Acknowledgement

This thesis has come to reality with the kind support, patience and help of many individual efforts. I would like to extend my sincere thanks to all of them.

First and foremost I would like to express my gratitude to my mentor Dr H. A. Nagarajaram. From the time I joined the Laboratory of Computational Biology, he has been extremely keen and patient in listening to my naive ideas and giving them a scientific dimension. I am obliged to his constant encouragement and support. I am also grateful to him for giving me the freedom to think and teaching me about life and scientific practices. This thesis would not have been possible without your scientific guidance, support and persistent help. I could not have imagined having a better advisor and mentor for my Ph.D study.

I would like to thank Dr. J. Gowrishankar, Director CD/DFD for providing a wonderful work environment in CD/DFD and also for supporting the trip to ISCB/ECCB conference at Berlin, Germany. I also acknowledge CSIR and CD/DFD for the fellowship during the tenure of this work, I am grateful to Manipal University, Manipal, for allowing me to register for the PhD degree.

Next I would like to express my deepest appreciation to my PhD committee members Dr Murali Bashyam, Dr Sanjeev Khosla and Dr. Shekhar C. Mande. Their suggestions and inputs have been constantly improved the scientific quality of this thesis. I am also highly indebted to Dr. Rashna Bhandari for her keen interest, inputs and critical appreciation of my work. I also thank Dr. Gayatri Ramakrishna for her scientific interactions and inputs at various points of times. Special thanks to Dr. Rashna, Dr Bashyam, and Dr. Gayatri for writing reference letters for me.

Very special thanks to my LCB lab members for maintaining a pleasant and scientific atmosphere in the lab. Words fall short to thank my seniors Pankaj and Tabrez for endless help like elder brothers. Although I spent only few initial years with you two but I enjoyed each and every moment in LCB for all the masti, scientific discussions and celebrations. I thank you two for your guidance for my write-ups and for answering my endless queries related to science, PhD and life. I would like to thank my senior Vishal for all the mutual understandings and support through the long hours of lab. You definitely will be an example for me for concentration and hard work. I especially thank Anupam and Rachita for building my understanding in network biology. Lab discussions with you guys have helped me in shaping the project. I was very fortunate to have wonderful junior colleagues who were always there to share chores of PhD in everyday chats in the lab. Surya one of the nicest person I know in CD/DFD has been a supportive companion in the lab from the very beginning. The festivals, celebrations or any event would have been incomplete without you and your better half Neelima. Ramesh has been a very good friend, entertainer and helpful since the time he joined the lab. I would like to thank him for his lectures, scientific discussion, programming skills and above all for games :) . He also owes a special mention for extensive proofreading of this thesis. Rakesh has been very supportive and I will definitely miss him for all the tea-time talks. It was really great to know Rahul and Raj since few months. Big thanks to Surya, Ramesh, Rakesh, Rahul and Raj for helping me with the proof reading of this dissertation. Best of luck to all of you. I know you all will add many more publications to the LCB publication list.

I thank Mrs. Prashanthi and Mr. Chandramohan for maintaining bioinformatics services for the smooth progress of our work. I thank Rajeshwari for being so kind and spontaneous for all the help. Prasad deserves a special mention as he always had been best buddy of our lab. He has been really a person to rely upon, for everyday stuff needed in the lab. I would also like to mention and thank Manjusha for all her love and for countless chocolates. I also thank summer trainee Prashanth and Shailey for letting me learn more about
my subject by asking queries. It was a kind pleasure to know project trainee Manjeera, Harish, Deeksha and I thank them all and wish them best of luck.

I will take this opportunity to thank some of the former CDFD members who have helped me at several steps. I would like to acknowledge Vijaykumar Muley (former PhD student of CFG) for literally teaching me programming in R and perl. Discussions with him on his scientific ideas were always fruitful. I have always enjoyed talking and sharing problems with Ashwini (former project JRF in Structural Biology lab and my future collaborator) in the same language (dry lab language). Thank you buddy for your support and help. I would like to thank Rohit (former project JRF of LMG) for discussing about NGS and loving me like his elder sister. You and Manjusha will always be special for me.

No student in CDFD can ever imagine their PhD without countless help by Mrs. Puneetha and Mr. Santosh. A special word of thanks goes to them who had been readily helpful in matters of academia. I really appreciate Mr. Ramiya for his help in the matter of reimbursement. I thank Dr. Chandrashekar for his medical consultations and recommendations.

Next I would like to acknowledge Amit Pathania, Sidharath, Amitabh and Gaurav for welcoming me in their friend circle after my wedding with Shashi. The care and concern what I got from them is heartily appreciated. The memories collected while cooking, celebrating birthdays, hunting new places in Hyderabad and endless talks about almost everything will always be cherished. Anisha Bhavhi (Amit’s Wife) deserves a special mention for being my closest friend here. She has been my companion for all my day to day works. Life in Hyderabad would not have been so colourful without her presence. I thank her for all help, company and for giving us Duggu (Ayan Pathania). Lots of love for Duggu.

On this note, I would also like to acknowledge my batchmates who joined with me in January 2009. Support and wishes from Adeel, Rathan, Raju, Amitava, Anujit, Saurabh, Deepa and Bhawik are very much appreciated. Memories collected during the time I spent with them at Gandipet and Hostel is full of joy and entertainment. I would also like to acknowledge Rachana, Aditi, Rikky, Anisa, Manasa and Ajit for being good and helpful at various points of time.

My heartiest thanks to members of lab-in-law (Lab of Cancer Biology). Thanks to Dr Gayatri, Babul, Tarique, Dr. Nirupama, Jyotshana, Shraifi, Vinesha for all your love and support. You people have always treated me as a part of your lab and helped me and Shashi at several times. I would like to express my gratitude to Juby, a former project JRF for becoming such a special friend of mine. Her friendship is a priceless gift for me. Time spent with her in Hyderabad was full of non-stop talks and laughs. Thank you for always being there. I also thank Neha Dhar (former Project trainee of Cancer Biology Lab) for being so kind to me. Thanks for arranging my stay at IISC for my every time visit.

I would also like to acknowledge my junior colleagues for all refreshing interaction with Ravish, Suchitra Ravindra, Pankaj, Anusha, Vivek, Sheoshankar, Neha, Parul, Imtiyaz, Thushara, Vandana, Mobasir. I would also like to thank Vaishalini, Zohab, Gorango, Neellarika, Rajvardhan, Abhishek, Rajukumar, Debashish Giri, Gairika, Richa, Shruti, Komal, Soumya, Rajshree, Pratyusha, Suhail, Rajendra, Nalini, Risha, Neelam, Amir, Mugdha, Ravi Ranjan, Biswajit, Vishwanath, Amit, Varun for your good will gesture and interesting interactions.
I would like to thank my childhood school friends Sandhya and Nitisha who were always inquisitive about my PhD. My BHU group SVLP members (Swati, Vinita and Pallavi) were always there for all the happy and sad times. I would also like to thank my BHU friends Shaqista, Santosh, Prasanna, Mayank, Roli, Rishi and Deeksha for all the love and support. I am extremely thankful to my friend Priyanka Jain who has been always an inspiration for me and a true friend indeed. My college juniors and friends Nicee and Neha were always there to have faith on me. I thank each and every friend of mine who has been my well-wishers.

Words would never say how grateful I am to my Husband Shashi. He has always stood by me through the tough times and whenever I lost confidence. His presence in my life has helped a lot in defining priorities and being decisive. His positivity and realistic nature has helped me in defining a different perspective of life. I also appreciate his understanding of my work and its appraisal from a different angle. I am really thankful to him forShouldering household matters with me. I am very much indebted to him for encouraging and keeping me focused towards this thesis. Thanks for being in my life.

Last but most important I would like to thank my parents for having trust in me and for unconditional love and care. In spite of their health issues they have never left any stone unturned to realize my goals and dreams. I would like to thank my father-in-law and mother-in-law for their support and encouragement. This dissertation would have been impossible without the sacrifices made by them. In addition, I thank my eldest sister Gudia di, jijaji, Nanhi, Gungun and Anni for their care and concern. I would also like to mention my elder sister Puja di, Ravi jiju and Kajja for their constant concern. I would also like to acknowledge my brother Bittu for all his love. Along with this I would also like to mention my sister-in-law Nutan Di, Rakesh jiju and my niece Diva for their support and love. I also thank my brother-in-law Chhotu Bhaiya and Priya for their love, constant support and concern for us.

Lastly I would like to devote this thesis to my elder sister Puja. She had been my closest friend, a protective mother and a caring advisor throughout my life. Despite her own struggles, she was always concerned and prioritized about my well-being. I thank her to be a part of all my grief, confusions and decision makings. Apart from the financial and physical help at crunch times, I thank her for all those long hours of selfless counseling and building a huge self-belief within me. I thank God for blessing me with such a wonderful sibling. It is her sacrifices and foresightedness that I am in a position to do something of worth.

Thank you didi....😊.

...Manjari