

Seminar 11<sup>th</sup> Aug. 2014

# Introduction of Core-to-Core Program



**Mamoru Yamada**  
*Coordinator at Japan side*  
(Yamaguchi University)

New Core to Core Program (2014 April-2019 March)  
A. Advanced Research Networks

**Establishment of an international research core for  
new bio-research fields with microbes from tropical areas  
(World-class research hub of tropical microbial resources  
and their utilization)**

Country	Core University
Japan	Yamaguchi University
Thailand	Kasetsart University
Vietnam	Can Tho University
Laos	National University of Laos
Germany	Beuth University of Applied Sciences
Indonesia	Brawijaya University

\* UK Manchester University (Collaborative Univ)

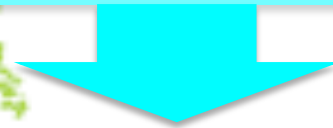
## Toward World-class Research Core

1993–1995 International collaborative research on thermotolerant  
(3 y) acetic acid bacteria

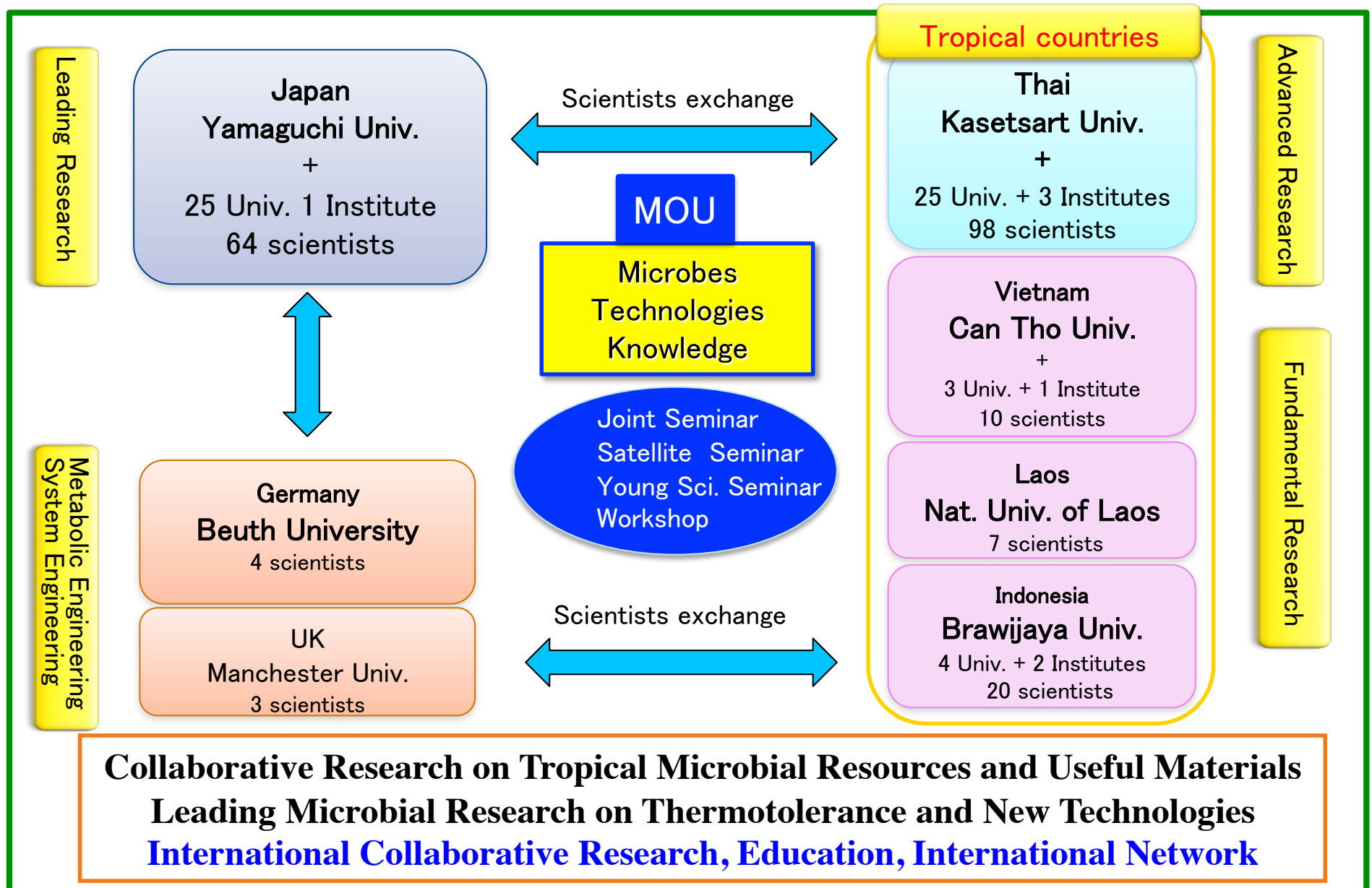
1998–2007 JSPS Core University Program (2 countries)  
(10 y) 「Thermotolerant microbial resources and their application」

2008–2012 JSPS Asian Core Program (2 + 2 countries)  
(5 y) 「Capacity building of microbial potentials and development of  
the next generation fermentation technology」

2010–2012 MEXT-ARDA Project  
(3 y) 「Economic high-temperature fermentation with tropical  
microbes」



2014–2018 New Core to Core Program (6 + 1 countries)  
「Establishment of an international research core for  
new bio-research fields with microbes from tropical areas」



**Contribution to World Issues on Food, Energy, Environment and Health**

Seminar	2014	2015	2016	2017	2018
Joint Seminar	Thai		Thai		JP
Satellite Seminar	Indonesia	JP	Vietnam	Germany	Laos
Young Scientist Seminar	JP	JP Thai	JP	JP Thai	JP
Workshop	Thai		Thai		Thai
FerVAAP		Thai		Thai	

**“Establishment of an international research core for new bio-research fields  
with microbes from tropical areas”  
(World-class research hub of tropical microbial resources and their utilization)**

- Project 1: Explorational Research of Useful Microbes**  
Thermotolerant advantageous microbes, Biopolymer degradation,  
Functional materials, Bioactive compounds
- Project 2: Genome-based Research on Thermotolerant Microbes**  
Distribution of thermotolerant microbes,  
Genome modification, Deep sequencing
- Project 3 Research on Environmental Microbes Sustaining Tropical Ecosystem**  
Symbiosis, Plant- or animal (Insect)-microbe interaction,  
Microbial consortia in fermented foods & sewages, Metagenome analysis
- Project 4: Research on Microbes Useful for Food, Packaging, Health, and Ecosystem**  
Preservation, Food and beverage, Bio-packaging, Chemicals,  
Biopreservation, Probiotics, Bioremediation, Biocontrol
- Project 5: Development of Next-generation Fermentation Technology for New Wave  
Industry**  
High-temperature fermentation, Pilot scale fermentation, Renewable energy

## Difference from Core University Program (CUP) or Asian Core Program (ACP)

### CUP & ACP

- Useful microbes
- Functional analysis
- Application
- ASEAN Core



### CCP

- Microbial resources
- Leading research
- Innovation
- World Research Core

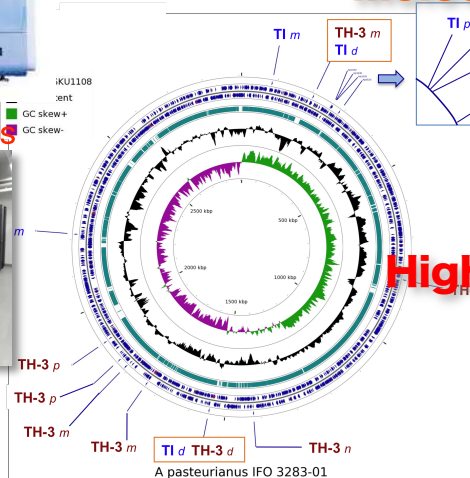
# Leading point (1): New bio-research fields

## Tropical microbes

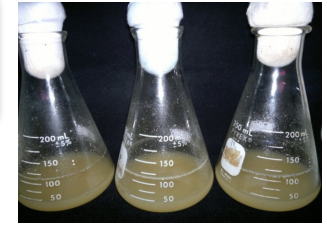
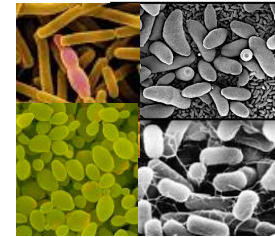
Next generation sequencer



Bioinformatics



Physiological analysis  
Biochemical analysis  
Molecular biological analysis



Useful microbes  
Useful materials

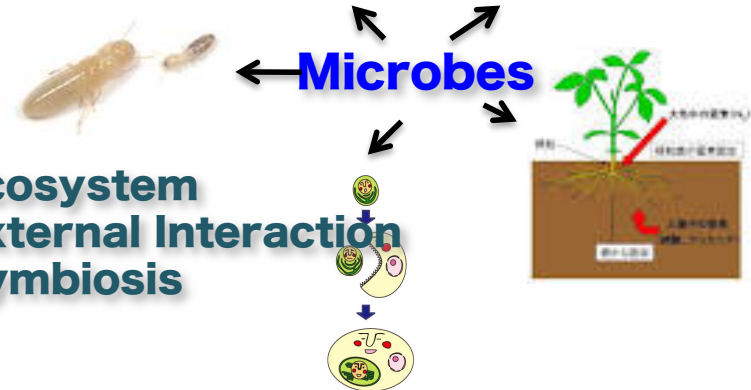
High-speed genome analysis  
Bioinformatics  
Omics analysis



Mechanism of thermotolerance  
Adaptation to nature  
Evolution  
Species definition

In vitro  
Adaptation  
Evolution  
Symbiotic relationship

Ecosystem  
External Interaction  
Symbiosis



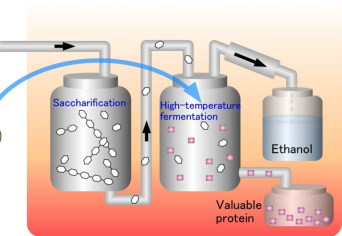
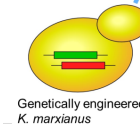
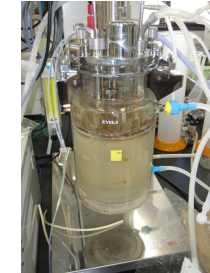
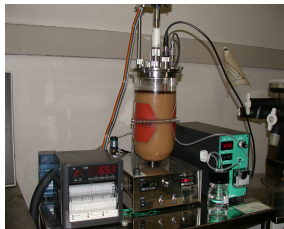
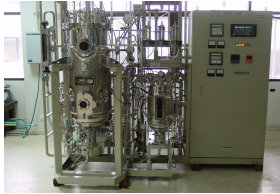


# Leading point (2) : Innovation

## Tropical microbes

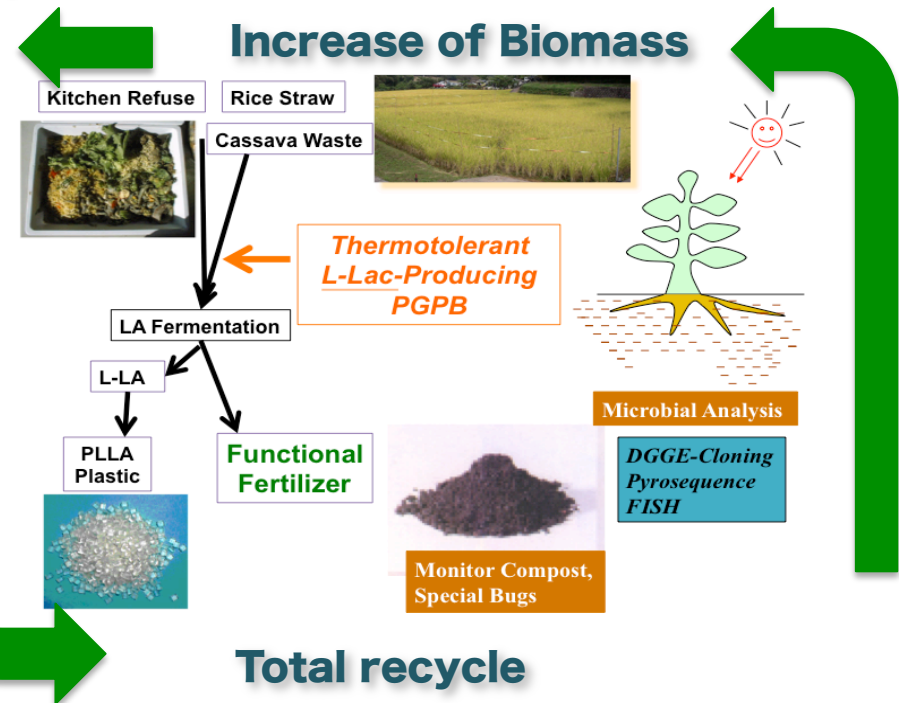
Fermentation Eng.  
Metabolic Eng.  
Process Eng.

Next-generation fermentation technologies and other leading technologies



Kewpie Thailand

Bio-fuel  
Bio-plastics  
Useful materials



**Useful microbes in CCP**



**Draft Genome Sequencing**

東京農業大学  
TOKYO UNIVERSITY OF AGRICULTURE

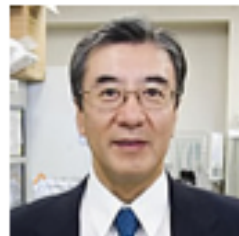
応用生物科学部

バイオサイエンス学科

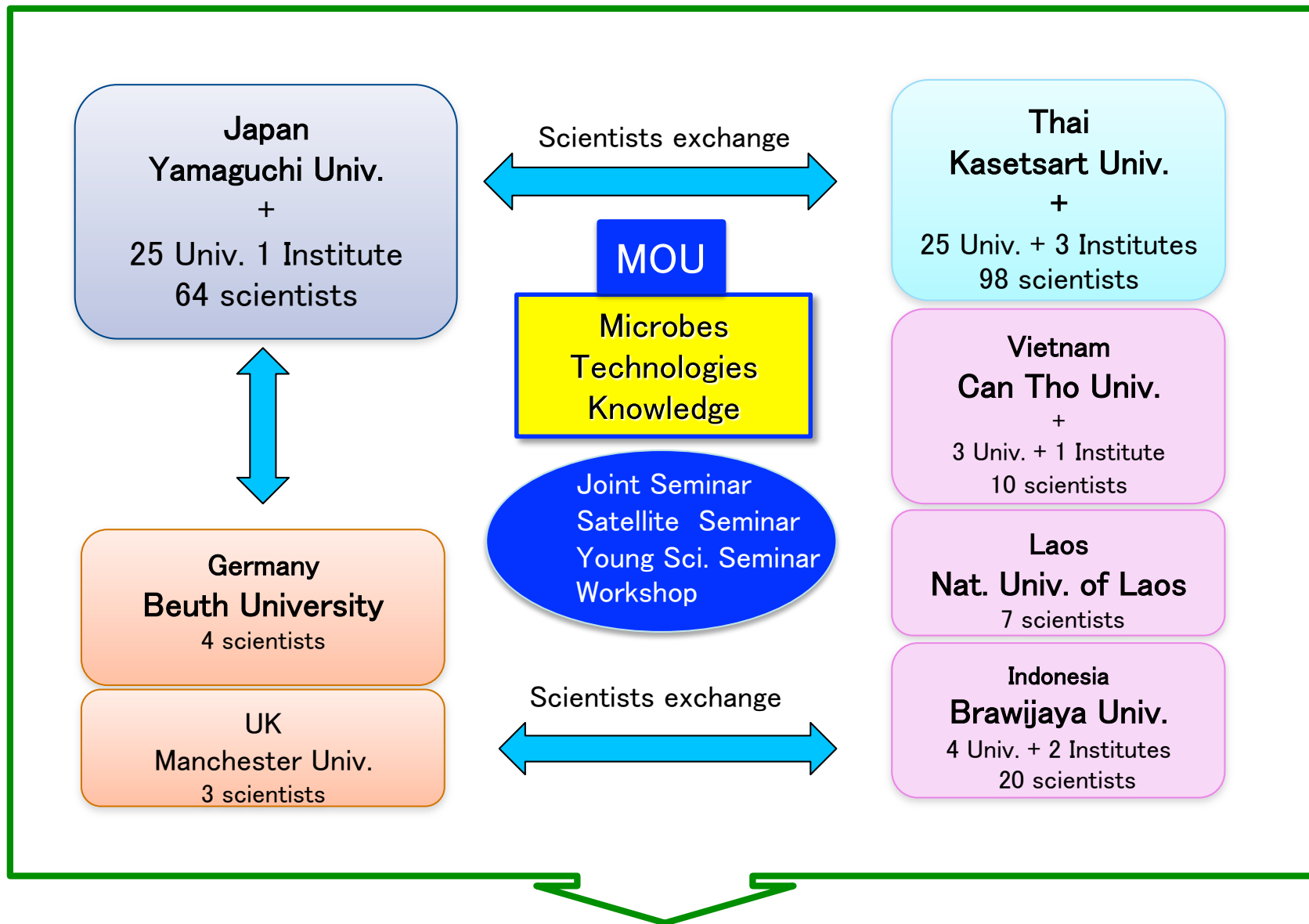
Technology

Bioscience<sup>Genome</sup>

Faculty of Applied Bioscience Department of Bioscience

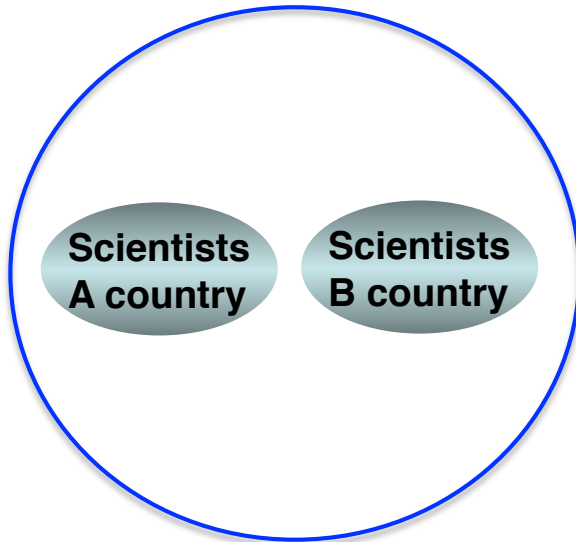


**Prof. Hirofumi Yoshikawa**  
**Tokyo University of Agriculture**

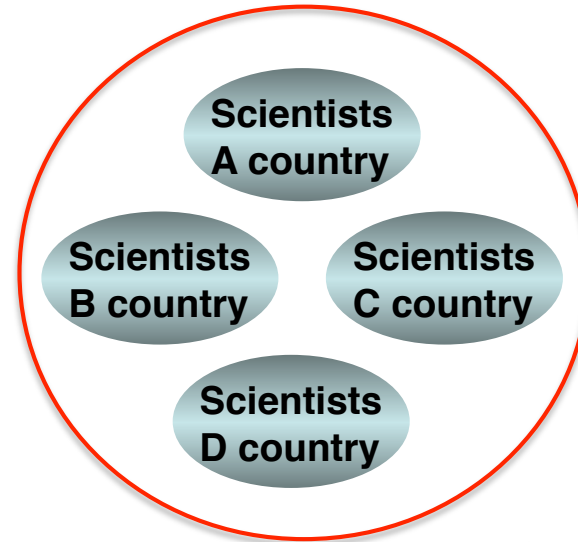


# Collaborative Research

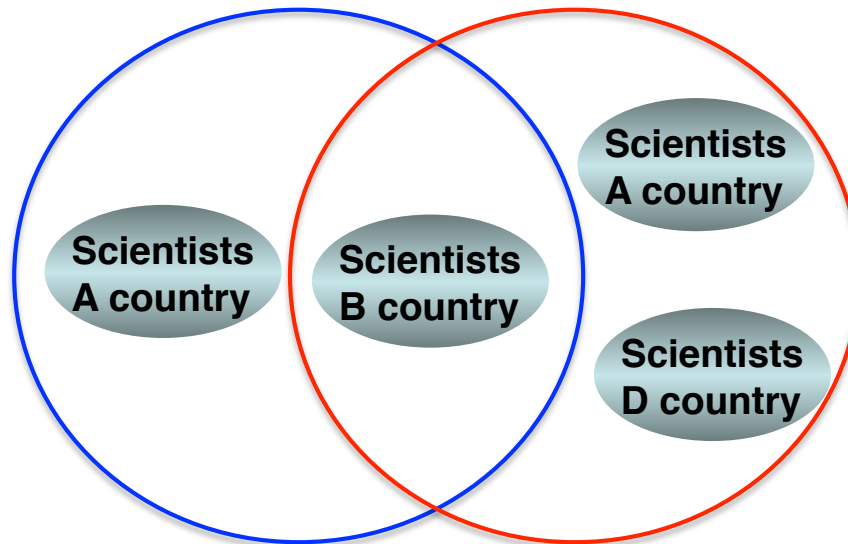
# Research Group Styles



**Two countries**



**More than two countries**



**Overlapping Groups**

# **How to find out your counterpart**

**Your coordinator  
at your country**

**Home page**

## **MEMORANDUM OF UNDERSTANDING (MOU) in CCP**

1. All microbial strains isolated or used by counterpart researchers from the seven countries will be owned depending on sources of isolation.
2. Any microbial strains which were/will be developed and manipulated by collaborative researchers from the seven countries will be owned basing on proportion of technical participation.
3. All microbial strains which will be used in publications or patents are recommended to be deposited in the designated culture collections of each country:

Japan side: National Institute of Technology and Evaluation (Nite) Biological Resource Center

Thailand side: National Center for Genetic Engineering and Biotechnology (BIOTEC) Culture Collection or Microbiological Resources Centre (MIRCEN) at Thailan Institute of Scientific and Technological Research (TISTR)

Vietnam side: Biotechnology Research and Development Institute, Can Tho University

Laos side: Faculty of Science, the National University of Laos

Germany side: DSMZ, Braunschweig, Germany

Indonesia side: University of Brawijaya, Indonesia

United Kingdom side: The United Kingdom National Culture Collection (UKNCC)

## **Acknowledgements in paper**

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**Co-authors more than one countries**

# Your Contribution in CCP

Collaborative Works

Seminars

YSS & Workshop



**Collaborative Research Plan in English**  
**Deadline: At the end of Nov., every year**

**Research Report in English**  
**Deadline: At the middle of Jan., every year**



**Your coordinator**



**JSPS, NRCT or Universities**

## COORDINATORS

### General Coordinator

Prof. Dr. Kazunobu Matsushita

Assoc. Prof. Dr. Napavarn Noparatnaraporn

Prof. Dr. Vo-Tong Xuan

### Coordinator

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Assoc. Prof. Dr. Gunjana Theeragool

Assoc. Prof. Dr. Ngo Thi Phuong Dung

Assoc. Prof. Dr. Somchanh Bounphanmy

Prof. Dr. Ing. Peter Götz

Dr. Ir. Anton Muhibuddin

Prof. Dr. Colin Webb

### Vice-coordinator

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Assist. Prof. Dr. Vichai Leelavatcharamas

Mr. Phong Huynh Xuan

Assoc. Prof. Manichanh Sayavong

Dr. Ir. Joni Kusnadi

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Prof. Dr. Vo-Tong Xuan

### Coordinator

Research Plan  
Research Report



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Assoc. Prof. Manichanh Sayavong  
Dr. Ir. Joni Kusnadi

# Home Page at Japan side

## Under construction

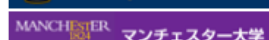


バイオ新領域を拓く熱帯性環境微生物の国際研究拠点形成 Establishment of an international research core for new bio-research fields with microbes from tropical areas (World-class research hub of tropical microbial resources and their utilization)

MENU



拠点大学・協力大学



Seminar	2014	2015	2016	2017	2018
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FerVAAP		Thai		Thai	

***Thank you for your kind attention***

