Acknowledgements

A journey is easier when worked together. During the course of my journey called research which resulted in this thesis, I have been accompanied and supported by many people who helped me along this long but fulfilling road. The list of the people I need to thank will not fit to a single Acknowledgement section. I just mention some people whose contribution is obvious.

It has been my pleasure to have the opportunity to carry out my work under the esteemed guidance of **Dr. Smarajit Maiti**, Associate Professor, Department of Biochemistry, Cell and Molecular Therapeutics Laboratory, Oriental Institute of Science and Technology, Vidyasagar University. He introduced me to this interesting field of study. Her guidance throughout my journey has uplifted my quality of work and also helped me to develop as an independent researcher. I would like to express my deepest sense of gratitude for his help and advice during the entire research of work.

I sincerely acknowledge the University Grand Commission (UGC), New Delhi, India, for the supporting fellowship (JRF & SRF).

I express my regards to Prof. Amiya Kumar Panda (Professor, Department of Chemistry and Chemical Technology, Vidyasagar University, India. Prof. Somnath Roy (Ex-Prof., Department of Human Physiology with Community Health), Prof. Chandradipa Ghosh (Professor and Head, Department of Human Physiology with Community Health), Prof. Prakash Chandra Dhara (Professor, on Re-Emplyment, Department of Human Physiology with Community Health) to whom I express my sincere and deepest sense of gratitude for cooperation to complete my Ph.D work. I certainly acknowledge Dr. Ajay Kumar Misra (Professor, Department of Chemistry and Chemical Technology) for his support and encouragement throughout the study. My teachers, especially Dr. Sudipta Roy (Department of Biochemistry, Oriental Institute of Science and Technology) for his constant support and encouragement

throughout the study. I would also like to thank him for his advices during my works. And Dr. Asit Kumar chakrborty (Department of Biotechnology, Oriental Institute of Science and Technology) for his support during my PhD work. I also acknowledge Dr. Bikash Ranjan Pati (Professor, Department of Microbiology, Vidyasagar University), for his support and help during my work. I sincerely express my deepest regards to Prof. Subrata Kumar De, Department of Zoology, Vidyasagar University, his support during my PhD work by any menace.

I sincerely acknowledge USIC, Vidyasagar University for providing theirin frastructural facilities in my PhD work.

I am also thankful to all stuff and Technologists of Kalpatoru Diagnostics Centre for assist by supporting the pathological human blood sample.

I express my gratitude to all the Professors of Department of Biochemistry and all the stuff OIST, for their generous help in various stage of my work. I thank my fellow lab mates Nirmallya Acharyya, Sk. Sajed Ali, Sumit Sahoo, Aarifa Nazmeen, Nandita Medda, RiteshPatra, Suchismita Mukherjee, Pradipta Jana, Suman Bhattacharya, and Sarbasri Bank for their continuous helps to any aspects of my long journey research work. I express my sincere gratitude and regards to Dr. Jagatbandhu Medda (Director, Oriental Institute of Science and Technology) and the management of Oriental Institute of Science and Technology for their kind cooperation and providing me the laboratory facilities.

Where would I be without my family? My beloved Parents and family deserve special mention for their love, support and understanding during the long years of my education. I convey my sincere acknowledgement to my parents and family for their earnest support throughout my research work. I am also thankful to my aunties, uncles and cousins for their continuous support.

MD. MOBIDULLAH KHAN