DEVELOPMENT OF ENZYME-LINKED IMMUNOSORBENT ASSAY FOR HUMAN LEPTOSPIROSIS SERODIAGNOSIS USING LEPTOSPIRA SECRETOME ANTIGEN

Santi Maneewatchararangsri¹, Onrapak Reamtong¹, Thareerat Kalambaheti², Pornpan Pumirat², Muthita Vanaporn², Direk Limmathurosakul³, and Charin Thavornkuno¹

¹Department of Molecular Tropical Medicine and Genetics, ²Department of Microbiology and Immunology, ³Department of Tropical Hygiene, Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand

Abstract. Secretome (extracellular proteins) has been considered as a potential diagnostic biomarker, vaccine and therapeutic candidates for bacterial infections. In this research, secretomes of two reference Leptospira spp, namely, pathogenic L. interrogans serovar Autumnalis strain Akiyami and saprophytic L. biflexa serogroup Semaranga serovar Patoc strain P136 were evaluated for their immunogenicity to microscopic agglutination test (MAT)-positive leptospirosis patients’ sera in IgM- and IgG-ELISAs in comparison to a whole Leptospira homogenate antigen. At a single serum dilution of 1:1,000, sensitivity of the pathogenic Leptospira secretome antigen-based IgM- and IgG-ELISAs was 90% (18/20) and 75% (15/20), respectively, when compared with that of the MAT assay. Thus, Leptospira secretome provides a potential antigen source in serodiagnosis of leptospirosis.

Keywords: Leptospira spp, secretome, immunogenicity, ELISA