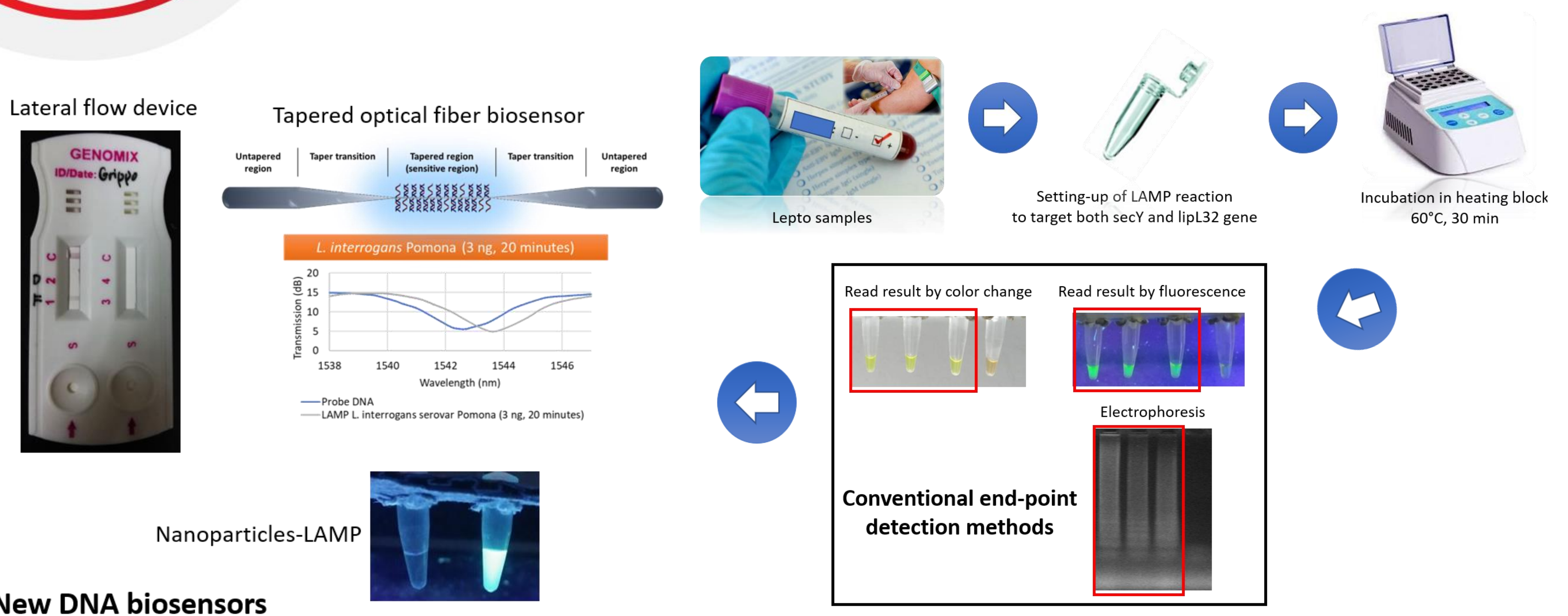


Nucleic Acid-based Diagnostic for Leptospirosis

Patent No. PI 2019002320



TECHNOLOGY

Early diagnosis of leptospirosis is vital for better treatment, control and prevent wide spread of the disease. However, current diagnostic methods are not useful in early diagnosis or they are often costly and not readily available in many resource-limited settings.

Our invention focuses on the utilization of loop-mediated isothermal amplification (LAMP) technology for the detection of *Leptospira* by targeting two important genes of *Leptospira*, one for the detection of all *Leptospira* and another for the detection of only the pathogenic strains of *Leptospira*.

This will allow not just the detection but also differentiation of both pathogenic and saprophytic *Leptospira* simultaneously, further improving both its specificity and sensitivity.

INVENTION

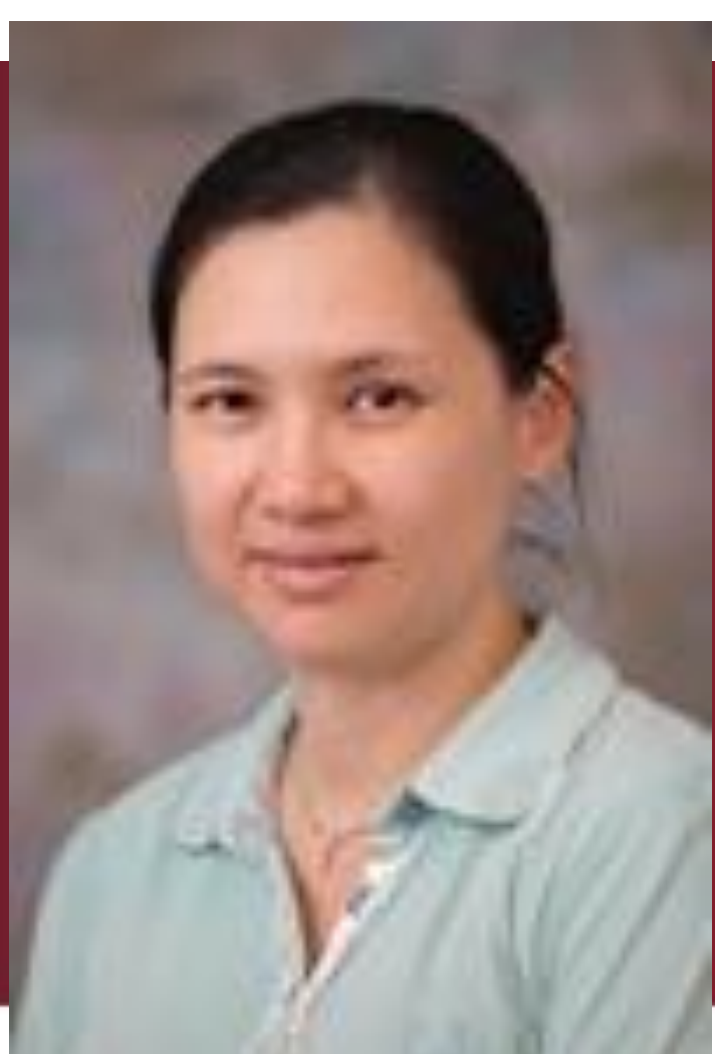
- **Novel LAMP primers and optimized parameters** for the amplification of two important *Leptospira* genes, *secY* and *lipL32*, for the detection and differentiation of pathogens and saprophytes of *Leptospira*.
- Applicability of the LAMP assay in **various types of samples** such as human, animal, soil and water samples.
- **New DNA biosensors** for detection of LAMP amplicons – Tapered optical fiber biosensor, nanoparticles, and lateral flow biosensor.

ADVANTAGES

- Detection but also the differentiation of the pathogenic and saprophytic pathogenic serovars of *Leptospira*.
- Reaction time less than one hour compared to its closest rival which is about 2 hours.
- Cost-effective and does not require expensive/sophisticated instruments.
- Can be applied on various types of samples (human, animal, environmental).
- Can be coupled with various new end-point detection method to improve its sensitivity and specificity.

MARKET POTENTIAL

1. Countries where leptospirosis and dengue are endemic
 - Often misdiagnosed as dengue due to similar clinical manifestations
 - Southeast Asia
 - Tropical countries
2. Multiple industries/markets across these regions
 - Molecular diagnostic companies
 - Hospitals/clinics
 - Vaccine companies
 - Diagnostic labs
 - Disease control/surveillance agencies
 - Environmental protection agencies



Project Leader : Assoc. Prof. Dr. Chee Hui Yee
 Team members : Lam Jia Yong, Shuhaidah Othman
 Dept./Faculty : Medical Microbiology and Parasitology, Faculty of Medicine and Health Sciences
 Email : cheehy@upm.edu.my
 Phone : 03- 9769 2576
 Expertise : Medical Virology, Molecular Biology, Molecular Diagnostic