAllister, Research Fellow, University of Otago

Indonesia: Bacht Alisjahbana, Director, University of Padjadjaran

USA: Megan Murray, Professor, Harvard University

Tuberculosis (TB) elimination requires new enhanced intervention strategies. This research project aims to confirm whether neighbourhoods of TB cases in Indonesia constitute a high TB prevalence and incidence subpopulation for targeted intervention. We will conduct active case finding in both TB households and their neighbouring households and use epidemiological and molecular tools to inform the design of possible intervention strategies.

On behalf of the e-ASIA JRP, we would like to offer our sincerest congratulations to the project teams, and look forward to the significant impact their results will bring to public and global health in the future.

\*1 The e-ASIA Joint Research Program (e-ASIA JRP)

Through the acceleration of science and technology research exchange and collaboration in the East Asian region, the e-ASIA Joint Research Program (e-ASIA JRP) aims to strengthen research and development capabilities towards resolution of shared challenges across the region, including those associated with materials, alternative energy, agriculture, health research, disaster risk reduction and management, advanced interdisciplinary research towards innovation, and environment. As part of that objective, the e-ASIA JRP is intended to support collaborative research implemented among 3 or more of its member countries. Through the implementation of joint research among participating countries in agreed fields of research, it is the goal of the e-ASIA JRP to contribute to economic and human resource development, as well as the resolution of various challenges in the region.

e-ASIA JRP's homepage: <http://www.the-easia.org/jrp/>

\*2 The list of organizations participating in the 8<sup>th</sup> joint call for proposals in the field of “Health”:

- National Health and Medical Research Council (NHMRC), Australia  
URL: <https://www.nhmrc.gov.au/>
- Ministry of Health (MOH), Cambodia

URL: <http://moh.gov.kh/?lang=en>

- Ministry of Research and Technology/ National Research and Innovation Agency (RISTEK/BRIN), Indonesia  
URL: <https://international.ristekdikti.go.id/>
- Japan Agency for Medical Research and Development (AMED), Japan  
URL: <http://www.amed.go.jp/en/>
- Ministry of Health (Lao PDR)  
URL: <http://moh.gov.la/index.php/en/>
- Health Research Council (HRC), New Zealand  
URL: <http://www.hrc.govt.nz/>
- Department of Science and Technology (DOST-PCHRD), Philippines  
URL: <http://www.pchrd.dost.gov.ph/>
- Russian Foundation for Basic Research (RFBR), Russia  
URL: <http://www.rfbr.ru/rffi/eng/>
- National Science and Technology Development Agency (NSTDA), Thailand  
URL: <https://www.nstda.or.th/en/index.php>
- Thailand Center of Excellence for Life Sciences (TCELS), Thailand  
URL: <http://www.tcels.or.th/Home?lang=en>
- National Institute of Allergy and Infectious Diseases (NIAID), USA  
URL: <http://www.niaid.nih.gov/>

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