Statement of Purpose
Tre Artis, Ph.D. in Biological and Biomedical Sciences at Harvard University

My desire to attend graduate school and pursue a career in biological research began in my junior year, after I started taking senior level seminars in Molecular Biology, Cell Biology, and Epigenetics. These courses gave me the chance to learn more about biological research, emerging fields, and various molecular techniques. I also was able to write two grant proposals on various epigenetic regulators, such as chromatin remodeling complexes, which allowed me to dive more into the standing body of literature and contemplate missing information in the field of epigenetics. It was through these projects that I realized my passion for epigenetics and issues facing human health.

As a future graduate student, I'm specifically interested in studying epigenetic mechanisms of gene regulation and the role they play in developmental processes, physiology, and disease. I'm interested in gene regulation because genes and DNA are the fundamental level of biology. I'm fascinated with learning about what happens when gene regulatory processes go wrong. I'm particularly fond of epigenetics because epigenetic modifications are key regulators of gene expression and explain many biological phenomena that cannot be explained by the DNA sequence. In addition, many of today's diseases have a genetic and/or epigenetic component, demonstrating the importance of understanding these aspects of biology. Areas of epigenetics that are intriguing to me include DNA methylation, epigenetic reprogramming, nuclear architecture, and chromosome folding.

Given my interest in epigenetics that developed in my junior year, I knew that I wanted to continue studying this at the graduate level. **To get more experience, I applied for and was awarded an NIH Post Baccalaureate Research Education Program (PREP) Fellowship.** This gave me the opportunity to study and conduct full time research at the University of Pennsylvania, School of Medicine, in the laboratory of Dr. Marisa Bartolomei, which specializes in the study of DNA methylation and genomic imprinting. I have been working on my own project in the lab focused on investigating the epigenetic and multi-generational health effects following prenatal exposure to endocrine disruptors. Endocrine disruptors are chemicals widely used as plasticizers which also have the ability to alter endocrine homeostasis. I have been specifically examining the endocrine disruptor, di (2-ethylhexyl) phthalate (DEHP), which is an antiandrogenic compound. Early life exposure to DEHP is associated with adverse effects on metabolic health in humans and rodents, which is thought to be mediated by epigenetic changes. To explore this, we have used a mouse model with a maternal dietary exposure to DEHP. **I have been responsible for carrying out all of the experimental processes as well as the design, analysis, and dissemination of results.**

Preliminary results from my work suggest that DEHP-exposed male offspring show mild obesogenic effects including elevated body weight, reduced pancreas weight, trends toward glucose intolerance, and trends towards elevated body fat. These results were achieved using glucose tolerance tests and dual energy x-ray absorptiometry (DEXA) scans. These changes are associated with epigenomic changes including reduced global DNA methylation in fetal and adult tissues; a result achieved through a technique known as luminometric methylation assay. These effects are sex specific and do not persist into the F2 generation via maternal transmission. **Our work will be important to the field because we have created a mouse model of exposure that more closely resembles human exposure.** Understanding the effects of prenatal DEHP exposure and the mechanisms through which they work will ultimately improve our knowledge of the risks DEHP poses to human health.

My time in the PREP program has been extremely rewarding. I've been able to complete graduate coursework in Epigenetics, Cell Biology, and Biochemistry, to receive RCR training, and to improve my scientific writing skills through grants, fellowship applications, and abstracts. **I applied for a NIH Diversity Supplement Grant to support my current research of which I was awarded.** I've also written two NSF GRFP fellowships. I've been able to present my work at lab meetings, research in progress talks, interest groups, and conferences**. I presented my research in a podium presentation at the 2016 PREP Research Symposium at the Icahn School of Medicine at Mt. Sinai. I've also presented posters at the 2015 Annual Biomedical Research Conference for Minority Students (ABRCMS) conference in Seattle, Washington, and several other internal meetings.** I will present my research again in a poster at ABRCMS 2016 in Tampa, Florida. I've also had the opportunity to attend my first professional meeting at the NIH, where I was invited to participate in important discussions about groundbreaking research on transgenerational inheritance**. This is where I first learned about the research of Harvard faculty member Dr. Scott Kennedy, whose work inspired me to apply to Harvard**. I've learned how to work with and seek out collaborators to help advance my research. Lastly, I've learned how to cope with adversity and challenges in research. This experience has left me with an unwavering passion for science, a desire to learn more, a desire to conduct more research, and an eagerness to attend graduate school.

I plan to matriculate into a graduate program to pursue a Ph.D. focused in genetics and molecular biology, specifically epigenetics. Upon successfully completing graduate training, **I aim to use my education to secure a faculty position at a research institution,** where I can teach epigenetics and open my own lab to interrogate important epigenetic questions. I also aim to use my faculty position to help the next generation of scientists become passionate about biology and research. I seek graduate programs that will help me achieve this through strong education, training, and professional development.

I strongly feel that becoming a graduate student at Harvard University, in the Biological and Biomedical Sciences (BBS) Ph.D. program, will undoubtedly give me the best possible understanding and training in molecular biology, genetics, and biomedical research. This Ph.D. program excites and stands out to me for so many reasons. Firstly, this program has a strong commitment to basic biological research and it applications. As a scientist, I want to answer biological questions that can assist in alleviating issues facing human health. Harvard will help me in achieving this goal specifically with the presence of Harvard Medical School and the biomedically focused research environment. **The interdisciplinary nature of the BBS program also fits someone like me** who has diverse interests and a broad biological background. I also value the research communities in the BBS program because they provide a more focused, intimate, and collaborative graduate education and research environment. BBS also has a great and flexible core curriculum. In regards to training, **there is lot of support both in terms of funding and in professional development for graduate students in the BBS program.** The quality of the research and faculty at Harvard is also very high as many labs publish in high profile journals, receive lots of funding, and make many important scientific discoveries. In addition, the faculty at Harvard is very diverse, particularly in terms of research focus, which allows for exposure to many aspects of biology, the potential for interdisciplinary research, and an enriched graduate experience. **I'm blown away by the amount of faculty studying epigenetics**. As an aspiring epigeneticist, this is the place to be. **I'm particularly fascinated by Dr. Scott Kennedy's research** on small RNAs involved in epigenetic regulation and transgenerational inheritance**, Dr. Eric Greer's research** on chromatin modifications

involved in transgenerational inheritance**, Dr. Bradley Bernstein's research** on chromatin regulation in stem cells and cancer, and **Dr. Alexander Gimelbrant's research** on epigenetic control of allele specific expression. **Harvard's commitments to diversity** is also important given that I am a minority. Seeing that there are organizations such as the WEB DuBois Society, Multicultural Student Alliance, and the Minority Biomedical Scientists of Harvard, give me comfort in knowing that there will be networks of support at Harvard**.** Lastly, the greater Boston and Cambridge area is a scientific, medical, and biotechnological hub which presents many opportunities for collaboration, learning, exposure, and professional development.

I'm convinced that I have adequate knowledge, experience, and preparation to be a successful graduate student at Harvard University, which is evident particularly by my experience in the PREP program. My undergraduate liberal arts education has taught me vital critical thinking skills, how to deal with complexity, diversity, and change, and given me a broad, interdisciplinary understanding of biology, science, and the world. I owe so much to science and biology and I want to see the field continue to grow while I continue to grow with it.

Statement of Purpose

As a child born and raised in Delhi, India, I never questioned the idea of my present life being a reflection of my actions from past lifetimes. The ideology of *karma*, endemic to Indian society, emphasizes that everything in our lives – from the amount of wealth we possess to the sickness we suffer from – is a consequence of our prior actions. However, I began to question/doubt this belief when I chose a biology-focused curriculum in high school and learned about inherited traits, gene function, expression and regulation. Is sickness really an outcome of *karma*? In the battle between genes and *karma*, who wins the right to determine a person's fate? Or is fate a culmination of both karmic and genetic influences? In the case of identical twins, what dictates which one of the two battles cancer and which one will struggle to survive calculus? If it is purely genetic, then what factors are responsible for these life-transforming differences? What genes and pathways are being affected? At what stage of development are these genes being turned on or off? My desire to answers these questions furthered my desire to pursue biology in college so I could better understand the mechanisms that regulate DNA replication, RNA transcription, and protein synthesis; how this varies in different organisms and how it relates to human diseases.

At Ohio Wesleyan University (OWU) I have engaged in rigorous coursework in zoology and botany, and also in physics, chemistry, philosophy, humanities, mathematics and psychology. As a freshman, I enrolled in a Plant Signal Transduction honors research tutorial that focused on fundamental molecular mechanisms that govern a plant's response to its environment. I assisted an upperclassman with data collection and eventually assumed responsibility for the project, thus reinforcing my conviction and desire to pursue research in biological sciences. The undergraduate courses and associated lab work have enabled me to master a variety of techniques such as plasmid purification, transfection, northern blots, HPLC, NMR, growth media and buffer preparations etc. I have used many of these skills in other research projects that I have been involved in throughout my undergraduate career.

In my junior year, I worked in Dr. Danielle Hamill's lab on a project that focused on studying cell division and early developmental processes particularly in Caenorhabditis elegans. We characterized cell division mutants using molecular and genetic analyses to investigate the parental contributions to this phenotype. Since the process of cell division is highly conserved across most organisms, this study will help understand this process in other similar organisms as well. Though I began with a basic understanding of the project, reading journal articles throughout the year increased my knowledge of developmental processes (signaling mechanisms) and also helped me overcome several experimental problems that we encountered. This project required me to use several advanced microscopy techniques, such as confocal,

fluorescence and DIC to visualize whole worms, dividing embryos, spindle formation in cells etc.

For the past two summers, I have contributed to a research project in Dr. Chris Wolverton's lab. Our goal has been to examine the relationship between Phosphate (Pi) availability and lateral root gravitropism by quantitatively studying the effects of low Pi concentrations on lateral root architecture of wild-type (WT) and mutants PHT1:1 and PHT1:4 (Pi transporter genes) seedlings of Arabidopsis *thaliana.* In previous studies we observed that WT seedlings grown on low-Pi medium exhibited an increased gravitropic response. Our results were consistent with our hypothesis that the gravitropic response of both mutants grown in normal Pi medium will be similar to that of WT seedlings grown in low-Pi medium. Understanding this relationship, will allow us to select for plants that have higher productivity and require fewer fertilizer inputs. As part of the project, I used techniques, such as PCR (Polymerase Chain Reaction), RT-PCR, gel electrophoresis, automated image analysis, confocal microscopy, time-lapse photography etc. At the end of summer, I presented a poster at the research symposium, summarizing my results from the 10-week program. I also presented my results in a poster session at the Mid-western section meeting of ASPB (American Society of Plant Biologists). Under the guidance of Dr. Wolverton and a former OWU student, I am currently in the process of finishing up the project and documenting results that will be included in a paper that will be submitted for publication. While these experiences reaffirmed my interest in research, the Cell and Molecular Biology course helped me identify a more focused area of research. This course highlighted questions related to molecular mechanisms of eukaryotic cellular physiology. Some of the topics covered included protein structure and regulation; signal transduction; and cellular mechanisms leading to tumorigenesis. I mastered techniques such as SDS page, Northern blot, Nanodrop and Microplate spectroscopy. A very valuable experience in this class was learning to write an NIH-style grant proposal. While I wasn't able to actually carry out the experiments, I developed a research project that focused on abnormal activation of Wnt signaling pathways and its tumorigenic effects and wrote a grant proposal to examine the interaction between Smo and Ptch proteins in this pathway. In order to design my own experiments and write a thorough and convincing proposal, I read through numerous journal articles that related the concepts we learned in class to current areas of research. Since writing grant proposals will be an integral part of my future career, this training was very useful. The course's focus on signal transduction pathways and tumorigenesis propelled me in the direction of cancer research.

My education and research experience at OWU have prepared me for a graduate program in [**insert program name here**]. There are many faculty members at _____ University doing research I find fascinating. For example, I am very interested in Dr. Lorainne Santy's research on the role of GTPases in epithelial cell mobility and metastasis. The project uses many techniques that I am well acquainted with including Western Blot, transduction and transfection among others. The Santy lab's focus on signaling mechanisms affecting cell motility is very

much in line with the type of cancer research I would like to do. I want to focus on identifying novel anticancer drug targets by examining cell signaling dysfunctionalities in tumor development and translating these findings into potent therapeutics. My decision to apply to Ph.D. programs stems from my career goal of becoming an independent investigator in the field of translational cancer research. In addition to research, I am committed to having a career that enables me to mentor and lead a group of aspiring graduate level researchers. I believe that the education and opportunities that I will get as a research or teaching assistant will prepare me to successfully fulfill my career goals.

Personal Statement, Relevant Background and Future Goals [redacted]

Personal and Educational Experiences

I am motivated by the process of discovery. Whether that be at the lab bench, in front of a computer, playing a sport, or helping other students in their own discovery process, I want to intricately understand a topic and attack it from all angles. In all aspects of life, I systematically plan to make this process efficient. I want to understand the problem: why people care, how they chose to study the problem, and what aspects have been addressed in the past. Only then do I delve into potential methodologies to solve the problem. By engaging in this preparation, I enhance my potential to thrive an otherwise uncertain discovery process.

Undergraduate Research and Education: My research background includes a broad curriculum of both experimental and computational methods, indicative of my desire to foster interests in biology, chemistry, and computation. **To drive this desire, I sought out interdisciplinary research in the form of multiple National Science Foundation - Research Experience for Undergraduates (NSF-REU) summer programs.** My first REU took place at [redacted] in Summer 2013 with [redacted], under whose supervision I began exploring the fields of molecular biology and microbiology. I investigated the functionality of the epithelial sodium channel (ENaC) by characterizing random mutagenesis of these channels in yeast. Learning how to probe biological systems on a reductionist scale taught me fundamental biological principles. **Along with research experience, the program emphasized innovation and entrepreneurship through coursework and building a business plan for a local scientific start-up, for which I won Best Business Plan Proposal.** This research experience gave me an appreciation of reductionist biology. However, I soon became excited at the prospect of biology on a larger scale – the effect of perturbation on whole systems rather than on a single protein. To this end, I completed my next REU in Chemical Biology with [redacted] at [redacted] during the Summer of 2014. In this setting, I utilized computational modeling tools to understand the enormous scope of biology and what it means to perturb an entire system. My main objective was to create a mechanistic model of cell cycle dynamics, given previous literature and mathematical equations. In doing so, I enhanced my knowledge of chemical kinetics and developed programming skills to create models for each of the main cell cycle checkpoints. Studying under [redacted], I became excited about systems biology research, where I could synthesize my aforementioned interests in both experimental and computational work.

Education is and has been a very important aspect of my life. **I was given the opportunity to pursue my undergraduate education as a student-athlete (golf) at [redacted].** Golf was my first true passion, and the opportunity to compete on a national collegiate level was my main goal since adolescence. During my second year of college, I found myself becoming more enthralled in my science courses and excited about research. Golf became my second priority, and I made the decision to focus on pursuing the best education and research opportunities possible. I chose to transfer to a university where I could truly mold myself into a scientist. At The [redacted], I was able to challenge myself intellectually with a diverse set of courses not available at [redacted] and work with peers and professors that pushed me to strive for larger academic goals.

As an underrepresented minority student, I have seen the impact of lack of education and how it limits the individual. My mother was a first-generation college student in a male-dominated field, and she was an inspiration to pursue the sciences. She was one of the only women in her graduating class for computer science, and although she was successful, it was a challenging task for her. One of my goals was to build upon her legacy, not only by pursuing the sciences as a career but also through identifying and helping students in a similar position. Therefore, I make a

point to encourage other young minority students to pursue the sciences. Other influences on my pursuit of higher education in science were my grandparents. Children of Mexican immigrants living in [redacted] they were not able to receive an education past high school. From a young age, my grandparents taught me that education was power, and that success was dependent on my individual work ethic. When my grandfather passed away from colon cancer in July 2014, I promised myself that I would strive to reach the peak of education.

Graduate Research and Education: Since joining the [redacted] program at [redacted] in August [redacted], I have delved into new scientific disciplines to mold myself into an increasingly well-rounded scientist. I chose this interdisciplinary program, which sculpts students to attack biological problems from the perspective of physics, mathematics, and chemistry, so I could continue to diversify my scientific interests. A first year of research rotations allowed me to sample the scientific spectrum, with the end goal of finding a way to incorporate experiments and computation. To enhance my computational skillset, I sought to train with a bioinformatician. Under [redacted], I learned genetics and structural biology approaches to understand human evolution. In this rotation, I investigated human-derived single-nucleotide polymorphisms (SNPs) and their relatedness to ancestral genetic traits. I mapped these SNPs back onto previously-solved protein structures to determine location, solvent accessibility, and amino acid composition of these structures. Through this analysis, we were able to discern novel evolutionary reasoning for the specific locations of amino acids in protein structures. During this time, I became interested in regulatory mechanisms of proteins on cellular processes. To fuel this interest, I trained with [redacted] to explore novel vesicular trafficking proteins and attempt to discern a key regulator of invadopodia binding to the cell surface. In addition to learning many cell biology approaches, she also challenged me to use bioinformatics tools to investigate publically-available patient datasets in Head and Neck Squamous Cell Carcinoma (HNSCC). Using a network analysis methodology that uses mathematical concepts to cluster high-dimensional data, I sought to tease apart genetic drivers of HNSCC to use as a model of underlying biology. During my interlude into cancer bioinformatics, I became aware of the widespread heterogeneity in these datasets. That observation spurred me to explore the contributing factors of cancer heterogeneity. I was able to pursue this interest with my eventual thesis mentor, [redacted] By performing systems-level analyses, I was finally able to combine my joint interests in computation and experimentation. In his laboratory, I am using mathematical models of population dynamics to understand the emergence of heterogeneity at the single-cell level. Since joining the laboratory, I have enhanced my knowledge of several single-cell approaches to study this phenomenon, including flow cytometry, fluorescence imaging, mathematical modeling, and bioinformatics. My coursework has primarily focused on development of skills in quantitative experimentation, mathematical modeling, and bioinformatics. In pursuing a PhD in systems biology, I will apply these new skills to continue studying the evolutionary development of cancer heterogeneity.

Intellectual Merit: Educational, Career Development, and Future Goals: My overarching goals evolve from my belief that a scientist must be able to think critically in the context of a larger purpose. Over the next several years as a graduate student, I expect to build myself into a well-rounded scientist by absorbing a wide variety of techniques, and developing critical thinking skills to best analyze and process data. I want my training to focus on learning an integrated approach to science, guiding experiments with bioinformatics data mining and computational simulations. After I end my doctoral training, I hope to apply for an academic or industry post-doc that allows for iterative modeling and experimental probing of a biological system. I eventually want to

become a scientific team leader in academia or industry, with a strong emphasis on utilizing the skillsets of experimentalists and theoreticians.

During my graduate career at [redacted] I will have an ideal setup for career development. In fact, it was one of the main reasons I chose [redacted] for my graduate education. With broad, interdisciplinary training and the freedom to pursue my own research interests, I have been able to forge my own path to becoming a scientist. An example of this educational environment is exemplified in the [redacted] which brings together biologists, physicists, chemists, mathematicians, and engineers from around campus to collaborate on projects. The open collaboration between quantitative scientists allows me to not only receive feedback from different perspectives, but also learn how these scientists deal with similar problems in adjacent fields. In addition to educational development in the laboratory, I have also chosen to add a clinical aspect. Through the [redacted] an initiative that pairs basic science PhD students with a clinical mentor to inform translational research, I have been able to add new perspectives to the way I perform research. **By participating and becoming a student representative in this program, I have been able to elevate my drive to solve the many daunting challenges in biological research.** These resources have and will continue to shape my educational and career development as a graduate student at [redacted]

Broader Impacts: Outreach, Leadership, and Mentoring: My interest in service extends further than science. **At The [redacted], I served as student recruitment and retention co-chair for the Senate of College Councils, the academic branch of student government.** In this organization, I was able to not only mentor and lead two groups of high-achieving students, but also plan events to benefit the community. Along with my committee, we were able to champion a college-readiness workshop for dozens of [redacted]-area high-school students and their families, as well as organize a college exposure event for several classes of elementary-school students. In addition, we spearheaded a transfer student committee that worked to improve the retention rates and find funding sources for transfer students. **I have continued this leadership and mentoring experience at [redacted] through leading recruitment weekend activities and serving as a mentor for upcoming students in my PhD program.** I will continue my dedication to student affairs by serving in a leadership position in my program's Graduate Student Association. Through these experiences, I have shown my commitment to promoting higher education and my passion to help students achieve their goals in science and otherwise.

The process of discovery and education means little to society if we do not pass it forward. During my short career in science, I have taken many opportunities to promote scientific education and understanding. **I took part in an after-school elementary school teaching program, [redacted] Science Outreach, which was founded at my undergraduate institution to promote scientific learning in early education.** With a partner, we would prepare a weekly science lesson and mini-lab to teach to these students. It was an extremely rewarding experience to watch these young children become comfortable and progress in their scientific understanding. It has also taught me the merit of explaining my own science in a concise and simple way. **I will continue this scientific outreach at [redacted] this Spring through the [redacted] program, which is a similar program that emphasizes science community outreach and service to [redacted]-area elementary- and middle-school students.** By continuing to expand my service roles in the community, I hope to make an impact on students in their pursuit of STEM education and contribute to their interest in scientific discovery.

Carnegie Mellon University
Student Academic Success Center
Communication Support

Writing a Personal Statement for Medical School

The personal statement is a crucial part of any graduate school application. However, the medical school personal statement is unique in several ways. Please see the "Writing Your Graduate School Application Essay" handout for more general information about writing your application essay.

What is the purpose of a medical school personal statement?

The purpose of the medical school statement is to show the admissions committee the person behind the MCAT scores and GPA, and provide context to your application**.**

Your statement should communicate:

Who you are
What makes you unique from other applicants
What motivates you to pursue a career in medicine

This statement also serves as a sample of your writing for the admissions committee, and may become conversation material in an interview.

Successful medical school statements will:

1. **Explain why you want to become a doctor or a medical professional.**
   Be sure to explain the MOTIVATION behind your decision to pursue a career in medicine. While your answer can include academic reasons, it can also address your personal or emotional motives for pursuing this career. You may also want to talk about how you hope to have an impact in the medical field.

   Avoid clichés.

   Be careful not to explain your motivation using clichés, such as wanting to help others. Cliché reasons have been used countless times in personal statements and will not help you stand out to a committee. If one of these clichés is, in fact, your reason for pursing a medical degree, try to make your experience unique. For instance, why do you want to help others *as a doctor*, rather than as a social worker?

2. **Demonstrate what makes you unique for a career in the health profession.**
   Medical school admissions committees read many personal statements each year; you want your statement to stand out from the rest. Avoid making general statements; instead, focus your statement on SPECIFIC and UNIQUE experiences, motivations, and goals that set you apart from other applicants.

   Give your statement as sense of individuality by:
   - Providing specific details about your research
   - Explaining *how* an experience impacted you personally
   - Write with your own "voice" so your personality shines through
   - Being authentic (not just saying what you think the committee wants to hear)

Covering those two content points is crucial, but there are also things to consider when drafting your statement:

1. **Create an overarching or central theme to your statement.**
   Having a central theme to your statement will make your essay cohesive and leave an impression on the committee. This theme could be an experience, personality trait, or philosophy. You can still include multiple past experiences – just ensure each idea in your essay fits within your theme.

This theme can be…
1. An experience that challenged or changed your perspective about medicine
2. A relationship with a mentor or another inspiring individual
3. An overview of a significant academic or life experience
4. An insight into the nature of medical practice

2. **Provide details. Show, don't tell.**
   Answer the "what," "why," and "how" of the experience(s) you discuss. Do not just say that you volunteered at a hospital. Explain *why* that was a significant experience for you and *how* that experience has led you to pursue a career in medicine.
   Use clear, direct language to express these details. You want to write in a simple, concise, and strong manner. Avoid unnecessarily verbose language. Remember: you only have about one page to write about yourself, so every word is crucial.

Carnegie Mellon University
Student Academic Success Center
Communication Support

Medical School Personal Statement Example

On the first day that I walked into the Church Nursing Home, I was unsure of what to expect. A jumble of questions ran through my mind simultaneously: Is this the right job for me? Will I be capable of aiding the elderly residents? Will I enjoy what I do? A couple of hours later, these questions were largely forgotten as I slowly cut chicken pieces and fed them to Frau Meyer. Soon afterwards, I was strolling through the garden with Herr Schmidt, listening to him tell of his tour of duty in World War II. By the end of the day, I realized how much I enjoyed the whole experience and at the same time smiled at the irony of it all. I needed to travel to Heidelberg, Germany to confirm my interest in clinical medicine.

Experiences like my volunteer work in the German nursing home illustrate the decisive role that travel has played in my life. For instance, I had volunteered at a local hospital in New York but was not satisfied. With virtually no patient contact, my exposure to clinical medicine in this setting was unenlightening and uninspiring. However, in Heidelberg, despite the fact that I frequently changed diapers for the incontinent and dealt with occasionally cantankerous elderly, I loved my twice-weekly visits to the nursing home. There, I felt that I was needed and wanted. That rewarding feeling of fulfillment attracts me to the practice of medicine.

My year abroad in Germany also enriched and diversified my experience with research. Although I had a tremendously valuable exposure to research as a summer intern investigating chemotherapeutic resistance in human carcinomas, I found disconcerting the constant cost-benefit analysis required in applied biomedical research. In contrast, my work at the University of Heidelberg gave me a broader view of basic research and demonstrated how it can expand knowledge -- even without the promise of immediate profit. I am currently attempting to characterize the role of an enzyme during neural development. Even though the benefit of such research is not yet apparent, it will ultimately contribute to a vast body of information.

My different reactions to research and medicine just exemplify the intrinsically broadening impact of travel. For example, on a recent trip to Egypt I visited a small village on the banks of the Nile. This impoverished hamlet boasted a large textile factory in its center where many children worked in clean, bright, and cheerful conditions weaving carpets and rugs. After a discussion with the foreman of the plant, I discovered that the children of the village learned trades at a young age to prepare them to enter the job market and to support their families. If I had just heard about this factory, I would have recoiled in horror with visions of sweatshops

running through my head. However, watching the skill and precision each child displayed, in addition to his or her endless creativity, soon made me realize that it is impossible to judge this country's attempts to deal with its poverty using American standards and experience. I hope to apply this nonjudgmental stance to patients in my future medical career, making sure to take a patient's background and perspectives into mind when advising them on their health. Although I would be a medical professional offering credible advice about how to improve or treat a patient's health condition, I vow to focus on treating the holistic individual, including their values and beliefs – even if they are different from my own. Further, I believe having had many diverse travel experiences, like the one in Egypt, have allowed me to broaden my own understanding of how others lead their lives.

Travel has not only had a formative and decisive impact on my decision to pursue a career in medicine; it has also broadened my horizons -- whether in a prosperous city on the Rhine or an impoverished village on the Nile. In dealing with patients or addressing research puzzles, I intend to bring the inquiring mind fostered in school, lab, and volunteer experiences. But above all, I intend to bring the open mind formed through travel.[1]

---

1 Sample personal statement taken from *Accepted.com*.