

ACKNOWLEDGEMENT

This thesis marks the completion of a meaningful academic and research journey, made possible through the support and contributions of many individuals and institutions. I am deeply grateful for the opportunities, resources, and guidance I have received throughout this process.

I would like to extend my sincere appreciation to the Parasitic Disease Research Center (PDRC) at Suranaree University of Technology (SUT) for their invaluable support in facilitating this research. My heartfelt thanks also go to the Kitti Bundit Scholarship at Suranaree University of Technology, for providing financial and academic support that eased my burdens and motivated me to strive for its academic excellence. I am also thankful to the Translational Medicine Program at SUT for the academic guidance, support, and the opportunities extended to me throughout my graduate studies. In addition, I am grateful for the funding and encouragement provided by Thailand Science Research and Innovation (TSRI) and the National Science, Research and Innovation Fund (NSRF), which enabled the successful execution of this research.

I am especially indebted to my thesis advisor, Dr. Wiwat Nuansing and Associate Professor Dr. Schawanya Rattanapitoon, MD, FCFP, for their expert guidance, patience, and mentorship. Their critical insights, encouragement, and unwavering support were essential in overcoming challenges and achieving meaningful outcomes. I am also thankful to my co-advisors, Assistant Professor Dr. Nathkapach Rattanapitoon for his invaluable feedback, technical expertise, and continuous assistance in strengthening the quality of this thesis. To my beloved family, I express my deepest appreciation for their unconditional love, patience, and steadfast support throughout this journey. Their belief in me and behind-the-scenes sacrifices were the foundation of my success.

Lastly, I would like to thank myself for the perseverance and resilience demonstrated in overcoming all obstacles. This experience has shaped me both academically and personally. To everyone who supported me, thank you from the bottom of my heart.

Chutharat Thanchonnang