Acknowledgements

I deem it my unique privilege to express my sincere gratitude to all those who have made valuable contribution in the completion of this work. During my PhD tenure, I have worked with a number of people whose contribution in assorted ways to the research and the completion of my thesis deserves special mention.

In the first place I would like to express my gratitude to Dr. K. L. Dikshit for her supervision, advice and guidance from the very early stage of this research as well as giving me extraordinary experiences throughout the work. Above all and the most needed, she provided me unflinching encouragement and support in various ways. Her truly scientific intuition has made her a constant oasis of ideas and passions in science, which exceptionally inspire and enrich my growth as a student and a researcher.

I am glad to express my utmost thanks to Dr. Girish Sahni, Director, Institute of Microbial Technology, Chandigarh for providing excellent research facilities. He has been very generous, understanding and a great source of inspiration for IMTECH students.

I am most indebted to Dr. Rajamohan for his invaluable guidance, stimulating scientific suggestions and encouragement which helped me to tackle ‘tough times’ in the period of research. I am thankful to him for teaching me the basics of research. Constant encouragement and best wishes of Vijaya Mam are always with me. I also extend deepest respect to Dr. Ashish Ganguly and his entire lab for their constant support and for providing cheerful and extremely friendly environment during my experiments in their collaboration. Dr. Ganguly has really modeled my thesis in different dimensions.

I recollect with pleasure the invaluable support extended by the faculty at IMTECH. I acknowledge Dr. Pradip Chakraborti and Mrs. Shashi Batra for their effort to successfully complete my PhD tenure including thesis submission. I owe a great deal of gratitude to Drs. Saumya Ray Chaudhari, P. Guptasarma, Shekhar Majumdar, O. Sarkar, S. Kumar, B. Prasad, A. K. Bachawal, Rajagopal, S. Karthikeyan, G. C. Varshney for their generous help whenever needed. I thank Mr. Deepak Bhatt, Mrs Parmjit Kaur for their help in sequencing work and Mrs. Sharanjeet for CD and MALDI experiments. I thank the entire staff of animal house facility of IMTECH especially Dr. Neeraj Khatri and Mr. Bawa for the successful animal experimentations during this period. I take this opportunity to thank helpful staff of administration, library, accounts, bioinformatics and stores. The entire instrumentation staff has been extremely cooperative in providing me all the required facilities for research work.

I am highly grateful to my labmates, Rajamohan sir, Muthu, Amrita, Sudesh, Muthu, Arvind, Sandeep, Deepthi, Swati, Sanjay, Neeru, Preeti, Simar, Narendra, Mangesh, Chaahat, Suvita for their congenial company during my research in this lab. Arvind, Sandeep and Deepthi deserve special thanks for maintaining ‘cool’ environment in the lab and making my stay “wonderful” at IMTECH. We enjoyed every moment together throughout our long association. Arvind is always with me like my elder brother.

The stay in IMTECH is etched vividly in mind and was particularly pleasant owing to the goodwill of many friends and batchmates Balveer, Gautam, Neeraj, Prakash, Ashok, Sanjay, Amit, Fazal, Gowthaman,
Jishu, Payal, Deepshikha, Satindra, Pavitra, Vijaya, Neeraj, Uzma. I can never forget the beautiful days of trips, tea sessions in the cheerful company of my close friends, Ranjana, Satya, Zeya and Alpana. Their cheerful company throughout the stay at IMTECH has been source of energy and stress buster. I feel really lucky for all the unconditional affection and care that I got from my dear friend, Ranjana.

I am fortunate to have nice and generous seniors, Narinder, Ravinder, Vijay, Murty, Tiwari, Rahul, Rohan, Vibhu, Lomary, Shekhar, Joshi, Rachna, Haider, Sidharth, Miraj, Pankaj Chauhan, Pankaj Arora, Santosh, Anuj, Yashpal, Hardeep, Mohan, Surinder, Hemant, and Mahesh. Their enthusiasm and willingness to help me was out of this world. How can I forget the timely parties that acted like an oasis in middle of the desert of difficulties? I have been fortunate to come across a bunch of good friends like Pankaj (Bhai Ji), Auro, Chetna, Harry, Shastri ji. I could not have wished for better friends and colleagues. Their eagerness to help me in any situation is worth mentioning. I would like to thank all my juniors for their support and company.

The financial assistance provided by Council of Scientific and Industrial Research is duly acknowledged.

Where would I be without my family? My "Mummy and Papa" deserve special mention for their unflagging love and support throughout my life. My 'Dadiji', Chachaji, aunty, Monu, Reenu, Sunny, and Kanchu have been the constant source of encouragement and moral support for me. They have carried the maximum burden in order that I can reach the pinnacle of success. This thesis is actually the fruit of their prayers. It is to them that I dedicate this work. Finally, my greatest regards to the God for bestowing upon me the courage to face the complexities of life and complete this project successfully. You have made my life more bountiful. May your name be exalted, honored, and glorified.

August 2011

Satish Singh