

ACKNOWLEDGEMENT

The PhD journey has always been a lengthy and arduous journey of obstacles, problems, and triumphs that have eventually culminated in the fulfillment of a cherished, lifetime academic ambition. Despite the fact that just one name appears on the cover of the thesis, every work is the result of the combined efforts of many brilliant people. Many researchers and individuals have contributed and helped me to complete my aims in one way or another throughout my research journey. A large number of people have made important contributions to this process, and I am grateful to every one of them. I want to thank everyone who helped make this happen, humbly and gratefully. . This study process has provided me with invaluable experience, which I will treasure for the rest of my life.

*Foremost, I would like to express my sincere gratitude to my supervisor, **Prof. Pragna Parikh, Head of the Department**, for her invaluable advice, continuous support, motivation, and patience during my Ph.D. tenure. Her immense knowledge and plentiful experience have supported me in all the time of my academic research and daily life. Her prompt inspirations, timely suggestions with kindness, enthusiasm have helped me complete my research and thesis. She has been a motherly support, and friendly guide, one of the most caring and approachable being. She has always shown faith and confidence in my work, pushed me towards achieving success in my goals. This journey wouldn't have been possible without her guidance. I am grateful for having her as my advisor and mentor for my research study. I also express my gratitude to **Mr. Hitesh Parikh, Mr. Yashesh Parikh, and Mrs. Vaidehi Parikh** for their constant support and encouragement for my thesis work.*

*Every moment teaches us something new, every stride in our life inspires us more, I would like to express my gratitude for the invaluable encouragement and timely support that all of my professors and teachers offered during my study period. My sincere thanks go to **Prof. P. C. Mankodi and Prof. Dolly Kumar**, former Head of Department for their constant support, motivation and encouragement during the tenure of my research. I show heartfelt gratitude to **Prof. B. Suresh**, who has been an inspiration, helping me to develop virtues like perfection and significance during the tenure of my work. I gratefully thank **Dr. R. V. Devkar** for providing a Fluorescence microscope for my experiment work. I extend my thanks to **Prof Vihās Vasu** and*

Dr. Hetal Roy for timely support and providing me the facility to utilize the instruments for my experiments. I want to thank **Prof. Sunita Salunke, Prof. Geeta Padate, Prof. K. D. Vaccharajani, Dr. Prakash Pillai, and Dr. U. K Gaurikumari** for giving me much needed advices while troubleshooting research problems. I extend my sincere thanks to Director, Central Facilities for providing the help for RT PCR and also to **Dr. Ratika Srivastava**, Department of microbiology and biotechnology, for providing the FACs facilities for my research work. Also, I am grateful to all the supportive staff members of the Department for the selfless services and support in various regards.

I gratefully thank to all my lab seniors **Dr. Ayaz, Dr. Chirag, Dr. Bhavika, Dr. Shalaka** for their constant support. I would like to thank my lab mates who have been present throughout my research program. My special thanks to my brother **Dr. Parth Pandya**, who helped me in data analysis, interpretation and completion of my writing work. He was always available for all my ups and downs. His encouragement and trust take my work to a different level. I extend my sincere thanks **Dr. Ankur Upadhyay** for his immense support and guidance. I would like to thank **Dr. Bhumi Thakkar** for being with me all these years, shoulder to shoulder supporting me in my work and encouraging me to give my best. I want to express my deep appreciation to **Dr. Linta Paulson** for helping and praying for me and keeping healthy working atmosphere in the lab during my research work. I extend my thanks to **Dr. Hitarth Changani** for his brotherly concern and timely support, and taking time out of his busy schedule to answer my questions. Not to forget my lab juniors, **Nishi Pandya and Pankaj Sharma**. I really appreciate their presence and for being a constant helping hand in completion of my thesis. Without their help, I would not have been able to complete my research work in such a proficient and timely manner.

My deepest admiration towards my friends and colleagues **Dr Mini Bharadwaj, Dr. Khushali Pandya, Dr. Chandani Valodkar, Dr. Anaal Engineer, Dr Mamta Deb, Kashmira, Harshita, Kaushal, Aparna, Dhaval, Krupal, Paromita, Hitarthi, Ali, Poonam, Helly, and all other research scholars** for helping me whenever I was in need and providing constant support for various practical approaches.

There are many individuals who may not belong to my domain or may not be from my profession even but their suggestions and motivating words can be much helpful in every difficult situation. I am grateful to have many such people and well wishers around me. The magnitude of

non-academic help they have given cannot be described in the words. I am blessed to have a supporting mother in law **Smt Lata B Salunke**, thanks to her for constant motivation, enthusiasm and providing me the open wings to pursue any venture in my life. I extend my thanks to Aji, **Late Yamunabai Borkar** and Sir, **Late Bhagwant Salunke** for showering blessings from the heaven. Also I would like to thank my **grandparents** for their Aashirwad. I am grateful to have loving family members and well-wishers **Mrs and Mr Yatin Ambegaonkar, Beenatai (Dr Chaiti Salunke), Vinoddada** for their constant support and motivation. I admire the special people in my life, my junior gang **Nilay, Nikunj, Soni, Rutu** for their love and care for me.

Last but not least I thank my **Aai and Baba, Mrs and Mr Jayant Ambegaonkar**, who have always strived for providing us the education best in its class. I thank them for the trust they kept on me to pursue my dreams, even when it seemed incomprehensible. I strongly believe that their prayers and blessings played a very important role in my life. I extend my thanks to my sister **Nikita Ambegaonkar** for acting as major stress reliever for me during the most difficult times of my research work. She is always the source of constant motivation and support for me.

Such endeavours would be impossible for me without the affection and support of my spouse, **Mr. Yashwant Salunke**. His advice, wisdom, and concern support me in becoming a better person. He is standing as my backbone in every ups and down of my personal and professional challenges. I owe my inmost gratitude to source of my energy, the reason of my life, my son **Shreepad Salunke** for all his love and care. This work is an outcome of the numerous sacrifices and support that both of them had made to make my thesis possible.

I thank them all and the others who genuinely offered their support. I appreciate those to whom I might have missed here in spite of their contribution to the accomplishment of my Ph.D.

THANK YOU EVERYONE AND FOR EVERYTHING...!!

-Ankita Salunke