August 2021

The e-ASIA Joint Research Program

9th Annual Activity Report - Summary

(2020.9 ~ 2021.8)

e-ASIA JRP Secretariat

Basic Information

This yearly report summarizes the activities of the e-ASIA Joint Research Program during the period from the 9th Annual Board Meeting (September 9, 2020) to September 1, 2021 when the online meeting was held in replace of the 10th Annual Board Meeting in Hawaii.

First Edition

This report was originally approved on October 6, 2021.

The e-ASIA Joint Research Program
Annual Activity Report – Summary
(9th year: 2020.9 - 2021.8)

Program Administration

The 9th Annual Board Meeting

1. The 9th Annual Board Meeting was held on September 9, 2020 by Zoom virtual platform, Ms. Kaneko, Secretariat General and Mr. Yoshihide Kobayashi, e-ASIA Special Program Coordinator served as the meeting's moderators. The Board Members and the representatives, including other participants from 19 Member Organizations (MOs) of the Program from 12 countries have attended this meeting.

2. Activities taken place after 8th Annual Board Meeting, such as ad hoc Board Meetings from 28th to 33rd, newly selected projects from 9th and COVID-19 Urgent calls, several workshops and update of website and brochure, were reviewed and the 8th Annual Activity Report, which summarized those activities, was approved.

3. As for the 10th calls for proposals, the Board discussed and agreed on the schedule/timeframe, four topics, participating MOs and lead MO in each topic.

Agreed Timeframe of 10th Call for Proposals

Events	Schedule of 10th call
Open call	15 December 2020
Close call	29 March 2021
Eligibility Check	31 March – 16 April 2021
Review in MOs	26 April – 13 August 2021
Joint Review Meeting	30 August – 2 September 2021 w/ ABM
Announcement to applicants	30 November 2021
Start funding/Implementation	January – March 2022

The 32nd ad hoc Board Meeting

4. The 32nd ad hoc Board Meeting was held via email sent on November 4, 2020.
5. The adoption/implementation of the project HE0908 - *"Role of the pre-existing immunity to Japanese encephalitis and Zika viruses in influencing dengue*

disease outcome and vaccination program in Vietnam and Thailand", was approved on November 12, 2020.

The 33rd ad hoc Board Meeting

6. The 33rd ad hoc Board Meeting was held via email sent on December 15, 2020.
7. Eleven (11) proposed projects submitted under the COVID-19 Urgent Call, including five proposals for Medical Research and six for Non-medical Research, were approved on December 22, 2020.

Program Secretariat

8. Mr. Ken Kawabata was appointed as the new e-ASIA Secretariat effective April 1, 2021. Mr. Kawabata assumed the previous position of Mr. Yoshihide Kobayashi.

Member Organizations and Guest Partner

1. List of current Member Organizations and their Board Members and representatives in alphabetical order by country, as of August 2021, is as follows:

*23 Member Organizations from 14 countries

	Country	Name	Title & Organization
1	Australia	Prof. Anne Kelso AO	Chief Executive Officer, National Health and Medical Research Council (NHMRC)
2	Cambodia	Dr. Fidero Kuok	Director General of National Institute of Science, Technology&Innovation, Ministry of Industry, Science Technology and Innovation (MISTI)
3	Cambodia	Dr. Kheng Sim	Deputy-Director of Communicable Disease Control Department, Ministry of Health (MOH)
4	Indonesia	Mr. Heri Hermansyah	Acting Director for Research and Community Services&Deputy for Strengthening Research and Development, Ministry of Research and Higher Education (RISTEK/BRIN)
5	Japan	Mr. Masahiko Noda	Managing Director of Department of International Strategy, Japan Agency of Medical Research and Development (AMED)
6	Japan	Dr. Michinari Hamaguchi	President, Japan Science and Technology Agency (JST) (as the agent of MEXT)

	Country	Name	Title & Organization
7	 Lao PDR	Dr. Rattanaxay Phetsouvanh	Director General of the Department of Communicable Diseases Control, Ministry of Health (MOH)
8	 Lao PDR	Mr. Chittaphong Achkhavong	Deputy Director General of Planning and Cooperation, Ministry of Science and Technology (MOST)
9	 Malaysia	Mr. Teoh Phi Li	Under Secretary of International Division, Ministry of Science, Technology Innovation (MOSTI)
10	 Myanmar	Dr. Phyu Phyu Win	Acting Director General Department of Research and Innovation, Ministry of Education (MOE)
11	 New Zealand	Prof. Sunny Collings	Chief Executive, Health Research Council (HRC)
12	 The Philippines	Dr. Rowena Cristina L. Guevara	Undersecretary for Research & Development, Department of Science and Technology (DOST)
13	 Russian Federation	Mr. Alexander Usoltsev	Head of International Relations, Russian Foundation for Basic Research (RFBR)
14	 Singapore	Prof. Andy Hor	Deputy Chief Executive (Research), Agency for Science, Technology and Research (A*STAR)
15	 Thailand	Ms. Kunvara Chotiphansophon	Deputy Director, Agriculture Research Development Agency (ARDA)
16	 Thailand	Dr. Kanyawim Kirtikara	Director, Program Management Unit for Human Resources & Institutional Development, Research and Innovation (PMU-B)
17	 Thailand	Dr. Narong Sirilertworakul	President, Thailand National Science and Technology Development Agency (NSTDA)
18	 Thailand	Dr. Wiparat De-ong	Executive Director, National Research Council of Thailand (NRCT)
19	 Thailand	Dr. Sirasak Teparkum	Chief Executive Officer, Thailand Center of Excellence for Life Sciences (TCELS)
20	 Thailand	Associate Prof. Dr. Pongpan Kaewtatip	Vice President, Thailand Science Research and Innovation (TSRI)
21	 U.S.	Mr. F. Gray Handley	Associate Director for International Research Affairs, National Institute of Allergy and Infectious Diseases (NIAID)

	Country	Name	Title & Organization
22	 U.S.	Dr. Paul Pearlman	Program Director, Center for Global Health, National Cancer Institute (NCI)
23	 Vietnam	Ms. Le Thi Viet Lam	Deputy Director General of Department of International Cooperation, Ministry of Science and Technology (MOST)

2. In addition to the above Member Organizations, National Science Foundation of Sri Lanka is the Guest Partner organization in the Program since October 2017.

Joint Calls for Proposals

The 9th Joint Calls for Proposals

1. The 9th Joint Call for Proposals on the topic of "Climate Change Impact on Natural and Human Systems" in the field of "Environment" opened from January 16 to May 21, 2020.Out of the 33 proposals submitted, the following four projects were approved by the Board to be supported:

i "Impact of Climate Change on the Potential Increase of *Opisthorchis viverrini* and *Opisthorchis felineus* Transmission in Thailand, Lao PDR and Russia"

Countries & PIs

Thailand	Banchob Sripa	Professor and Head, Tropical Disease Research Centre, Khon Kaen University
Lao PDR	Somphou Sayasone	Head of Department, Lao Tropical and Public Health Institute
Russia	Natalia Yurlova	Leading Research Scholar, Institute of Systematics and Ecology of Animals SB RAS

Forms of Funding

Thailand	New funds	National Research Council of Thailand (NRCT)
Lao PDR	In-kind participation	Ministry of Science and Technology (MOST)

Russia	New funds	Russian Foundation for Basic Research (RFBR)

This cooperative research project aims to assess the impact of climate change on the potential increased transmission of the liver flukes *Opisthorchis viverrini* and *Opisthorchis felineus* through Bithynia snails in Russia, Lao PDR and Thailand and to predict the transmission of the liver flukes under different climate change scenarios (A2,B2 models) in 2050 and 2080.

ii "Climate Change Resilience of Indigenous Socio Ecological Systems"

Countries & PIs

Japan	Jorge García Molinos	Assistant Professor, Hokkaido University
Russia	Tuyara Gavrilyeva	Research Professor, North-Eastern Federal University
Thailand	Wantanee Kriengsinyos	Associate Professor, Mahidol University

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Russia	New funds	Russian Foundation for Basic Research (RFBR)
Thailand	New funds	National Science and Technology Development Agency (NSTDA)

This cooperative research project aims to project current and future risks from climate change and socioeconomic development to the natural capital supporting traditional indigenous socioecological systems (ISS). Two distinctive ISS (Thailand and Siberia) will be used as case studies. RISE will deliver high impact science to inform effective decision making towards regional development, sustainability and climate change adaptation.

iii "Climate Change and Human Health in Asia: Current Impacts, Future Risks, and Health Benefits of Mitigation Policies"

Countries & PIs

Australia	Yuming Guo	Professor/Head, Monash University
Japan	Masahiro Hashizume	Professor, The University of Tokyo
Thailand	Kraichat Tantrakarnapa	Associate Professor, Mahidol University

Forms of Funding

Australia	New funds	National Health and Medical Research Council (NHMRC)
Japan	New funds	Japan Science and Technology Agency (JST)
Thailand	New funds	National Research Council of Thailand (NRCT)

Asia is one of the most vulnerable regions to climate change in the world. However, evidence about the impacts of climate change on human health is far limited in this region. This project will examine current evidence on temperature and human health, project future health risks associated with temperature under climate change and assess health benefits of mitigation policies in Asia.

iv **"Integration of traditional and modern bioproduction systems for a sustainable and resilient future under climate and ecosystem changes**"

Countries & PIs

Japan	Osamu Saito	Principal Policy Researcher, Institute for Global Environmental Strategies (IGES)
Philippines	Juan Pulhin	Professor 12 (DSFFG) and Chair, University of the Philippines Los Baños
Indonesia	Pampang Parikesit	Professor/Chair, Universitas Padjadjaran Bandung

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Philippines	New funds	Department of Science and Technology (DOST)
Indonesia	New funds	Ministry of Research and Technology / National Research and Innovation Agency (RISTEK/BRIN)

This cooperative research project aims to explore scenarios/pathways for a sustainable and resilient future under climate and ecosystem changes by focusing on integration of traditional and modern bioproduction systems such as homegarden, agroforestry, plantation, aquaculture, and urban agriculture in Japan, Philippines, and Indonesia. The project assesses various ecosystem services provided by the bioproduction systems under multiple future scenarios.

2. The 9th Joint Call for Proposals on the topic of "Water Resource Management" in the field of "Advanced Interdisciplinary Research towards Innovation" opened from January 16 to May 21, 2020. Out of the 31 proposals submitted, the following three projects were approved by the Board to be supported:

i "Wastewater-informed early warning system to minimize impact of COVID-19 and Disease X"

Countries & PIs

Japan	Eiji Haramoto	Professor, University of Yamanashi
Indonesia	Tjandra Setiadi	Professor, Institut Teknologi Bandung
Vietnam	The Hung Dang	Director, Hanoi University of Public Health

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)

Indonesia	New funds	Ministry of Research and Technology / National Research and Innovation Agency (RISTEK/BRIN)
Vietnam	In-kind participation	Ministry of Science and Technology (MOST)

This cooperative research project aims to develop an early warning system to reduce risk from the recurrence of COVID-19 as well as to prevent future unknown pandemics through wastewater monitoring.

ii "Development of machine learning and remote sensing-based water management platform for sustainable agriculture in Asian deltas"

Countries & PIs

Japan	Natsuki Yoshikawa	Associate Professor, Niigata University
Vietnam	Lan Thanh Ha	Researcher/Head of Department, Institute of Water Resources Planning (IWRP), MARD
Indonesia	Budi Indra Setiawan	Professor, Bogor Agricultural University

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Vietnam	New funds	Ministry of Science and Technology (MOST)
Indonesia	New funds	Ministry of Research and Technology / National Research and Innovation Agency (RISTEK/BRIN)

This cooperative research project addresses the challenges in managing water resources in Asian floodplains by jointly developing an Integrated Water Management Platform comprising of state-of-the-art technologies for monitoring and forecasting the state of water, land and crop production. This

platform will assist timely and better operation of water management facilities to achieve better and sustainable agricultural production.

iii "Integrated water resources management with wise reservoir operation"

Countries & PIs

Japan	Taikan Oki, Professor	The University of Tokyo
Thailand	Somchit Amnatsan	Director, Royal Irrigation Department
Lao PDR	Keoduangchai Keokhamphui	Head of Department, Faculty of Water Resource/National University of Laos

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Thailand	New funds	Agricultural Research Development Agency (ARDA)
Lao PDR	In-kind participation	Ministry of Science and Technology (MOST)

This collaborative research aims to implement dam operation model incorporating the dam inflow prediction developed with invoking of innovated ICT (AI and deep learning) using big data in climate and meteorology. Outcomes of this collaborative research contribute to the sustainable management of water and to the achievement of SDG6 (Target 6.4, 6.5, 6.a).

3. The 9th Joint Call for Proposals on the topic of "Infectious Diseases (including AMR), Cancer, and Mental Health, with a
focus on precision medicine in Cancer and Infectious Diseases" in the field of "Health Research" opened from January 16 to May 21, 2020. Out of the 40 proposals submitted, the following five projects were approved by the Board to be supported:

i. "Role of the pre-existing immunity to Japanese encephalitis and Zika viruses in influencing dengue disease outcome and vaccination

program in Vietnam and Thailand"

Countries & PIs

USA	Sujan Shresta	Associate Professor, La Jolla Institute for Immunology
Vietnam	Thi Quynh Mai Le	Vice Director, National Institute of Hygiene and Epidemiology
Thailand	Montarop Yamabhai	Director of Molecular Biotechnology, Suranaree University of Technology

Forms of Funding

USA	New funds	National Institute of Allergy and Infectious Diseases (NIAID)
Vietnam	New funds	Ministry of Science and Technology (MOST)
Thailand	New funds	Thailand Center of Excellence for Life Sciences (TCELS)

This cooperative research project aims to decipher whether cross-reactive immunity to Japanese encephalitis (JEV) and Zika (ZIKV) viruses modulates disease manifestations and viral genetic diversity during subsequent infection with dengue virus (DENV) in Vietnam and Thailand. In addition, this project seeks to identify novel broadly neutralizing antibodies against DENV, JEV, and ZIKV for the development of innovative diagnostics and therapeutics.

ii. "Novel precision-based treatments for biliary tract cancer"

Countries & PIs

Australia	John Mariadason	Professor, Division Head, La Trobe University
Thailand	Temduang Limpaiboon	Professor, Khon Kaen University
Japan	Yoshimasa Saito	Professor, Keio University

Forms of Funding

Australia	New funds	National Health and Medical Research Council (NHMRC)
Thailand	New funds	Thailand Center of Excellence for

		Life Sciences (TCELS)
Japan	New funds	Japan Agency for Medical Research and Development (AMED)

This cooperative research project aims to improve outcomes for patients with biliary tract cancer. We will achieve this by building essential research capacity in this poorly understood disease through international collaboration, and building on our team's exciting preliminary discoveries to develop novel precise treatments which precisely target specific aspects of tumour biology, and to identify biomarkers which predict response to immunotherapy.

iii. "Identification of molecular and cellular pathways predicting susceptibility or resistance to severe dengue fever"

Countries & PIs

Australia	Diana Hansen	Laboratory Head, The Walter and Eliza Hall Institute of Medical Research
Indonesia	Tedjo Sasmono	Senior Research Fellow / Head of Dengue Research Unit, Eijkman Institute for Molecular Biology
Japan	Kouichi Morita	Dean & Professor, Nagasaki University

Forms of Funding

Australia	New funds	National Health and Medical Research Council (NHMRC)
Indonesia	New funds	Ministry of Research and Technology / National Research and Innovation Agency (RISTEK/BRIN)
Japan	New funds	Japan Agency for Medical Research and Development (AMED)

This cooperative research project aims to undertake a comprehensive

immunological and molecular analysis of individuals with mild versus severe dengue fever recruited at local hospitals in Jakarta, Indonesia. The project will uncover key processes responsible for disease severity. This information will identify specific biomarkers for innovative diagnostic tools for early prediction/ detection of cases that will progress to complicated dengue.

iv. "e-DiVA (empowering Dementia Carers with an iSupport Virtual Assistant)"

Countries & PIs

Australia	Tuan Anh Nguyen	NHMRC-ARC Dementia Research Development Fellow-Senior Research Fellow, University of South Australia
Indonesia	Yuda Turana	Lecturer, Atma Jaya Catholic University of Indonesia
New Zealand	Sarah Cullum	Senior Lecturer, The University of Auckland
Vietnam	Thang Pham	Chairman, Vietnam Association Geriatrics and Gerontology

Forms of Funding

Australia	New funds	National Health and Medical Research Council (NHMRC)
Indonesia	New funds	Ministry of Research and Technology / National Research and Innovation Agency (RISTEK/BRIN)
New Zealand	New funds	Health Research Council (HRC)
Vietnam	New funds	Ministry of Science and Technology (MOST)

This cooperative research project aims to improve mental health and well-being of informal carers of people with dementia by: (1) developing and evaluating an iSupport Virtual Assistant to support dementia carers through a partnership of Australia, Indonesia, New Zealand, and Vietnam; and (2) building capacity of researchers and Non-Government Organisation (NGO)

partners to support this development and evaluation.

v. "Cooperation of Vietnam, Myanmar and Russia in the development of new targeted agents against viral and parasitic infections based on plant metabolites"

Countries & PIs

Russia	Irina Smirnova	Reseacher, Ufa Federal Recearch Center of the Russian Academy of Science
Vietnam	Van Loc Tran	Associate Professor, Institute of Chemistry
Myanmar	Myint Myint Khine NiL	Professor, University of Yangon

Forms of Funding

Russia	New funds	Russian Foundation for Basic Research (RFBR)
Vietnam	New funds	Ministry of Science and Technology (MOST)
Myanmar	In-kind participation	Ministry of Education (MOE)

This cooperative research project aims to develop new targeted agents based on natural metabolites of the flora of Vietnam, Myanmar and Russia, modify their chemical structures to enhance their activity for treatment of infectious and parasite diseases. Researchers will concentrate in finding out active candidates for the care of diseases caused by SARS-COV-II and dengue virus as well as by the malaria parasites.

The COVID-19 Urgent Call for Proposals

4. The COVID-19 Urgent Call for Proposals on the topic of "Countermeasures for COVID-19 in Medical Research" opened from September 10 to October 22, 2020. Out of 10 proposals submitted, the following five projects were approved by the Board to be supported:

   i. "Non-human primate and translational models of SARS-CoV2 infection and COVID-19 vaccine development" to be supported by NSTDA of Thailand and NIAID of USA

ii. “Genetics, Immunological and Neurological Long-term Consequences in Prospective COVID-19 Cohort in Thailand, Japan, Philippines and USA” to be supported by NSTDA of Thailand, AMED of Japan, NIAID of USA and DOST of the Philippines
iii. “Long-term immunity to SARS-CoV-2 in influencing COVID-19 disease outcome in Asia” to be supported by AMED of Japan, NIAID of USA, MOST of Vietnam and DOST of the Philippines
iv. “Roles of T follicular helper cells and tissue resident memory cells of mucosal immunity in COVID-19 disease severity” to be supported by AMED of Japan and NIAID of USA and
v. “Comprehensive elucidation of the host factors contributing to severe COVID-19 using large U.S. and Japanese cohorts” to be supported by NIAID of USA and AMED of Japan.

5. The COVID-19 Urgent Call for Proposals on the topic of “Countermeasures for COVID-19 in Non-medical Research” opened from September 10 to October 22, 2020. Out of 15 proposals submitted, the following six projects were approved by the Board to be supported:

i. “Mathematical modelling of heterogeneous contact and movement patterns for preventing COVID-19” to be supported by JST of Japan and NRCT of Thailand
ii. “Comprehensive investigation of SARS-CoV-2-like coronavirus infection in horseshoe bats (a natural host of SARS-CoV-2) and its effect on bat immunity and behavior” to be supported by JST of Japan and MOST of Vietnam
iii. “Development of a Simulation Model for Prediction of the Next Outbreak of Bat derived Coronavirus Infection in Human” to be supported by JST of Japan, DOST of the Philippines and MOST of Vietnam
iv. “Research and development on Media literacy and anxiety reduction during Covid-19 pandemic by using Inquiry Based Instruction with Instructional Package for Thailand and Vietnam Undergraduates” to be supported by NRCT of Thailand and MOST of Vietnam
v. “Multidisciplinary Collaborative Research for Developing a COVID-19 Policy Risk Index (COV19PRI) to Overcome the Impact of COVID-19 Pandemic in 3 Asian Megacities” to be supported by JST of Japan,

DOST of the Philippines and NRCT of Thailand and

vi. "Development of MiByo prevention method by AI proteomics" to be supported by JST of Japan, DOST of the Philippines and NRCT of Thailand.

The 10th Joint Calls for Proposals

6. The 10th Joint Calls for Proposals on the topic of "Materials Informatics and Advanced Material Research by Utilizing Computers" in the field of "Materials", on the topic of "Functional Food for Nutrition" in the field of "Agriculture", on the topic of "Infectious Diseases and Cancer" in the field of "Health Research", and on the topic of "Marine Science and Climate Change" in the field of "Environment" were opened from December 15, 2020 to March 29, 2021. These calls were participated by the following Member Organizations (listed in alphabetical order):

Participating Member Organizations and their funding modalities for the 10th Calls for Proposals

Fields	**Materials**	**Agriculture**	**Environment**	**Health Research (Infectious Diseases, Cancer)**	
Topics	**Materials Informatics and Advanced Material Research by Utilizing Computers**	**Functional Food for Nutrition**	**Marine Science and Climate Change**	**Infectious Diseases**	**Cancer**
NHMRC (Australia)				New, In-kind	New, In-kind
MOH (Cambodia)				In-kind	In-kind
MISTI (Cambodia)		In-kind			
RISTEK/BRIN (Indonesia)	New		New	New	New
JST (Japan)	New		New		
AMED (Japan)				New	New
MOST (Lao PDR)		In-kind			

MOH (Lao PDR)				In-kind	In-kind
MOE (Myanmar)				In-kind	In-kind
HRC (NZ)				New	New
DOST (Philippines)	New	New	New	New	New
A*STAR (Singapore)	In-kind				
NSTDA (Thailand)				New, In-kind	New, In-kind
ARDA (Thailand)		New			
NRCT (Thailand)				New	
PMU-B (Thailand)	New, In-kind				
NIAID (USA)				New, Re-budgeting, In-kind	
NCI (USA)					Re-budgeting, In-kind

The selection of the proposals for all these four calls is still in progress.

Researcher Interaction

1. The e-ASIA Joint Research Program Workshop on Materials Informatics

   The workshop was held on January 13-14, 2021 via Zoom conference due to COVID-19 pandemic. This workshop was co-organized by Agency for Science, Technology and Research (A*STAR), Japan Science and Technology Agency (JST), and e-ASIA JRP Secretariat and supported by Program Management Unit for Human Resources & Institutional Development, Research and Innovation (PMU-B), National Science and Technology Development Agency (NSTDA), and Department of Science and Technology (DOST). There were 92 participants including 28 invited speakers (Singapore, Japan, Thailand, Philippines, and Indonesia).

   This workshop was divided into three sessions: (1) Materials platforms and tools", (2) Materials informatics for alloy development and processing and (3) Materials informatics for a low-carbon society. Holding this workshop aimed to discuss hot topics of "Materials Informatics" as the most advanced materials

research field, among cutting-edging researchers from Japan, Singapore, Thailand, and the Philippines, to establish a tight researchers' network among participants for better international collaboration and to prepare for the e-ASIA JRP 10th joint call on "Materials Informatics".

Event

1. Webinar for Online Researcher and Research Resources Sharing
   The webinar was held on March 11, 2011 via Zoom. Facilitating cross-country networking between researchers is a common goal among the funding agencies of the e-ASIA JRP and making greater use of online resources to find researchers based in other countries may be useful in finding potential collaborators with similar research interests. The webinar was held with the aim to outline the availability of such online resources in some member organizations, explain how researchers can use these resources to effectively search for potential collaborators and discuss the possible collaboration of these resources.

Selected Projects

Urgent Call for Proposals on the topic of "Countermeasures for COVID-19 in Medical Research" (Five projects)

i. "Non-human primate and translational models of SARS-CoV2 infection and COVID-19 vaccine development"

Countries & PIs

Thailand	Suchinda Malaivijitnond	Director, National Primate Research Center of Thailand-Chulalongkorn University (NPRCT-CU)
USA	Jeffrey A Roberts	Associate Director, University of California Davis

Forms of Funding

Thailand	New funds	National Science and Technology Development Agency (NSTDA)
USA	New funds	National Institute of Allergy and Infectious Diseases (NIAID)

This research project aims to share and compare experimental protocols and clinical data on non-human primates (NHPs) infected with SARS-CoV-2 between three National Primate Research Centers in Thailand, USA and Japan which will be translated to COVID-19 vaccine development in each country. Surveillance and evolutionary biology of SARS-CoV-2 will be assessed using developed assays in human-macaque interface areas in Thailand.

ii. "Genetics, Immunological and Neurological Long-term Consequences in Prospective COVID-19 Cohort in Thailand, Japan, Philippines and USA"

Countries & PIs

Thailand	Nattiya Hirankarn	Professor, Chulalongkorn University
Japan	Kunihiro Otsuka	Designated Assistant Professor, Tokushima University
USA	Douglas Golenbock	Professor, UMass Medical School
Philippines	Fresthel Monica Climacosa	Associate Professor, University of the Philippines Manila

Forms of Funding

Thailand	New funds	National Science and Technology Development Agency (NSTDA)
Japan	New funds	Japan Agency for Medical Research and Development (AMED)
USA	New funds	National Institute of Allergy and Infectious Diseases (NIAID)
Philippines	New funds	Department of Science and Technology (DOST)

This cooperative research project aims to identify genetics and immunological and neurological long-term consequences of COVID-19 infection by a prospective cohort of COVID-19 affected patients from different genetic and epidemiologic background in Thailand, Japan, and Philippines in

parallel to another on-going cohort in United States. This collaboration will shed light on the possible factor(s) that contribute to disease severity and long-term impact in recovered COVID-19 patients.

iii. "Long-term immunity to SARS-CoV-2 in influencing COVID-19 disease outcome in Asia"

Countries & PIs

Japan	Meng Ling Moi	Professor, Nagasaki University
USA	Sujan Shresta	Associate Professor, La Jolla Institute for Immunology
Vietnam	Thi Quynh Mai Le	Vice Director, National Institute of Hygiene and Epidemiology
Philippines	Kathryn Roa	Infectious Disease Specialist, Southern Philippines Medical Center

Forms of Funding

Japan	New funds	Japan Agency for Medical Research and Development (AMED)
USA	New funds	National Institute of Allergy and Infectious Diseases (NIAID)
Vietnam	In-kind participation	Ministry of Science and Technology (MOST)
Philippines	In-kind participation	Department of Science and Technology (DOST)

This cooperative research project aims to decipher how immunity in SARS-CoV-2 virus infection modulates disease manifestations and whether viral genetic diversity is associated with disease outcomes and infectivity across Southeast and East Asia. In addition, this project seeks to identify novel broadly neutralizing antibodies against SARS-CoV-2 for the development of innovative diagnostics and therapeutics.

iv. "Roles of T follicular helper cells and tissue resident memory cells of mucosal immunity in COVID-19 disease severity"

Countries & PIs

Japan	Kazuko Yamamoto	Assistant Professor, Nagasaki University Hospital
USA	Jay Kolls	John W Deming Endowed Chair in Internal Medicine, Tulane School of Medicine

Forms of Funding

Japan	New funds	Japan Agency for Medical Research and Development (AMED)
USA	New funds	National Institute of Allergy and Infectious Diseases (NIAID)

In this US-Japan cooperative research project, we aim to elucidate the role of T follicular helper cells and airway tissue resident memory cells in generating protective immune response in airway mucosa during COVID-19. Synergy of our unique in vivo disease model and analysis of SARS-CoV-2 specific antibodies from patients will directly connect to the development of novel vaccine against COVID-19.

v. "Comprehensive elucidation of the host factors contributing to severe COVID-19 using large U.S. and Japanese cohorts"

Countries & PIs

USA	Ho Namkoong	Visiting Fellow, National Institute of Allergy and Infectious Diseases
Japan	Sho Shibata	Assistant Professor, Tokyo Medical and Dental University

Forms of Funding

USA	In-kind participation	National Institute of Allergy and Infectious Diseases (NIAID)
Japan	New funds	Japan Agency for Medical Research and Development (AMED)

This cooperative research project aims to comprehensively elucidate the host factors of COVID-19 and to find out future therapeutic strategies by utilizing the cohort established by the United States team and by the Japanese team. Specifically, we will genetically analyze DNA/RNA/serum samples from both countries to identify genetic factors and biomarkers that lead to severe COVID-19 and post-acute COVID-19.

Urgent Call for Proposals on the topic of "Countermeasures for COVID-19 in Non-medical Research" (Six projects)

i. "Mathematical modelling of heterogeneous contact and movement patterns for preventing COVID-19"

Countries & PIs

Japan	Hiroshi Nishiura	Professor, Kyoto University
Thailand	Saranath Lawpoolsri	Associate Professor, Mahidol University

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Thailand	In-kind participation	National Research Council of Thailand (NRCT)

This cooperative research project aims to devise mathematical models that capture the heterogeneous contact patterns as well as distant movement rate, intending to formulate scientific basis to plan prevention programs including forthcoming immunization strategies and non-pharmaceutical behavioral interventions. Mutually compensating modelling techniques for capturing temporal and spatial transmission dynamics, we answer policy-relevant questions via mathematical modelling.

ii. "Comprehensive investigation of SARS-CoV-2-like coronavirus infection in horseshoe bats (a natural host of SARS-CoV-2) and its effect on bat immunity and behavior"

Countries & PIs

Japan	Kei Sato	Associate Professor, The University of Tokyo
Vietnam	Thong Vu Dinh	Associate Professor, Institute of Ecology and Biological Resources, VAST

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Vietnam	In-kind participation	Ministry of Science and Technology (MOST)

This collaborative research aims to reveal the infection of SARS-CoV-2-like coronaviruses in horseshoe bats, a putative natural host of SARS-CoV-2. Our international interdisciplinary study of virology, molecular phylogenetic, bioinformatics, ecology and ethology rseveals the effect of virus infection on bat immunity and behavior, which shows the dynamics of virus infection in bats and the risk of viral spillover to humans.

iii. "Development of a Simulation Model for Prediction of the Next Outbreak of Bat derived Coronavirus Infection in Human"

Countries & PIs

Japan	Tsutomu Omatsu	Associate Professor, Tokyo University of Agriculture and Technology
Philippines	Phillip Alviola	Associate Professor 7, University of the Philippines Los Banos (UPLB)
Vietnam	Ngan Pham	Associate Professor, Vietnam National University of Agriculture (VNUA)

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Philippines	In-kind participation	Department of Science and Technology (DOST)

Vietnam	In-kind participation	Ministry of Science and Technology (MOST)

This collaborative research aims to develop a simulation model for prediction of the next outbreak of the bat derived coronavirus infection in human. To this aim, we will collect epidemiological information on coronavirus on bats in the Philippines and Vietnam and develop a simulation model coupled them together with meteorological data, vegetation data, land use data, and bat ecological data to develop a simulation model.

iv. "Research and development on Media literacy and anxiety reduction during Covid-19 pandemic by using Inquiry Based Instruction with Instructional Package for Thailand and Vietnam Undergraduates"

Countries & PIs

Thailand	Tasanee Satthaphong	Lecturer, Suan Sunandha Rajabhat University
Vietnam	Tan Dat Nguyen	Vice Dean, Can Tho University of Medicine and Pharmacy

Forms of Funding

Thailand	New funds	National Research Council of Thailand (NRCT)
Vietnam	In-kind participation	Ministry of Science and Technology (MOST)

This cooperative research project aims to
1. To study the condition Problems and opinions of tertiary educators and students in Thailand and Vietnam regarding media literacy and COVID-19 anxiety.
2. To develop a learning management model, investigation process with a series
of activities to promote media literacy and reduce COVID-1 9 anxiety of tertiary level students.
3. To study the effectiveness of the learning management model, the investigation process together with the activity package by the results of the experiment using the teaching model.

4. To present the media knowledgeable solutions to the COVID-19 crisis and alleviate the anxiety of tertiary level students in Thailand and Vietnam.

v. "Multidisciplinary Collaborative Research for Developing a COVID-19 Policy Risk Index (COV19PRI) to Overcome the Impact of COVID-19 Pandemic in 3 Asian Megacities"

Countries & PIs

Japan	Akira Mukaida	General Manager, Remote Sensing Technology Center of Japan (RESTEC)
Philippines	Marlon Era	Associate Professor, De La Salle University
Thailand	Voranop Viyakarn	Associate Professor, Chulalongkorn University

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Philippines	In-kind participation	Department of Science and Technology (DOST)
Thailand	New funds	National Research Council of Thailand (NRCT)

This research aims to first develop a multicriteria risk index considering multiple factors affecting the spread of COVID-19 to provide policymakers with insights for a timely pandemic response and then to use the developed index to evaluate government responses in three Asian megacities of Tokyo, Bangkok, and Manila. The Japanese team provides policy analysis and geospatial insights to the project using promising remote sensing data and technologies. The Filipino team supports the establishment of behavioral-linked indicators as one of the multiple factors that would pose risk from epidemics such as that of COVID-19. One Thai team aims to assess the possible association of atmospheric components such as PM 2.5 and COVID records. The other Thai team will carry out research using data from social media.

vi. “Development of MiByo prevention method by AI proteomics”

Countries & PIs

Japan	Nobuhiro HAYASHI	Associate Professor, Tokyo Institute of Technology
Philippines	Neil Andrew Bascos	Assistant Professor, University of the Philippines
Thailand	Sittiruk Roytrakul	Researcher, National Center for Genetic Engineering and Biotechnology

Forms of Funding

Japan	New funds	Japan Science and Technology Agency (JST)
Philippines	In-kind participation	Department of Science and Technology (DOST)
Thailand	New funds	National Research Council of Thailand (NRCT)

This collaborative research aims to develop a method to prevent adverse health condition including infectious diseases like COVID-19 through the detection of pre-illness ("MiByo") state. It is realized based on the combination of 1. knowledge obtained from the integration of AI processing technology with proteomics image data obtained from high-performance two-dimensional electrophoresis technology developed in Japan (Tokyo Institute of Technology), 2. ultimate mass spectrometry-based proteomics approach from Thailand, and 3. genomics approach from the Philippines

For more information, please visit the following website:
http://www.the-easia.org/jrp/

e-ASIA JRP Secretariat Contact Information
Mr. Ken Kawabata
e-ASIA Special Program Coordinator
Room 218 Innovation Cluster 1 Building
National Science and Technology Development Agency (NSTDA)
111 Thailand Science Park, Phahonyothin Road, Khlong Nueng, Khlong Luang
Pathum Thani 12120 THAILAND
H/P: +66 (0)61 421 0316
Tel: +66 (0)2 564 7713
e-mail: easia_secretariat@jst.go.jp
website: http://www.the-easia.org/jrp/