

ACKNOWLEDGEMENTS

This work was supported by One Research One Graduate (OROG) fellowship, SUT (53/2565) Suranaree University of Technology. Apart from my efforts, the complement of this dissertation would not have been possible without the encouragement, kind support and guidelines of many others.

First and foremost, I wish to express my deepest gratitude and my sincerest thank to my supervisor Prof. Dr. Rangsun Parnpai for his guidance and encouragement. Thank you very much for providing the scholarship, financial supports and laboratory facilities. I also wish to express my deep sense of gratitude to Dr. Irene Aksoy and Dr. Kanjana Thumanu, my co-advisors, for their advice, help and technical support throughout my thesis work. My appreciation is also to Prof. Dr. Pierre Savatier for his advice and impressive experience. I would like to thank Cloé Rognard and Anaïs Amzal, my co-workers, for their help, technical support immunocytochemistry analysis and RNA sequencing.

I gratefully acknowledge Dr. Supatcharee Cael and Dr. Kanokwan Kamkajon for their assistance and guidance in FTIR microspectroscopy analysis. Special thanks also go to Miss. Chunmanus Uthaisar for her valuable support in set up FTIR microspectroscopy machine for analysis. I would like to thank my junior, Ms. Siriphon Suwanna, for her willing help in immunocytochemistry analysis. My thanks and appreciations also go to the members of Embryo Technology and Stem cell Research Center.

A million thanks to my mother, Mrs. Puan Singwankham for warm wishes and financial support.

Finally, I am forever indebted to my beloved families for their understanding, endless love and encouragement which were most required throughout my studies.

Jittanun Srisutush