Originally from India, I did my Bachelor’s degree in Zoology at the University of Calcutta. In 2002, I joined the Banaras Hindu University, one of the premier universities in India, to pursue my Master’s degree with a specialization in Molecular, Applied and Clinical Genetics. During the course of my studies, I had the opportunity to interact with many great scientists and research trainees who gave me an idea of the excitement in basic science research. After completing my M.Sc in 2004, I joined the Human Molecular Genetics and Genomics Division at the Indian Institute of Chemical Biology, where I worked for two years as a research assistant in a multi-institute project on predictive medicine using repeats and single nucleotide polymorphisms in human genome.

In the Fall of 2007, I joined the Centre for Neuroscience, University of Alberta as a graduate student under the supervision of Dr. Satyabrata Kar with a goal towards pursuing a PhD degree. The focus of my PhD work was to understand the role of cholesterol in the development of Alzheimer’s disease (AD) and Niemann-Pick type C (NPC) pathology which in the recent years has been shown to exhibit striking similarities. My project was to develop and characterize a novel bigenic mouse model (named as “ANPC”) that would display intracellular cholesterol accumulation in presence of human APP expression, the key features of NPC and AD pathologies, respectively. Using a battery of behavioral and biochemical approaches, we did a comprehensive analysis of the mouse model. Our results revealed that cholesterol accumulation in presence of human APP expression can negatively influence a wide variety of behavioral and neuropathological abnormalities related to both AD and NPC pathologies. Furthermore, by reversing the cholesterol accumulation in our ANPC model by 2-hydroxypropyl-β-cyclodextrin treatment we have shown that we could reverse majority of the observed pathological changes. Currently, we are trying to understand the underlying molecular mechanisms that might be involved in modulating the exacerbated pathology in our bigenic mouse model.

As a PhD student, I am extremely fortunate for the kind of mentorship I have received from Dr. Kar. Moreover, Kar’s lab being in the Centre for Prions and Protein Folding Diseases (CPPFD), one of the new research institutions at the University of Alberta, has excellent research facility and training environment all of which contribute to the success of the lab. Also, I would like to thank others who have worked on and supported the study, including the co-authors in this publication, other members of my laboratory and the funding agencies.