

Acknowledgements

This thesis is the end of my long journey in obtaining Ph. D degree in Biochemistry. Ph. D. is a long and complicated journey. From the day you choose your topic until the day you turn in the final version, you must fight many battles that block your path and attempt to keep you from reaching the final goal. But if you are positive, believe me, there will always be someone there to catch you when you stumble and put you back on the right path.

First and foremost very special thanks to my supervisor and mentor, Dr. C. Ratna Prabha, whose help, stimulating suggestions and encouragement helped me continuously at the time of research and for writing this thesis. She made me learn to do keen and critical analysis of each experiment. Her analysis and criticism made the work much more interesting. Her expertise in research improved my research skills and prepared me for future challenges. Words are not enough to describe her generous nature. I will always remember her for her understanding and positive attitude towards anything.

I sincerely thank Ex-Head Prof. G. Naresh Kumar and Head of the department Prof. Sarita Gupta for providing me the infrastructure and other departmental facilities for my research purpose.

My sincere thanks to Dr. Jayashree pohnerkar for her valuable technical tips and for providing bacterial strains and plasmids. I really appreciate the lively discussions with Dr. Acharya on various scientific and nonscientific issues.

I sincerely thank all the teachers of the department Prof. Tara Mehta, Prof. S. S. Katyare, Prof. S. D. Telang, Dr. M. D. Jani, Prof. Rasheedunnisa Begum, Dr. Pushpa Robin, Dr. Laxmipriya and Dr. D. Suthar for their extensive help at various stages.

Thanks to Prof. Gotam Jarori, Departement of Biological sciences, TIFR, Mumbai for allowing me to work in his lab. I would also extend my gratitude to Prof. Jiri Adamec (Purdue University, USA) for extending the help in MS/MS analysis. Thanks to Sadagopan, Rubul (TIFR) and Deepak (ACTREC, Mumbai) for helping me with some experiments and making my stay at TIFR more comfortable.

I felt very excited and honored to receive a book "Practical Streptomyces Genetics" as a gift, from one of the authors as well as founder of the Streptomyces work, Prof. David Hopwood (John Innes Centre, Norwich, UK). The book was proved to be an asset for my research work. I also thank Prof. Mervin Bibb (John Innes Centre) for providing me the plasmids for the research.

My Ph. D. would not have attained this shape without the help of my lab mates, especially Pradeep, with whom I shared most of my time in the lab. I thank him for his help with experiments, discussions and critical analysis of the results, which always kept me inventive. Many thanks to Mrinal, Swapnali and Manish for their help in various experiments and also for tolerating my funny songs in the lab. All of them made my stay in the lab more enjoyable. I will always remember the days of work in the lab with a lot of fun. Thanks to Hiral and Rushikesh for their support. I cannot forget the valuable contribution of all M.Sc. dissertation students Anup, Swapnil, Ajit, Mayur, Sarita and Sachin who worked with me.

The biggest achievement during my Ph. D was to seek the company of friends, who brought about joy during toughest days of my life. Big thanks to my buddies Chirayu, Hiren and Gopit, with whom I have enjoyed some of the best moments of my Ph. D. life. I have enjoyed everything in their company. I truly cherish the company of friends like Keyur, Sameer, Shajil, Vikas, Prashant, Iqbal, Neeraj, Maulik and Vijay with whom I shared tea at circle. Thanks also to Hina, Aditi and Jyotika especially for their company during thesis writing. I would also like to thank my seniors Jignesh, Subhash, Vihas, Jyoti, Siddharth and Munjal. Many thanks to Prakash, Divya, Jisha, Sanket, Namita, Saiyed, Mukta madam, Minal, Purva, Nidheesh, Purna, Krishma, Anubha, Sonal madam, Praveena madam, Tushar,

Akhilesh, Mitesh, Muskan, Radha, Prasant, Jitendra, Chanchal, Hemanta, Kavita and Vijay.

Thanks to my friend Dhaval, who has not contributed directly to the thesis but helped me to keep my social life alive. Also thanks to my M. Sc. colleagues Arun, Kaushal, Mayur, Abhishek and Navjot for their support.

Thanks to all the office staff of the department. Especially, Maneeshbhai and Rameshbhai for providing chemicals, whenever needed. I also thank Milindbhai and Chiragbhai for their administrative help in dealing with accounts of fellowship and thesis submission.

I thank Council of Scientific and Industrial Research, India for providing CSIR-UGC-NET research fellowship, without which I could not have thought of doing Ph. D.

Lastly, and most importantly, I wish to thank my entire extended family (Vekaria Parivar) for providing a loving environment for me. My brother Samir and sister Hetal, both deserve special thanks for their love and for always giving me special consideration and keeping me in high spirits.

During this journey I discovered the better-half of mine...Reena. She proved to be very supportive and caring to provide me comfort, during those never-ending delays. She is the one who knows me more than I do, which makes me more confident about my journey onwards. Thanks a lot for her patience.

I wish to thank my parents. They gave birth to me, raised me, supported me, taught me and loved me (I love them too). I thank them a lot for their immense patience and confidence in me. I simply bow down to pay gratitude to my parents and to them, I dedicate this thesis.

Last but not the least, a special bow to the Almighty.

While this thesis has been one of the most challenging experiences of my academic life, but it has also been one of the most rewarding. After all I got the answer to the quest which I used to ask myself that why Ph. D. is called Doctor of Philosophy and not the Doctor of Biochemistry.

Hemendra