

Acknowledgement

First and foremost, I bow in front of the Almighty for bestowing me with the strength and courage to carry out my research work successfully, and also giving me the ability to offer a minor contribution to the world of science.

I would like to express my sincere gratitude to my respected supervisor Dr. Anand Ramteke, Department of MBBT, for his enthusiastic guidance and inexhaustible inspiration, which enabled me to accomplish all my objectives. I greatly appreciate his constant support, encouragement, and constructive criticism during the conduct and completion of this study.

I express my genuine sense of gratefulness to Prof. M.K. Chaudhuri, Vice chancellor, Tezpur University, Tezpur, Assam for giving me the opportunity to carry out my research work in this esteemed University.

My sincere thanks to my collaborative institutes Dr. Bhubaneswar Borooah Cancer Institute, Guwahati, Director Dr. Amal Chand kataki for giving his valuable time to time guidance, scholarship inputs and consistent encouragement that I received throughout the research work. I am highly indebted to him for providing the facilities in their institute to carry out the research work and giving me an permission for sample and lab facility in their Institute to P.hD related work, Dr. Rajjyoti Das for collection of blood and tissue samples, Dr. Avdesh Kumar Rai for collection of blood and storage of samples, Dr. Anupam Sharma for IHC analysis and for giving me an opportunity to work in their labs. I am equally thankful to the staffs from BBCI- Jaman and Goswami da for their help in collection of blood samples and IHC work. I am grateful to National Institute of Cancer Prevention and Research, Noida and Dr. Shashi Sharma, Dr. R. Suresh Kumar for helping me with statistical analysis and allowing me to work in their labs. I also

express my gratitude to Dr. Guresh Kumar (Institute of Liver and Biliary Sciences) for his support and help during my Ph.D Tenure.

I am very much obliged to my Doctoral Committee members: Prof. Tarun K. Maji, Dr. Tapas Medhi and Dr. Rupak Mukhopadhyay from Tezpur University for their sincere guidance and valuable suggestions to improve my research work.

I extend my deepest gratitude to the Head, all the faculties and staff members of Dept. of MBBT, specifically Dr. Kalyan Hazarika, Dr. Nabo K. Bordoloi, Mr. Pranab Mudoï, Mr. Samar Kakoti, Mr. Deepak and Mr. D. D. Bania for their intellectual and technical supports during the entire course of investigation.

I am grateful to all my fellow labmates Viveeyan da, Anowar da, Monoj, Pitambar, Anindita, Madhumita, Manabi, Chandana, Gani, Ponkhi and Pooja for their help and support during the entire period of my research work. I also express my gratitude to my earlier lab members Jiumoni, Amrita, Amit, Naina, Jonita, Jagrity and Narendra.

My heartiest thank to all my seniors and juniors from the department of MBBT, for being constant source of encouragement. I am thankful to Dr. Ranjan da, Dr. Mayur da, Dr. Rahul da, Dr. Salam da, my friends Ajay, Maitryee, Rajeev and juniors Kuldeep, Devabrata, Dhruvajyoti, Manasdeep, Debananda and many more from MBBT (TU) for their constant support and help at various stages of doctoral research.

I am equally thankful to all my childhood friends Kumar Alok Ranjan, Sandeep Dwivedi, Praveen Diwakar, Gaurav Kumar, Amit and others for their constant moral and financial support during the course of my research work.

Last but not the least, I would like to express my deep sense of gratitude to my Papa (Guru Prasad), Rajesh bhैया, Rakesh bhैया, Roshan bhैया, Anita didi, Sonu, Soni bhabi, Jyoti bhabi, Surendera jijaji, Manohar ji and other family members for their unconditional endless support, care, love and patience during my Ph.D. work as well as in all stages of my life.

A loving tribute and my sincere gratitude to my mother (late Meera Devi) and Dadi for bestowing me with their blessings and for giving me the determination and strength to overcome many trying moments.

The financial assistance in the form of JRF and SRF received from DBT, Ministry of Science and Technology, Govt. of India is duly acknowledged.

Date:

(Rupesh Kumar)