

## RESEARCH PROJECTS CONDUCTED AT CILM 2010-2017

1. **Bleach treatment of sputum samples aids pulmonary tuberculosis screening among HIV-infected patients in Laos**". Study duration: 2009. Published in 2011.  
**Sponsors & Collaboration** with IFMT, Fondation Mérieux
2. **Resistance of *Mycobacterium tuberculosis* to antibiotics**. Study duration: 2010-2011. Published in 2013.  
**Sponsors & Collaboration** with IFMT, Fondation Mérieux
3. **The first national tuberculosis prevalence survey of Lao PDR**. Study duration: 2010-2012. Published in 2015.  
**Collaboration** with National TB Programme, WHO, Fondation Mérieux.  
**Sponsors:** Global Fund, USAID and Fondation Mérieux
4. Cohort for Pandemic Influenza CoPanFlu-Laos): **"2009 A(H1N1) seroconversion rates and risk factors among the general population in Vientiane Capital, Laos**.  
Study duration: 2010-2012. Published in 2013.  
**Sponsors & Collaboration** with EHESP, Fondation Mérieux
5. **"Intestinal Parasitic Infections in HIV-Infected Patients, Lao People's Democratic Republic"**. Study duration: 2010-2013. Published in 2014.  
**Collaboration** with Université Lyon 1, France, 2 UMI 233, IRD-Université Montpellier 1, France, University of Health Sciences, Vientiane, Lao PDR, Department of Infectious Diseases, Setthatirath Hospital, Vientiane, Department of Infectious Diseases, Provincial Hospital, Savannakhet, Lao PRD.  
**Sponsors:** SIDACTION, Conseil Régional Rhône-Alpes, Fondation Mérieux.
6. "HIV Viral Load Testing in Laos". FACTS Report: <http://factsreports.revues.org/2628>  
**Collaboration** with Fondation Mérieux, Institut Pasteur du Cambodge.
7. LaoCol-VP: Efficacy and cost-effectiveness of careHPV™ human papillomavirus screening vs Pap smear for the detection of precancerous and cancerous cervical lesions among HIV-infected women in Lao PDR. Study duration: 2013-2016.  
Publication is ongoing.

**Objectives:**

- To assess the performance of HPV screening with *careHPV*<sup>TM</sup> versus conventional Pap smear (CPS) for the detection of precancerous and cancerous cervical lesions among HIV-infected women in Laos.

**Sample size:** 644 women from 4 AIDS treatment centres: Mahosot, Sethathirath, Savannakhet, LaunPrabang.

**Collaborations:** CHAS, UHS (Anapath Depart), 4 ARV sites, Setthathirath (Gyneco-Obstetric Unit).

**Sponsors :** Fondation Mérieux, Institut National du Cancer, France

8. Epidemiological study of acute lower respiratory infections (LaLRIS): Sub-study of CoPanFlu. Study duration: 2014-2015

**Objectives:**

- To identify at the individual level the epidemiological and virological determinants of respiratory infection in Vientiane.
- To determine the etiological agents responsible for respiratory infections (ALRI including: pneumonia, bronchiolitis, Flu), viruses and bacteria will be analysed in respiratory specimens collected from subjects belonging to the CoPanFlu household cohort.
- To type the strains of *Streptococcus pneumoniae* and Rhinovirus

**Design:** A prospective cohort of households representative of Vientiane Capital, followed up for two years. Households were chosen among 25 villages according to the urban, cultural and social variability of the states, giving an overall statistic validity for our sample. 4 072 subjects corresponding to 807 households were recruited.

**Sponsor :** Fondation Mérieux

9. National Prevalence of primary HIV drug resistance. Study duration: 2014-15.

**Objectives:**

- to assess the prevalence of pre-treatment DRHIV.
- to identify HIV resistance to the different antiretroviral drugs

**Design:** Cross sectional study.

**Total patients included:** 480 HIV-infected naïve patients registered in 8 ARV sites: Mahosot, Sethathirat, Savannakhet, Champasak, Bokeo, Louangnamtha, Louangprabang & Khammaune. Publication is ongoing.

**Sponsor :** Fondation Mérieux and Global Fund

10. Evaluation of the performance of rapid tests versus ELISA for the detection of virus hepatitis B infection in different hospitals in Vientiane, Lao PDR. Study duration: 2015-2016

**Objectives:**

- To determine the proportion of HBV infection among Lao patients presenting at different hospitals in Vientiane based on HBsAg ELISA
- To determine the sensitivity, specificity, PPV, NPV and accuracy of HBsAg RDT compared with ELISA for the detection of HBV infection.
- To compare the sensitivity, specificity, PPV, NPV and accuracy of the HBsAg RDTs between different brands (Boson Biotech, CTK Onsite HBsAg and Core test HBsAg)

**Design:** Prospective, descriptive study

**Study sites:** Mahosot, Military, Laoviet, Mitthaphap Hospitals

**Samples size:** 1740.

Publication is ongoing.

**Sponsors :** Fondation Mérieux and Fondation Anber

11. LaCoRIS: Respiratory Infectious Disease among CoPanFlu Cohorts in Vientiane Capital, Lao PDR.

**Study design:** Prospective cohort study created in 2006 by IRD and used during the CoPanFlu project. 9 months of surveillance, starting from April 2015-2016

**Study objectives:**

- Measure the incidence rates of acute respiratory diseases in Vientiane.
- Identify the pathogens responsible for acute respiratory diseases in Vientiane.

**Study sites:** 25 villages (887 households, 4 379 persons), distributed across three zones different: central zone, inner & outer urbanized belt.

**Samples size:** 540 subjects.

**Sponsors:** U.S. Naval Medical Research Unit Number 2, Fondation Mérieux

12. Evaluation of acceptance of and adherence to 6 month-IPT program among HIV-infected patients in Vientiane, Lao PDR, Study duration: 2015-2017.

**Study design:** Observational multicentric cross-sectional study

**The overall objective** of this epidemiological study is to identify the specifics of migrants living with HIV compared to non-migrants living with HIV.

**The specific aims are:**

- To describe and quantify the migration itineraries of people Living with HIV: incoming international migration, subnational, and tilting (“go-back”)
- To identify the determinants (gender, stigma, social demographics, quality of life, quality of care...) contributing to three types of migration in people Living with HIV
- To analyze how the migration itineraries (or national/international mobilities) can increase the infection risk of HIV, but also how they respond to seeking care appropriate to AIDS state of health. This is an observational study with a collection of new data by anonymous questionnaire proposed to patients at the HIV care centers
- To identify some comorbidities of migrants living with HIV (as determinants for migrations) compared to no migrants living with HIVIPT

**Study sites:** in Vientiane capital: Setthathirath ART center.

**Samples size:** 327 patients

**Sponsors :** Global Fund for TB

13. Migration, mobilities and HIV/STI vulnerabilities an interdisciplinary and community based participatory research in Lao PDR. Study duration: 2015-2017

**Study design:** Cohort/longitudinal study

**Study objective:**

- To assess the acceptability, adherence and completion profile among HIV-infected patients who completed self-administered INH in Vientiane capital based on HIV national program.

**Specific objectives:**

- To estimate the level of acceptance and completion rate of IPT
- To assess the incidence of TB during IPT
- To determine factors associated with non-adherence to IPT

**Study sites:** 10 ART centers: Champasak, Savannakhet, Khammuan, Setthathirat, Mahosot, Luangphrabang, Huaphanh, Borkeo (Tonpherng, Houayxay), Luangnumtha.

**Samples size:** 644 patients

**Sponsors :** Expertise France /CRF: LA 122 5%, IRD

14. Factors associated with the quality of life of people living with HIV/AIDS.

Study duration: 2017.

**Study design:** A cross-sectional study

### **General objective**

- To study the factors associated with the quality of life among people living with HIV/AIDS in Lao PDR

### **❖ Specific objectives**

- To validate the instrument measuring the QoL among HIV/AIDS patients in Lao PDR
- To determine the exploratory variables associated with QoL among people living with HIV/AIDS in Lao PDR
- To compare quality of life among HIV/AIDS people with the general population

**Study sites:** 5 ART sites in Vientiane Capital, Savannakhet, Champasak and

Luangpabang

**Samples size:** 366 patients

**Sponsors :** Fondation Mérieux, IFMT

Publication is ongoing

### 15. PhD's projects:

15.1) Molecular Epidemiology of *Mycobacterium tuberculosis* and antibiotic resistance in Lao PDR. Study duration: 2015-2017

#### **Dr. Silaphet Somphavong**

**Objectives:** to study for the first time the *Mycobacterium tuberculosis* population circulating in Lao PDR and to explore the drug resistance.

- Study of genetic diversity and structure of *M. tuberculosis* population in Lao PDR.
- Study of drug resistance in *M. tuberculosis* and its evolution

#### **Study sites and sample size:**

- N=219 samples from National Prevalence Survey for TB (NPS-TB), 2010-2011
- Drug resistant isolates, 2010-2017: N=267 samples collected

**Sponsors :** IRD, Fondation Mérieux

15.2) Comparing metabolomic approaches for the detection of diagnostic, dynamic and prognostic markers of hepatitis B and C in the plasma of Lao patients.

Study duration: 2016-2018

**Study design:** Cohort/longitudinal retrospective and prospective study

**Study objective:**

- **to identify specific biomarkers** of viral infection and to follow their biodisponibility, in order to provide a tailored intervention for individual patients. This will be made possible through a comparative metabolomics analysis of plasma on the metabolomics platform at the university of Toulouse from a biobank of infected patients from the CILM with hepatitis virus B-C.

**Specific objectives:**

- a. To collect consequent amounts of data by spectrometry
- b. UHPLC - QTOFMS for a general metabolite profiling
- c. UHPLC - QTtrap for the precise quantification of selected biomarkers
- d. To highlight specifically expressed plasmatic metabolites for a given viral pathology (or given co-infection)
- e. To determine the predictive evolutionary dynamics of a clinical deterioration

**Study population:** we enrolled Hepatitis B, C diagnosed patients with plasma already present in the bio-bank. Only patients that are still coming for routine analysis and follow up of their infection will be enrolled (informed consent will be submitted for the screening of already stored plasma and new fresh sampled plasma).

**Samples size:** 100 patients

**Sponsors :** IRD, Fondation Mérieux, Campus France.