Acknowledgements

Feeling gratitude and not expressing it is like wrapping a present and not giving it.

- William Arthur Ward

The journey before and during Ph.D. has many ups and downs. The self-confidence, inner motivation, positive attitude and blessings, and support of my parents were the reasons to stay up front during this journey. During my Ph.D. tenure, I have been accompanied and supported by many solicitous people who have contributed not only ideas but also criticism and suggestions which were very helpful and thought to provoke. Without the support, patience, and guidance of these people, this study would not have been completed. I feel this is the time to express my sincere gratitude to all of them. First and foremost, with a deep sense of gratitude, I wish to express my sincere thanks to my supervisor Dr. Yogesh Shouche. His patience, support, and faith in my capabilities made my journey successful. I am thankful to him for providing me the freedom to do science and for all the thought provoking discussions. His candid and vivid advice have left a deep impact on me both scientifically and personally and taught me to keep an open mind and positive attitude towards life. Dr. Shekhar C. Mande, Director, NCCS and Dr. G.C. Mishra, Ex-Director, NCCS, for having given me the opportunity to work here in NCCS and the necessary support. My deepest gratitude towards Dr. Milind S. Patole, Ex-Scientist, NCCS (Currently MCC Consultant), for having given me the opportunity, guidance and exceptional freedom to pursue this research study in my own ‘wild’ way. I would like to acknowledge Council of Scientific and Industrial Research (CSIR), India and Department of Biotechnology (DBT), India for providing financial support in the form of fellowship and form of research funding. Indian Council for Medical Research (ICMR), Department of Biotechnology (DBT) and Immunology Foundation for the travel grants, and Sakal India Foundation for the scholarship grants was pleased to me for my tenure completion.

The work embodied in this thesis owes the help, support, motivation and constant encouragement from many people. I take this opportunity to extend my sincere gratitude to thank my senior Dr. Shrikant Bhute (a.k.a. Shrikant Sir) for introducing
me to the exciting world of science. He has been a great teacher and excellent guide providing a proper understanding of each aspect of the study. His passion for research, persistence, dedication, and quest to learn new tools and techniques has always encouraged and inspired me. During our interaction for the past six years, I have learnt extensively from him; including how to formulate a research problem, how to approach a problem by systemic thought process, gaining proper understanding of a problem by persistent attempts and learning by scientific thinking. His talent for excellent scientific writing and strong vocabulary has helped me develop writing skills. Apart from this, he is a very good human being and a man of principles. There is so much to learn from him. It is only because of his great support, I have successfully managed to balance my thesis studies. I feel blessed to have him as an informal mentor as well as a friend. I got already and always have the helping hands for the data analysis from my colleagues like Dr. Swapnil Doijad, Dr. Dhiraj Dhotre, Dr. Kiran Mahale, and Mr. Mohit Navandar on bioinformatic analysis work.

Various other collaborators have also aided this work, and I extend my gratitude towards all of them. Thank you, Dr. Rahul Gune, Professor, Department of Urology, RCSM Govt. Medical College, Kolhapur, India, Dr. Anita Gune, Associate Professor, Department of Anatomy, Dr. DYP Medical College, Kolhapur, India, and Prof. Dr. Manish Bhatia, Department of Pharmaceutical Chemistry, Bharati Vidyapeeth’s College of Pharmacy, Kolhapur, India for providing necessary samples required for the study. I also extend my appreciation to their team members who have contributed during the sampling. Their ever helping attitude in the starting phase of this research work and for the fruitful discussions throughout my research work. Dr. Praful Choudhary and Mr. Swapnil Jadhav both were there for me for the great help and brainstorming research thoughts and discussion during my visits.

My lovable friends where I stood and grew up as a researcher, in short, God Almighty blessed to me as sharing bonds with Dr. Mahendra Jamdhade, Dr. Sunil Banskar, Ms. Tejashri Hingamire, Mr. Nitin Bayal, Ms. Madhvi Mandhana and Dr. Nidhi Bharati. They were there for me whenever I feel low in emotional, science-experimental
work and economic crises, got the help indeed and rendered their friendship advantages. I thank God for such wonderful time with them.

I take this opportunity to thank all my past labmates, including Dr. Rahul Salunkhe, Dr. Bipin Salunkhe, Dr. Pankaj Verma, Dr. Shakti Singh Charan, Dr. Prashant Kumar Pandey, Dr. CP Antony, Dr. Shailesh Sawant, Dr. Himanshu Kumar Dr. Arvind Gupta, Dr. Gourav Shimpi, Mr. Shailendra Rane, Dr. Nachiket Marathe, Dr. Sajad, Dr. Swapnil Gaikwad, Mr. Sudarshan Shetty, Mr. Somak Choudury, Dr. Sandeep Walujkar, Dr. Kiran Pawar and all those who teach me a lot at the first steps. Dr. Amit Yadav, Dr. Avinash Sharma, Dr. Dhiraj Dhotre, Dr. Amaraja Joshi, Dr. Mahesh Chavadar, Dr. Neetha Joseph, Dr. Om Prakash Sharma, Dr. Rohit Sharma, Dr. Venkata Ramana Venuluri, Dr. Praveen Rahi, Dr. Prashant Singh, Dr. Shrikant Pawar, Dr. Vilas Sinkar, Dr. Tapan Chakraborty, Dr. Dilip Ranade, Shreyas Kumbhare, Diptaraj Chaudhari, Vikas Ghattargi, Kunal Jaani, Dr. Sarang Satoor, Deepak Khairnar, Sahabram Dewala, Satish Kumar, Abhijit Kulkarni, Rakesh kumar Yadav, Akshay Gaike, Dr. Dhiraj Paul, Sushant Parab, Dr. Rahul Sharma, Aniket Saraf, Ratnaprabha Mergu, Dimple Davray, Mandar Rasane, Madhuri Vankudre, Mahesh Sonawane, Mrinal Mishra, Shailesh Mantri, Shraddha Shaligram, Sonia Dhage, Sunil Dhar, Umera Patwekar, Vikas Patil, Vipool Thorat, Vishal Thite, Yogesh Nimonkar, Mitesh Khairnar, Vikram Kamble, Tushar Ghole, Aabheejeet Pansare, Prachi Karodi, Archana Suradkar, Swapnil Kajale, Rakesh Yadav, Kunal Yadav, Dr. Bhagwan Rekedwad. Those all are there for supporting me. I also acknowledge the NCCS staff, academic section staff members for my help.

I also want to mention the great time with the labmates, who has been with me as Tiffin members, like Abhijit Kulkarni, Akshay Gaike, Dimple Davray, Mahesh Sonawane, Mrinal Mishra, Shraddha Shaligram, Vikas Patil, Vipool Thorat, Vikram Kamble, Prachi Karodi, Swapnil Kajale, Kunal Yadav and Archana Suradkar. And some of my friends who helped me for the thesis compilation and corrections in it like Mahendra Jamdhade, Manzoor A.P, Swapnil Patil, Shrikant Bhute, Swapnil Kajale, Dr. Kusum, Dr. Siddharth and Dr. Bhagwan Rekedwad.
My special thanks to my elder brother Mr. Amol Suryavanshi for his encouragement and support. I also thank him for all the love and affection and sharing a great relationship as both brother and friend. I owe my deepest gratitude for my family, my late Mother, Father, Sister-in-law, and Aunty for understanding my goals and ambitions. It was true because of his immense support and constant encouragement I could pursue my studies. They provided me the space to grow, space where I could develop my thought process and helped me realize my potential. I got constant inspirations and support from Vasant Suryavanshi (Father), Dr. Sheetal Jadhav (Sister) and Mrs. Banutai Suryavanshi (Aunty), and encouragements from Dr. Manali Suryavanshi (Sister-in-Law) in day-to-day life. My great hero-my uncle Prof. Ramchandra Jadhav, his overwhelming love has provided me the strength to face any difficulty. Without his help, I would not have been able to achieve my goals and become the person who I am at present. I thank him for everything.

This journey would not have been possible without the support of best buddies. To my ‘Swami Vivekananda Vicharmanch’ group, thank you for encouraging me in all of my pursuits and inspiring me to follow my dreams. I would like to mention the special thanks to my dearest friends-cum-well-wishers Mr. Sachin Patil, Mr. Sagar Ghodake, Mr. Sandeep Patil, Mr. Kailashnath Mahadik, Ms. Tejashri Hingamire and Mrs. Megha Kesarkar who made my life easy even in very hard situations. I thank Dr. Shashi who corrected me in my writings and sometimes in my health attributes.

--Mangesh Suryavanshi.