Inquiro, the UAB undergraduate science research journal

Volume 2007 | Number 1 Article 7

2007

# A Day in the Lab

Larry Lawal

# A Day in the Lab

**Larry Lawal**

"When will I ever use this in the real world?" was the recurring question I'd ask my science teachers. My question, spurred by a genuine curiosity, received its first clear answer during my junior year of high school when I entered my first research experience. I began working in a cancer research lab at the University of Alabama at Birmingham on a project investigating how the presence or absence of lymphatic tissue affects the progression of prostate cancer. The experiments were conducted using the TRAMP (transgenic adenocarcinoma of the mouse prostate) mouse model, in which progression of prostate cancer is a function of time.

On the very first day when I was told to make up a TE buffer from full-strength stock solutions, I realized that the stoichiometry I learned in high school chemistry was essential. When I dissected the mice to determine the areas and extent of metastasis, I knew that I needed a basis in anatomy to differentiate the mouse organs. The entire semester was full of epiphanies like these. I no longer thought of science as just a body of knowledge and facts; I realized science is a way of thinking that increases our understanding of the world and enables us to save and improve lives. The approximately 200,000 men who are diagnosed with prostate cancer yearly in the United States were the answer to my recurring question. The applied research that I participated in is a prime example of how my science courses are used in "the real world."

*Another intriguing aspect of working in Dr. Watts' biology lab was discovering the interdisciplinary nature of science and research.*

The following summer, I received a Research Experience for Students (RES) award to work in the biology department at UAB. Under the supervision of Dr. Steve Watts, Ph.D., I worked on a study investigating the effect of temperature on early development of the sea urchin, *Lytechinus variegatus*. Being able to work alongside researchers who were eager to share their passion with students was invaluable. After being taught the basics, I was responsible for validating the experimental apparatus, collecting data, and analyzing the results. I wasn't given step-by-step instructions on what exactly to do every step of the way; however, I readily accepted the task knowing that my mentor was fully supportive and ready to guide me whenever I encountered road blocks. Research was different than anything I had experienced in my academic

career until that point. Working in the lab required me to think independently and that, to me, is the most attractive part of research.

Another intriguing aspect of working in Dr. Watts' biology lab was discovering the interdisciplinary nature of science and research. The


implications and observations of my experiments extended beyond sea urchins and aquaculture to higher vertebrates like humans, whose embryonic development is similar to that of *Lytechinus variegatus*. The findings of my studies suggest that the Environmental Protection Agency (EPA ) use of sea urchin fertilization success as a toxicological indicator may have limited value since fertilization can virtually occur at any temperature. The rate of advanced development through early developmental stages may be a more reliable indicator of ecological stresses.

I further ventured into the world of research after attending a symposium in which the keynote speaker was a biochemist, optometrist, and payload specialist on Columbia space mission, STS-50. Dr. Lawrence DeLucas delivered a compelling speech about his research in protein crystallography. Through the National Science Foundation's Research Experience for Undergraduates Program (REU), I have been able to work with Dr. DeLucas, O.D., Ph.D., and Dr. Lisa Nagy, Ph.D., at UAB's Center for Biophysical Sciences and Engineering for the past 2 years on a project targeted at developing a novel method and high throughput technology that can revolutionize two areas of research: protein crystallography and protein stabilization for pharmaceutical formulations.

Working at the CBSE is great; the interdisciplinary approach to developing drugs employed by the team of biologists, chemists, and engineers intrigues me. Also getting to work in a lab with leaders at the forefront of their field is exciting. I enjoy being able to delve deeper into theories and concepts covered in my coursework, to learn technical procedures, and to fully explore an area of science. Everyday I witness the biology, chemistry, physics, and engineering I learned in lectures transform into living, practical, working tools through which I conduct research.

It's a unique feeling when you realize that something you do in the lab will benefit people you may never meet in ways you never expected. Getting involved and thriving in research requires diligence, creativity, and intelligence. I strongly encourage the students inclined to question, wonder, and go beyond their coursework to get involved. There are a multitude of programs through which students can discover and explore fields of science that they find exciting and interesting. Especially at a university like UAB, there are countless opportunities for talented and highly motivated undergraduates to work with top-tier researchers.

*Getting involved and thriving in research requires diligence, creativity, and intelligence.*