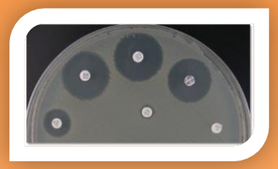
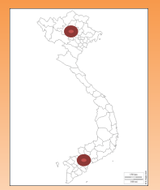
ISSUE No.4
Jan. 2014

SATREPS PROJECT NEWSLETTER

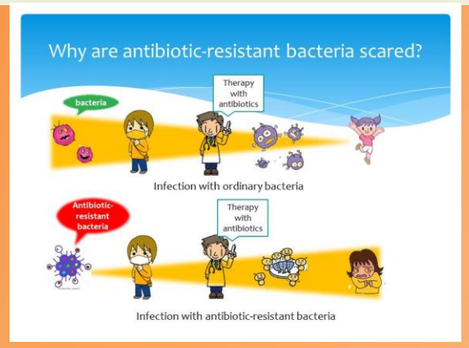


A project to "Determine the Outbreak Mechanisms and Develop a Surveillance Model for Multi-Drug Resistant Bacteria"

Basic Seminar by Prof. Yamamoto, 18th - 20th DEC.



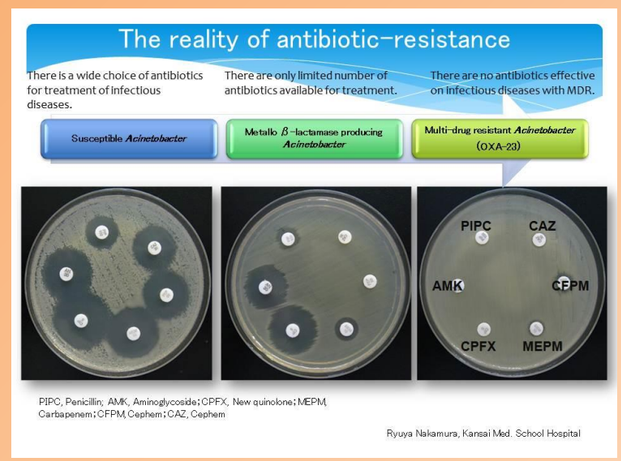
Prof. Yamamoto, the project's chief advisor, held basic seminars on the scientific background of antibiotic resistance for Vietnamese researchers at both NIN and IHPH. The aims of the seminars were to communicate shared scientific considerations between project members as well as nurturing the abilities of the young research team. He visited NIN and IHPH from the 18th to the 20th of Dec., presenting mechanisms of multidrug resistant bacteria and exchanging ideas with the project's 14 core researchers.

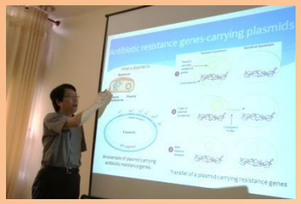


He then illustrated the reality of antibiotic-resistance from laboratory analysis. The left picture shows effective antibiotic medicine killing all bacteria present in the sample. The middle picture shows partial effectiveness, where only two kinds of antibiotics can eradicate the bacterium. The worst case is visible in the right picture, where none of the antibiotics are able to isolate the bacterium. This results in a very dangerous multi-drug resistant (MDR) bacterium being born. As an example of MDR bacteria, he highlighted the spread of NDM-1 (New Deli Metallo-beta-lactamase) cases in the world.

❖ Why are antibiotic-resistant bacteria scary?

Firstly Prof. Yamamoto identified the reason why antibiotic resistant bacteria are "scary". Multidrug resistant bacteria cannot be killed by standard antibiotics, which is particularly lethal for children or elderly people who do not have a powerful enough immune system to fight them off. That's why, as the USA Center for Disease Control and Prevention warned, antibiotic resistant bacteria have become one of the world's most pressing public health problems.





❖ Antibiotic resistant genes carrying plasmids

He explained an example of gene transfer mechanisms from one bacterium to another. A small DNA molecule or plasmid, sometimes carries antibiotic resistant genes. If the plasmid carrying the resistant genes is transferred from a resistant bacterium to a sensitive bacterium, both will become antibiotic resistant bacteria. Prof. Yamamoto suggested that advanced research on plasmid distribution be an important assignment for the project, for example the gene transfer from resistant *E.coli* to other bacteria.

Progress Meeting in Hanoi, 4th - 5th Nov.

Project members gathered at NIN

The second progress meeting was held at National Institute of Nutrition, Hanoi from the 4th to the 5th of November with the participation of 26 project members. The meeting allowed members to report on the progress of project goals, draft a detailed action plan and resolve issues regarding project management. The Vietnamese institutions presented the progress of project's implementation, including research on multi-drug resistant bacteria and research capacity development. The members agreed on developing monitoring systems at three sites; Hanoi, Nha Trang and HCMC to monitor ESBL-producing bacteria and Beta-lactam antibiotics in food samples. The monitoring systems will adapt an existing framework used by the Ministry of Health and the Vietnam Food Administration and operate from 2014.

The project leader Prof. Tuyen and chief advisor Prof. Yamamoto signed the 'Minutes of the Meeting' and agreed on the meeting's conclusions, witnessed by representatives of several Vietnamese institutions.

After the meeting, Japanese members prayed for the success of the project at Van Mieu, the temple of literature in Hanoi.

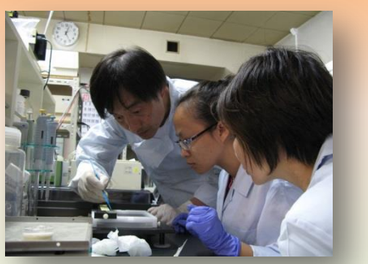
EDITED BY PROJECT OFFICE

Room 308,48B Tang Bat Ho,Hai Ba Trung,Ha Noi
Telephone/Fax (84-4)39729383
http://www.satreps-mdrb.jp/

SATREPS
Science and Technology Research Partnership for Sustainable Development Program

Short-term training in Japan completed, Oct.

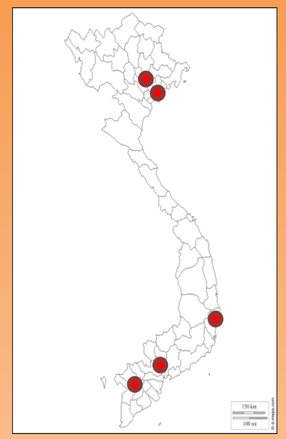
Six participants finished short-term training courses in Japan on the 15th of Oct. 2013. The courses were based on three scientific fields: microbiology, pharmacology and food monitoring systems. All of the participants attended lectures at Osaka University, conducted experiments at Osaka Prefecture Institute of Public Health and took part in a field trip to a food wholesale market.


Project Digest Vietnam, Oct. – Dec.

➢ Hanoi

The NIN microbiology team along with Mr. Ueda collected 317 samples from Bavi, and began isolation of ESBL-producing bacteria in healthy human and food samples.



➢ Thai Binh

The TMU microbiology team along with Dr. Watabe, Dr. Kawahara and Dr. Hirai collected 251 samples including healthy human feces, food and chicken swabs, and later conducted a disk diffusion test.

➢ Can Tho

The CTU microbiology and anthropology team discussed with Dr. Sumimura about the forthcoming research plan in the Mekong Delta.

➢ HCMC

The IHPH pharmacology team alongside Dr. Harada, Dr. Okihashi and Dr. Uchida started LC/MS/MS analysis on food samples. The microbiology team isolated ESBL-producing bacteria from the samples.

➢ Nha Trang

The PINT pharmacology team and Dr. Harada conducted a Premi test on antibiotic residues found in 200 food samples collected from a market.

Close up on the Researchers

❖ Pasteur Institute of Nha Trang (PINT)

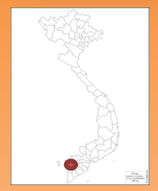
The Pasteur Institute Nha Trang, plays a role in microbiology (human and foods) and pharmacology research, focusing on food production and human consumption sites. They are also in charge of managing the bacteria and antibiotic residue monitoring system in Nha Trang.

➢ (Left) Mr. Le Quoc Phong
Microbiologist, Center for Food Safety Analysis, Central Vietnam

Mr. Phong will start a short term sandwich course at Osaka Prefectural University from FY 2014.

➢ (Left) Ms. Dao Thi Van Khanh
➢ (Right) Mr. Chau Van Vien
Pharmacologists, Center for Food Safety Analysis, Central Vietnam

Mr. Vien completed a short-term training course at Osaka University in 2013.



❖ Can Tho University (CTU)

Can Tho University, focuses on food production sites in the Mekong Delta, and is involved in food microbiology, pharmacology and anthropology studies.

➢ Dr. Nguyen Cong Ha
College of Agriculture and Applied Biology

➢ (Left) Dr. Tran Thi Tuyet Hoa
College of Aquaculture and Fisheries
➢ (Right) Dr. Nguyen Trong Ngu
College of Agriculture and Applied Biology

➢ Ms. Tran Thi My Duong
College of Aquaculture and Fisheries

➢ Ms. Duyen has started a doctoral course on pharmaceutical science at Osaka University under Prof. Hirata's supervision.

➢ Ms. Tran Thi Thu Suong
College of Agriculture and Applied Biology

➢ Ms. Suong being presented her certificate by Prof. Yamamoto for her completion of a short-term training course at Osaka University.

EDITED BY PROJECT OFFICE
Room 308,48B Tang Bat Ho,Hai Ba Trung,Ha Noi
Telephone/Fax (84-4)39729383
http://www.satreps-mdrb.jp/

SATREPS
Science and Technology Research Partnership for Sustainable Development Program