**Program: Molecular Medicine (Molecular Biology)**

“To Rid Humans of Their Ailments and Pains, and to Contribute to the Perfection of Human Health,” I made this vow at the ceremony marking the beginning of my undergraduate program when I entered the XX Medical College, XX University of Science and Technology in 1995. With this resounding oath, I was ushered into the sacred palace of medical science. Now, eight years have passed and it is comforting to see that I have lived up to this holy professional creed of a medical student. I have grown from a young and aspiring student, with little professional knowledge of medicine, into a holder of Ph. D. degree in medicine, with a solid theoretical foundation and skillful research experiences. However, as an comprehensive and profound system of erudite knowledge, the medical science entails that its practitioners remain lifelong committed to the pursuit of professional excellence. For this reason, I have resolved to apply for a Ph. D. program in molecular medicine or molecular biology at your prestigious university. In doing so, I have placed myself on a new starting point.

The XX Medical College of XX University (formerly called XX Medical University) is a celebrated medical institution second only to XX Medical University and XX Medical University in China. My undergraduate program was completed in its Department of Clinical Medicine and I obtained my Bachelor’s degree with outstanding academic performance. Among a total of 180 students in my grade, I was consistently ranked top three, and for once I was ranked No. 1 in my class. I was awarded first- and second-class scholarships on a number of occasions and was honored as the Outstanding Student of the University. By the time of graduation, I was the sole woman student in my class to be qualified to embark on a Master’s program. My sustained outstanding performance during my Master’s program qualified me for a direct doctoral program in gasteroenterology at the Department of Digestive Medicine of the Union Hospital attached to the XX Medical College.

My doctoral dissertation is entitled The Expression of Fatty Acid Synthase (FAS) in the Tissues of Gastric Cancer and the Effect of FAS Inhibitors on the Growth of the Gastric Cancer Cells. My choice of this topic is motivated by the fact that the biological therapy of cancer is one of the most live issues in contemporary medical community and that in China this subject is just in a fledgling stage. It means that my successful completion of the dissertation will be part of the pioneering work that is being performed by a few leading specialists of the country. My supervisor has shown his full appreciation for all the independents efforts I made in deciding my research concentration, collecting data and technical literature, as well as in formulating experimental approaches. My supervisor and other judges of the dissertation evaluation panel commented on my thesis as “demonstrating excellent conceptualization requisite for advanced scientific research, with a novel topic and much in-depth research, of leading significance in the domestic academia, and of important value for clinical application.”   
   
What I have attempted to do in my dissertation is to investigate the expression of the FAS in the gastric cancer tissues so as to come up with theoretical and clinical foundation for the biological treatment of the gastric cancer. By applying RT－PCR and immunohistochemistry approaches, I studied the expression of the FAS in the gastric cancer tissues. Then I observed the effects produced by the FAS inhibitors on the growth and proliferation of the cell lines of the gastric cancer at different degrees of differentiation. A study of the mechanisms of the apoptosis of the gastric cancer cells caused by the FAS was made in order to develop an understanding of the role played by the mitochondrial passages and the death receptor passages in those mechanisms of cell apoptosis. Finally, by doing in vitro experiments, I analyzed the impact of the FAS inhibitors on the cancer-causing pattern in nude mice. My conclusion is that FAS inhibitors may serve as the new target in the biological treatment of the gastric cancer.

Apart from the research I have performed for my doctoral dissertation, I have also played an active role in a series of other research programs. In the first year of my Master’s-Doctoral program, I participated in the project on the Level and Gene Expression of Cytokines in Various Stages of Ulcerative Colitis, a program sponsored by the XX. I attended two academic conferences in 2002, the XX Medical Symposium in XX and the Annual Conference on Digestion of XX Province in XX. On both of those occasions, I delivered my presentations concerning my research findings on the Level and Gene Expression of Cytokines in Various Stages of Ulcerative Colitis, for which I received very positive reactions from other participants. Based on my creative research, I have so far completed a total of three major research papers which have been accepted for publication in the leading medical journals of our country. The papers include Level and Gene Expression of Cytokines in Various Stages of Ulcerative Colitis, The Clinical Characteristics and the Comparisons of the Tendency to Drug Choice in Resident Patients with Ulcerative Colitis, and Effects of Fatty Acid Synthase Inhibitor on the Growth of Gastric Cancer Cells.

The reason for my switching to molecular medicine or molecular biology is that, on one hand, I wish to enrich my medical knowledge as a whole, and on the other hand, I had a penchant for basic medical courses as early as my undergraduate career, such as molecular biology, biology, biochemistry, immunology, and microbiology, and achieved exceedingly high scores in them. My GPA for those core courses like biochemistry, immunology, pharmacology and pathology reached 3.62. But more importantly, I witnessed during my clinical internships at the end of my undergraduate education that there are few solutions to many difficult and problematic diseases. The underlying reason for this situation is that researchers have not yet arrived at a clear understanding of the etiology, geneses and developmental mechanisms of those diseases. All those factors have contributed to my motivation for an advanced program in basic medicine.

XX University is located in a region of Cleveland where some of the leading universities and institutions of the United States can be found. The University’s biological research is characterized by a strong faculty, state-of-art facilities and unparalleled research achievements. What especially fascinates me is that the Department of Biology is in the School of Medicine, which allows interdisciplinary studies with basic medicine and clinical medicine. Approximately 20 senior professors in the Department have active research programs in the areas of cellular transformation, oncogenesis, and human cancers. At your prestigious university, I will quickly learn the latest developments and research findings in molecular medicine, be exposed to the effective thinking of learned scholars, broaden my academic perspective and improve my professional expertise.

In my proposed program, I would like to concentrate on: a. the mechanisms of action of known oncogenes (such as tyrosine kinases and transcription factors); b. identification of novel, oncogenes and tumor suppressor genes as genetic markers involved in the development of leukemias, prostate, and colon cancers; and c. investigation of the process of tumor metastasis via alterations of extracellular matrix proteins and associated kinases and phosphatases. After attending basic courses ranging from molecular genetics of cancer, concepts in molecular biology and microbiology, to cell surfaces and matrices, I would like to gain guidance from Prof. XX, XX, and XX to undertake research in cellular transformation, oncogenesis, and human cancers.

Molecular biology is the most rapidly developing discipline in life science, increasingly integrated with other subjects to generate exciting fruits. It promises to lead to an unprecedented understanding of various phenomena of life, and to utilize and transform organisms constructively. I have taken a firm step of intellectual quest over the past. I will be most proud of continuing with this intellectual quest. With the completion of my proposed doctoral program in the United States, I will be equipped with in-depth knowledge across two fields and this knowledge will make it possible for me to become an elite in China who can better fulfill the sacred oath I have made.