

## Executive summary

Basic research entitled “Molecular techniques for identification of protective epitope and pathogenic peptides of LipL32 protein of *Leptospira* spp.” was financially supported by New Researchers Grant from Thailand Research Fund (TRF), Office of Higher Education Commission, and Mahidol University, Thailand (to Dr. Santi Maneewatcharangsri, No. MRG5380138, 2010-2012). The objectives of research are to identify and characterize LipL32 epitope bound by therapeutic LPF1 monoclonal antibody (mAbLPF1) and to identify LipL32 peptides/domains responsible for hemolytic activity of the protein. The research was conducted at Faculty of Tropical Medicine, Mahidol University and Laboratory for Research and Technology Development, Department of Parasitology, Faculty of Medicine Siriraj Hospital, Mahidol University. Benefits obtained from the project are summarized as the following:

1. Basic knowledge gained from the project are firstly, known neutralizing/protective epitope of *Leptospira* LipL32-specific mAb (mAbLPF1 epitope) and its properties including peptide sequence and molecular structure, epitope conservation among *Leptospira* spp. and the LipL32 protein superfamily. Secondly, presumptive known of antigenic determinants (key residues) involved in mAbLPF1 epitope-paratope interaction. Lastly, known potentially LipL32 peptides responsible for hemolytic activity.
2. Transformed *E. coli* clones carrying recombinant *lipL32* and *sphH* plasmids (encoding for LipL32 $\Delta$ 1-90, LipL32 $\Delta$ 1-170 and SphH) were established from the project and the *lipL32*-pET *E. coli* clone was used as material for molecular cloning practice in TMMO504 course, Department of Molecular Tropical Medicine and Genetics, Faculty of Tropical Medicine, Mahidol University.
3. One original paper-publication (Maneewatch *et al.*, 2014, published in PEDS journal, IF=2.58), 4 oral and 2 poster presentations from national and international conferences.
4. Original paper (Maneewatch *et al.*, 2014) was submitted for Assistant Professor (Molecular Biology) position.