Acknowledgement

“Where there is will, there is way” – This saying holds true to my PhD career because my “will” to pursue and successfully complete my research would not have become a reality without the help of many people, who were instrumental in constructing the “way” to my destination. There have been a lot many people who contributed directly or indirectly to my PhD research work at NICED (National Institute of Cholera and Enteric Disease) and thus shaped up my doctoral career. The fact that I have successfully completed my PhD is proof enough of the support and guidance that I have received from these people, who also made my journey through doctoral career ever more interesting, exciting and thought provoking. I would like to acknowledge every individual who has stood by me through every thick and thin during my course at NICED.

Like every tall building stands on a strong pillar, my mentor, Dr. Sandipan Ganguly (Deputy Director and Head of the Department of Parasitology, NICED) has been the most vital pillar in accomplishing my research work. He has not only helped me stand tall on the academic front, but also motivated me in every possible way to thrive towards excellence. He is a friend, philosopher and guide, in the truest sense. His persistent guidance like an elder brother, worked as a ray of light all through the way. My journey as a researcher would not even have begun so blissfully had Dr. Sandipan Ganguly not been there as my mentor. No amount of appreciation would be sufficient to praise and acknowledge his guidance and support. I owe a lot to him and a mere thank you is just not enough. I express my heartfelt gratitude to Sir, for being such a father-figure in my life, who was strict when I did something wrong, gentle when I felt low and compassionate as well as encouraging when I needed to move ahead. He has always infused courage in me with his “never give up” attitude, which also helped me boost my self-confidence. Nevertheless, he has always stood by my side whenever I needed any technical or academic support during my research as well as paper works. I shall forever be indebted to him from the core of my heart. He is incredibly organized; perfectionist and a great problem solver, both of these qualities were immensely helpful in moving my project forward. Under his mentorship I have learned the particulars of grant writing, which is an invaluable tool to have as my career moves forward. He is also exceptionally generous and would frequently take his staff and students on outings to let us know our work is appreciated. I will remember my time in the lab and these outings very fondly.
I am also grateful to Prof. Tomoyoshi Nozaki, Director, Department of Parasitology, National Institute of Infections Disease (NIID), Tokyo, Japan for his perseverance and patience despite my many mistakes. He is the great scientist I have ever seen. He is a strong critic and reviewer in scientific field. He always kept faith in me and continued motivating me that not only helped me move ahead but also lifted my confidence. He has been a great support whenever I needed any scientific suggestions thus helping me on the research front. He too has been instrumental in keeping my research goes on smoothly and I am up immensely thankful to him.

I am extremely grateful to the consecutive directors starting from Dr. G. B. Nair, a very student friendly approachable person; Director-in-charge Dr. S. Chakraborty, who took my interview after our course work; Director-in-charge Dr. M. Chakraborty, helped us during the course work and fellowship related matters and the present Director-in-charge Dr. Shanta Dutta.

I express my deep gratitude and respect to all the faculty members and convener of the Ph.D. committee of the Department of Biochemistry for not only their official contributions but also for their affection, valuable advice and friendly suggestions time to time.

I would like to thank Dr. P. Das, Director, RMRI, Patna for his help and support to get SRF from ICMR. I am really thankful to him.

The acknowledgement of my PhD work will not be complete without mentioning about Mrs. Debarati Ganguly. She is like my elder sister. I express my most heartfelt regards and thanks to the gentle lady, who was kind enough to carve out some time, to help me, out of her busy schedule. I thank her from the core of my heart to help me out with the English language corrections and other literary works associated with the papers and my thesis.

I also owe big thanks to all my colleagues for their timely support and generosity that has always been a very good support system to me. I have to mention about Arjun Da, Esha Di, Avik Da, Kaushik (Kana), Sumallya (Sumo/Mota), Prasanta (Dr. Prasanta Saini), Monica Ghosh, Puja Agnihotri who not only lend me their time and patience but also their humour and unconditional support helped me beat my stress and kept me moving.

To all my beloved friends (Abhijit Sarkar, Prachetash, Sambit, Sudipta, Amarshi, Nirmalya, Abhishek, Nalok, Santu, Sreyashi, Poulomi, Amit, Rahul, Anjan, Asgar, Dulal, Pinaki, Abhishek Da, Somnath, Shankari, Nabanita, Atreyee, Ananya), thank you for your understanding and encouragement in my many, many moments of crisis. Your friendship
makes my life a wonderful experience. I cannot list all the names here, but you are always on my mind.

Nevertheless, I express my genuine thanks to all the staff members and technicians, particularly SLP Singh and TN Boral, who always assisted me in my technical works with keen delight and patience. Also, the help that I have received from Ranjoy Da and Madhumita Di while operating the DNA sequence machine; George Banik while operating the FACS; Amarshi Mukherjee while operating the Spectrofluorimeter; Somnath Da while operating the Confocal microscope; Amarnath Da (Bose Institute) while operating the Mass spectrometry is also noteworthy. Without their assistance, I would not have been able to obtain my data so smoothly.

No event can be executed without financial backup. Likewise, the financial aid that I have received for my research work has come from UGC and I am immensely grateful to them for sponsoring my fellowship. I also thank ICMR for my SRF (Senior Research Fellowship) work.

To my dear wife, Punam who remains willing to engage with the struggle, and always has been a source of encouragement and inspiration to me in my life. A very special thank you for your practical and emotional support and also for the myriad of ways in which, throughout my life, you have actively supported me in my determination to find and realise my potential, and to make this contribution to our world.

Last but not the least, I would like to thank my parents (Ma, Baba, Kaku, Chotoma) and brothers (Subhendu and Adarsha) who not only helped me become a learned person but also stood by me through every thick and thin and gave me the encouragement to move on. Without their sheer guidance and motivation this journey would not have been possible. They have been my real source of inspiration and I am deeply grateful and thankful to them for making me who I am.

Date:

Place:          DIBYENDU RAJ