

## International Course

### **“MOLECULAR EPIDEMIOLOGY AND APPLICATIONS IN FOODBORNE, NOSOCOMIAL AND VECTOR-BORNE INFECTIONOUS DISEASES OF GLOBAL SIGNIFICANCE”**

Holiday Inn, Chiang Mai, Thailand: August 3 to 4 2015

Local Coordinator: Dr. Prapas Patchanee ([patprapas@gmail.com](mailto:patprapas@gmail.com))

***A team of Scientists from Belgium, U.S., and other global partners is conducting a course on molecular epidemiology and its applications. This course will be held in Chiang Mai, Thailand from August 3 to 4 as a pre-congress to the International Congress on Pathogens at the Human Animal Interface (ICOPHAI) organized by the VPH-biotech consortium and other global affiliates. Participants will primarily be early-career faculty / researcher or graduate students who currently conduct research in molecular epidemiology of infectious diseases especially in South East Asian Countries. The basic content of the course is freely available online or iTunesU at <http://go.osu.edu/MolEpid> The 1.5 days face to face workshop will allow trainees to have a direct interaction with professors and learn key aspects in depth.***

***The objectives of the course will include:***

- 1. Learn variety of existing core and emerging molecular tools that can be applied to epidemiological studies of infectious diseases.**
- 2. Understand the advantages and limitations of each molecular technique and will be able to make a critical analysis and interpretation of data collected with various molecular approaches.**
- 3. Be able to use molecular approaches to design and implement epidemiological studies to investigate problems of infectious diseases.**

#### **Course Contents:**

- Principles and definitions of Molecular Epidemiology; Criteria and core approaches; Genotyping methods (PFGE, RFLP, MLST); Bioinformatics software; Genotyping for M. tuberculosis (Spoligotyping/ MIRU); Comparative Assessment of Biomedical Information and Supramap among others.

## **Program schedule (Tentative):**

### August 3:

- 01.00-01.30 Opening and introduction to the course/ materials distribution
- 01.30-02.30 Overview of Molecular Epidemiology, history, principles and definitions  
(Lee Riley)
- 02.30-02.45 Coffee and networking break
- 02.45-04.00 Genotyping criteria and core approaches: restriction and amplification  
(Wondwossen Gebreyes)

### August 4:

- 09.00-10.30 Overview of sequencing approaches (Wondwossen Gebreyes)
- 10.30-10.45 Networking and coffee break
- 10.45-11.30 Genotyping methods (PFGE, RELP, MLST etc.) (Lee Riley)
- 11.30-12.30 Molecular Epidemiology of MDR Tuberculosis and its genetics of drug  
resistance (Lee Riley)
- 12.30-01.30 Lunch
- 01.30-02.30 Genotyping methods: Gel and Sequence Analysis (Koen Janssens, Applied  
Maths)
- 02.30-02.45 Coffee and networking break
- 02.45-03.45 Genotyping methods: Bionumerics (Koen Janssens, Applied Maths)
- 03.45-04.45 Comparative assessment of Biomedical Information
- 04.45-05.45 Supramap.org: a web based application for bioinformatics and geography of  
pathogens – Practical exercise

**Instructors:**

**Lee Riley, MD, PhD**



**Prof. of Epidemiology and Infectious Diseases; Chair, Division of Infectious Diseases and Vaccinology, School of Public Health, University of California at Berkeley**

**Wondwosen A. Gebreyes, DVM, PhD**



**Prof. of Veterinary Epidemiology  
Director of Global Health Programs Dept. of  
Veterinary Preventive Medicine,  
The Ohio State University**

**Koen Janssens, MSc**



**Master of Science in Bioinformatics,  
Catholic University Leuven (Belgium), Chief  
Executive Officer of Applied Maths**