The typical grade-school student changes career dreams dozens of times before high school graduation. Kelly Harris (’04), however, found her path at age eight while touring the research laboratories at Meharry Medical College, and is now well on her way to receiving a Ph.D. in biomedical sciences next May, with a focus on gastrointestinal cancer research.

“The research bug just bit me!” said Harris. “As I got older I tried different areas, but nothing held my interest. I decided, ‘If I’m going to do something for the long-term, it should be something I’m excited about.’”

Harris was brought to UT Martin by a relative and quickly decided to stay. “My high school was a small, private institution, so Martin gave me the small classroom sizes I was looking for – especially once you get into your major courses after freshman year,” she explained. “I felt like I could get more one-on-one time with my professors and not be just a number.”

Harris never lost sight of her dream to enter the medical research field, and let that aspiration guide her choice of college as well. “Getting into the medical field is very competitive, and at Martin the professors had been working in their areas for a long time and had done real research, so I felt I could get better mentoring and find out how to beat the barriers for getting past the college level,” she explained. “Even just taking the GRE – having my questions answered about how to study and how long to study and tips for taking it really made a difference; at a bigger university you don’t get that.”

She took advantage of Martin’s approachable atmosphere and developed personal relationships with several of her instructors. Dr. David Sammons, chair of the Department of Biological Sciences at that time, was her primary academic advisor. “I knew what I wanted to do, but he helped me with what to do. I had a goal in mind, it was just about figuring out how to get there,” said Harris. She also turned to Dr. Deborah Williams-Boyd, advisor to the Delta Sigma Theta sorority, for help navigating the college system and adapting to life on her own.

“During that time when you’re alone and you’re trying to balance social and academics, one or the other tends to tick, so it’s great to have that support,” said Harris. “With Martin’s size and the one-on-one interaction you’re always having, you always have people who care about you. It really matters to have people you can talk to and who take time out of their schedules to give you advice.”

Harris was also a member of Spanish Club, Tri Beta and Mu Epsilon Theta during her time at UT Martin, but her favorite memories center around the annual homecoming festivities and the small-town feel of the area. “I loved the quad walk and how the band would play on their way to the field. I also enjoy supporting the little mom-and-pop places. Whenever I go back, my first stop is always K&N (on Lindell Street). The must-have is their pink lemonade slush,” she said.

Harris received a Bachelor of Science in biology in 2004 and went to work first in a research pathology lab with a focus on gastrointestinal cancer, and then in a similar lab geared toward prostate cancer research. Her time in these laboratories focused her interest on cancer research and the various triggers associated with the disease. She began a master’s program in molecular biology at Middle Tennessee State University in 2006 to decide once and for all if research was really what she wanted to do. The research bug hit her again and she was hooked for the long run.

In 2010, she was accepted into Meharry Medical College and met Dr. Aramandla Ramesh, who wanted to focus his research on the effects of a high-fat diet on gastrointestinal cancer. Harris’s master’s project, which focused on obesity, and her experience in a related research lab made her a perfect fit for Ramesh’s laboratory team. “I wanted to use what I already knew and still be able to build on it and learn something new,” she said.

She is now studying in the biochemistry and cancer biology department at Meharry and is a part of the Health Policy Scholars Program, which allows students with an interest in health policy and social science research to work toward the completion of a certificate in health science in conjunction with their terminal degrees. Her research, titled “Interplay of Western diet and benzo(a)pyrene exposure on colon carcinogenesis in a F344 rat model,” seeks to explain a known link between a high-fat “Western” diet and an increased risk of colon cancer. “In the existing research, there is a correlation between consuming fatty foods and an increased chance of getting colon cancer. But no one really knows how it happens; no one knows the link biologically,” she explained. A toxicant called benzo(a)pyrene is present in our daily environment, as well as in fried and barbecued foods, among other sources. It is not something that can be avoided, but it is something known to increase the risk of cancer when exposed in large enough quantities. “I thought it would be a good starting point, since researchers know it causes cancer and we know it’s in the foods we eat anyway. So I’m taking a known pathway in our foods that causes cancer and seeing how a high-fat diet will enhance it, if there is an enhancement, to accelerate the process.”

The National Institutes of Health awarded Harris the Ruth L. Kirschstein National Research Service Award in 2014 to help fund her education and her research goals. Her preliminary findings and research strategy had to receive a high score from an initial screening panel before being forwarded to a relevant research agency for a decision on funding. Harris was granted $85,352, which has provided increased flexibility in her research decisions. “The award gives me the ability to open my project to areas I probably couldn’t have before due to funding issues. I’ve also been able to explore any new development opportunities because I now have travel funds for conferences and networking with other researchers in various fields,” said Harris. The award will also support her Ph.D. training for the next two years.

Harris is slated to graduate in May 2016. Before she crosses the stage at Meharry, she would like to leave behind a solid foundation to support future researchers in their goal to understand cancer. “I would really like to provide a biological link. I want to show exactly how Western diet is affecting the body – not only say that fatty foods increase the risk of colon cancer, but to be able to explain how and why that occurs,” she said.

She hopes to complete a post-doctoral program in the future and incorporate her experience with colon cancer research into the next phase of her professional life. She would like to return home to Memphis and work with St. Jude Children’s Research Hospital. “(St. Jude) is more pediatric cancer, of course, but I’m hoping some things I have learned as far as diet might have links to pediatric cancers while children are in utero – maybe they have been affected by the mother’s diet,” Harris explained. She is also looking into possibilities with the NIH and several biomedical research facilities in San Antonio, Texas.