Acknowledgement

I wish to express my most sincere gratitude to my supervisor Dr. M. Mandal for giving me an opportunity to undertake Ph.D. in his laboratory and for his expert guidance and supervision.

I am grateful to Honourable Vice-Chancellor Sir for providing me an opportunity to carry out research work in this university.

I would also like to thank the Head, Department of Molecular Biology and Biotechnology, Tezpur University and my Doctoral Committee members – Prof. C. L. Mahanta (Department of Food Engineering & Technology, Tezpur University), Dr. S. K. Ray (Department of Molecular Biology and Biotechnology, TU) and Dr. R. Doley (Department of Molecular Biology and Biotechnology, TU) for their valuable advice during my Ph.D. tenure.

My heartfelt thanks to Dr. N.D. Namsa and Dr. R. Mukhopadhyay (Molecular Biology and Biotechnology Department) for helping me to carry out my research work related to cloning and cell line work. I am also grateful to Dr. P. Chattopadhyay for providing me animal house facility to carry out animal studies at Defence Research Laboratory, Divisions of Pharmaceutical Technology, Tezpur.

I thank all the faculty members and their Ph.D. students, non-teaching staff and all passed out seniors of the MBBT department for helping me throughout my Ph.D. tenure. Special thanks to my colleagues (Yasir, Rajeev, Maitreyee, Bhaskar & Vivek) for boosting me during difficult times of Ph.D. tenure.

I would like to sincerely thank my lab mates (Kuldeep, Dhrubajyoti, Devabrata) and passed out project student (Rambalak, Rajashree, Dixita, Rupshikha, Mrinmoy, Niranjana, Reba, Jotin, Barsha, Raju, Bhagyashree, Pubali, Tanmay, Rahul).

I acknowledge the financial support provided by Tezpur University and UGC-RGNF (Grant no: 2011-12/RGNF-SC-CHH-1645).

Last but not the least, I am greatly indebted to my family, especially my Papa, and Mummy, who have sacrificed a lot to fulfill my desires and supported me unconditionally.

Ajay Kumar Manhar