Acknowledgements

Over the years it has been various phases over which my life has sailed and today I would like to acknowledge the importance and the invaluable presence of many people who have helped me sail over the tough waves and hold in pride. I owe my sincere gratitude to my supervisors Prof. V. Subramanian and Dr. Jaishree Paul and Dr. Al Ramanathan for being the light house. Their esteemed guidance and keeping faith in me during this course of research work helped me to cross several barriers. I offer a special thanks to Jaishree ma'am for introducing me to such a wonderful world of biological sciences. Her guidance, lab facility, financial support, moral support and encouragement has been gentle source of light which would blink and inspire me throughout my life. Thanks to Dr. S.K. Abraham Sir for his support and company in lab.

I would like to acknowledge Dr. Jain, Institute of Pathology N.Delhi for helping me and letting to know about Electron microscopy and Dr. Suresh Gaikwad from IARI, N. Delhi for helping me in research work. It was great sharing experiences with them. I again offer my thanks to Dr. Mahesh and Mr. Praveen from NPL Delhi for their help and guidance. I offer my thanks to Prof. B.P. Rosen, Wayne State University, School of Medicine for providing me a clone pUM3. His generous gift was invaluable and became core part of my research work. My thanks are due to the Dean, School of Environmental Sciences for facilities and help extended at every stage. Nothing actually moves without administrative support. I offer my thanks to Shr. SDS Rawat ji for his help. I am glad to acknowledge help of my CIF lab member Dr Gaikwad ji, Sharma ji, from SES and Khan Sir, and Mishra ji of SLS. They came forward whenever I was in need of them and helped me in setting up the experiments. Many years of staying in the campus has made me understand the life, not only the subject if I truly say. I interacted with many of my friends they came forward and help me unconditionally. I am indebted to each and every of my friend who came and helped me whenever I was sick and in my other hard ship.

I am thankful to my lab members Dr. Manju, Dr. Abhay, Dr. Dhiraj, Dr. Madhawan, Dr. Deep chaterjee, Mr. C. chaterjee, Sima, Umesh, Pawan, Sanjay, Jaya, for their support and encouragement. My lab mates in SLS were also a part of this journey. My SLS lab
mates Dr. Laxmi maam, Rekha, Amit, Ravi, Nishant, Vijaykalara, Anil verma, Avnish, Nirmal and Reena were invaluable help in knowledge and Discussion.

I would like to thank my friends Mr. Krishna prakash, Abhishek, Rahul, Sunil, Gagan, Ruchi, Siteshu, Narendra, Ravi, Juginder, Asish for the help they extended to me.

I acknowledge the financial help provided by CSIR as a JRF and SRF. This help strengthened me to stand up whenever some crisis came by. At last, I offer my thanks to my lovable family for their support over the years. They supported me in every possible way. In my silent prayer I thank all my JNU friends who made my staying in campus memorable.

Kumar Suranjit Pd.