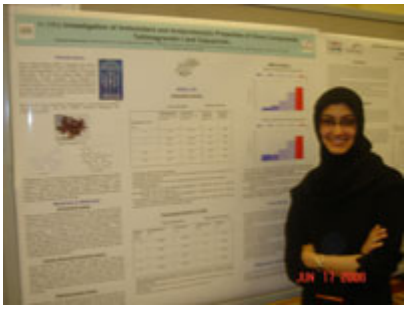
Sumaira Zamurrad
Major: Biochemistry; Class of 09;

Research Mentors: Dr. Sanford R. Simon, Departments of Biochemistry & Cell Biology, Pathology; Dr. Elizabeth J. Roemer, Department of Pathology

Researcher of the Month - July 2008

About Sumaira



"I came here when I got married. I was very young. But then my husband passed away. I decided to stay here and finish college. It's an opportunity that I don't think I would ever get again. That's how I decided to stay." The circumstances Sumaira encountered in her first few months here in New York at the age of 18, newly arrived from Pakistan where she'd married at the age of 16, are difficult to talk about, even several years later.

I got here and my husband was diagnosed with cancer about 4-5 months after that. …That's life. But I think that makes me much more devoted, motivated to achieve my goal…or maybe a little stronger, and gives me a better perspective, especially in research. It pushes me harder. I think that's how I got involved in research. That's the backbone of medicine. There's a lot that we don't know. I want to go into the field and be a part of the team that finds out how it works.

Four years later, Sumaira is about to enter her senior year of college, with a schedule that includes full-time academic coursework in the challenging Biochemistry major, the demands of working in Medical Records 20+ hours a week (where she was awarded "honorable recognition as student employee"). She also has spent time shadowing hematologist/oncologist Dr. Patel at Long Island Jewish Hospital and volunteering at Stony Brook Hospital in the Pediatric unit. Sumaira is also a member of Golden Key; has served as a teaching assistant; and enjoys swimming, skiing, and racquet ball. Luckily, Sumaira has managed to fit in one other component into her undergraduate college experience—undergraduate research.

Working in the lab of Professor Sanford Simon (Departments of Biochemistry & Cell Biology, Pathology) and Dr. Elizabeth Roemer (Department of Pathology), Sumaira has found her work with her supportive mentors and her lab colleagues to be extremely rewarding: "It's a great lab. It's, I would say, if not *the* best, certainly *one of the best things that's happened to me at Stony Brook*. . . . The environment is great. There are very smart people and we share the same interests. I made new friends. Research itself has been very rewarding. I definitely love it."

Sumaira presented a poster for the first time at the on-campus URECA Celebration (April 2008), and then ventured to Tuscon, Arizona to present "In Vitro Investigation of Antioxidant and Antiproteolytic Properties of Clove Extracts: Tellimagrandin I and Casuarictin" at the 2008 World Congress on In Vitro Biology meeting this past June. At this SIVB meeting, she won the Hope E. Hopps Award, the Cellular Toxicology Award for Best Student paper, and then was delighted to learn she'd received the top poster award for excellence in student presentation. Sumaira also was awarded a URECA Travel grant to help offset the costs of attending the meeting.

With a quiet strength, determination, and a definedly positive outlook, Sumaira plans to further her education by going into medicine and/or graduate school with an emphasis on research. In addition to the strong motivation that has sustained her efforts despite difficult circumstances, she credits her father, a physician who has set up a clinic in his ancestral village (where Sumaira will be volunteering some time in August) as being a huge influence. Regarding cloves, the subject of her research and a staple of Pakistani cuisine (and something she used to pick out of rice dishes when a child!), Sumaira now not only uses the spice but tells her mother of its potential merits— to which her mother replies: "Now you know!"

Below are some excerpts of her interview with Karen Kernan, URECA Director.

The Interview

***Karen*: Tell me about you first got involved in your lab/research group.**
Sumaira: I was a second semester sophomore and I went to the Undergraduate Biology open house. I remember going into the lobby of the CMM and it was *really* crowded and I was so intimidated. A couple of my friends were coming out and they said, "There's no point in going in there." But I thought, "You know what, I really want to do this. Let me try." I met a couple of people, among them Dr. Roemer, the senior research scientist in Dr. Simon's lab. I talked to her. It was really interesting hearing about the lab. I gave her my resume and my transcript. And I heard from her after a month or so later, and had an interview. That's how I got involved.

What is your research about?
I started with Dr. Roemer. We did a lot of cell culture. That's what I started on because she wanted me to work on an ECM project. Then I started working on biochemical analysis with Dr. Simon. We started checking antioxidant potential in different extracts, from fruit, from plants, from various creams from pharmaceutical companies, or from cosmetic companies…

I work with both Dr. Roemer and Dr. Simon. The project that I presented at SIVB was about the antioxidant and antiproteolytic activities of clove components. There are these two components in cloves—and they're very unique because they have the ability to inhibit proteolysis and act as antioxidants. That's very unique because we don't know of many natural products that do that. So they make very good candidates for controlling inflammation which is the main cause of a number of diseases. . . it was very exciting, a novel find.

Many undergraduates (not to mention high school students!) get their start in this lab. Can you describe what the lab environment has been like for you?
It's a great lab. It's, I would say, if not *the* best, certainly one of the best things that's happened to me at Stony Brook. There are a lot of undergraduates and several graduate students. The environment is great. We all had a great time at SIVB, there are very smart people and we share the same interests. So it's been a great experience. I made new friends. . . Research itself has been very rewarding. I definitely love it.

This summer, we have a high school student coming in who I will be working with. In our lab, the senior undergraduates mentor the younger undergraduates, as well as the incoming high school students, and that's an excellent experience. I had the experience before of teaching the antioxidant assay to a number of people. It's very rewarding— teaching what you know. And it helps you learn too. Before you teach someone else, you want to make sure you know it. So it pushes you.

Tell me more about what it is that you enjoy about doing research.
It's very different from what I had thought it would be. With research, you go in not knowing what you're going to do. You might have a slight idea. But it's never a good idea to think: "I'm going to go in, I'm going to find this out, I'm going to be famous, etc."…You have to go in thinking, you want to learn, you want to discover, you want to be part of a team that helps to make advances in science and help medicine, help discovery.

Also, the whole lab is very diverse which is what I really love about it too. So many different people coming together, and working together. You're bringing in different views, and different cultures, and you're learning about each other. That's another thing I love about this lab. You get to meet so many different people, and appreciate where they come from. That really prepares you for the workplace. Different approaches, thinking in different ways.

Liz always tells us, don't just come to lab when you have an experiment. Come whenever you can. And that's what I try to do. Whenever I have free time, I make sure I'm in lab. It's important to talk to other people, find out what everyone else is doing. Everyone has their frustrations. So we all talk about each other's problems, in the lab, outside of lab.

What is it like working with your two mentors?
I work with both of them. And it's funny, because they're *similar but completely different*. Dr. Roemer/ ["Liz"], she walks through every step. She's very helpful, so you're never lost at any point. Dr. Simon wants you to learn on your own, make your mistakes, and work independently. He'll tell you what to do but then he also expects you to learn on your own by making mistakes. Both ways are very helpful. And they're both very supportive. I've made so many silly mistakes. But I admire their patience. I think that's what makes them good scientists.

Tell me about the poster presentations you've done.
Recently I presented at the Society of In Vitro Biology/World Congress meeting, at Tuscon in Arizona. And I also presented at URECA—that was my first time presenting. I was very, very nervous. Because it was my first time presenting. I think the first presentation I made to the first person was very bad, but by the end of the day, it was a wonderful experience. I loved it. I enjoy presenting so much. Talking about what you do is a great experience.

Did the URECA Celebration help you prepare for the poster session at Tuscon?
It helped me a lot, definitely! Because I got very interesting questions that I hadn't thought of…so I got to research my own project much more. And I asked more questions based on the questions that I got that day. I think that played a huge role in the fact that we won in Tuscon.

Also, the poster I presented at URECA was actually powerpoint slides. I moved stuff around and then I made a poster. I got very good feedback about how a poster should look, what really attracts people towards it. URECA definitely played a great part in preparing me for SIVB.

Everyone in lab helped me a lot too. The most important thing to remember is that too much text intimidates people and is distracting. The most important part is your results section, so you have to learn to make it very succinct and clear, make the hard stuff simple and understandable to scientists who might not be in the same exact field. Dr. Simon was a great help too in preparing for Arizona. I kept going back to him with questions and he kept corresponding with me by email, even after I'd left for the meeting. He's an excellent teacher, a remarkable teacher! Liz also helped me with my poster a lot. And all of us in the lab practiced a lot before we left. The undergraduates, the post docs, Dr. Simon, Dr. Roemer— we had sessions where we worked together, and did practice presentations, asking questions to each other.

Has doing research enhanced your academic experience at Stony Brook?
Absolutely! After the freshman year, a lot of classes focus on new research. I took Dr. Lyman's class. (It's an excellent class…I loved it.) He talks about a lot of *very* recent research. For instance, papers published yesterday will be in today's lecture. And I started appreciating that a lot. I appreciate what scientists do. I appreciate research much more. I don't think I would have if I hadn't been a part of a lab. The courses I've taken rely heavily on research, which is why they helped me with my work too. And my research helped me admire what I learned in my classes.

What for you are the high points/low points of doing research?
I think it's a mix of bad/good days. In the beginning, it was hard for me to cope with when your standard doesn't work. You expect (at first) to go into lab and do your experiment in one hour, and be done. But then of course, what a bio lab is about or what research is about, is going in, making mistakes, changing your variables, asking questions, attacking your problem from different angles and directions. It's not always about finding something, getting good results. It's about learning. Proving yourself wrong might turn out to be a great learning experience itself.

Is it difficult to balance academics and research?
It's definitely very hard. Because I work too, in medical records, so …yes. It has taught me a lot to manage my time very well, every minute counts. Even if I'm sitting waiting for a bus, I open a book or read a paper I'm supposed to do for research.

Any advice to give to incoming students as far as research is concerned?
I always had this misconception that you had to know a lot before you could approach anyone to do research, that you had to take a lot of courses. Basically I never thought I could start as a freshman. That's what I'd thought. But it's completely wrong! So my advice, if you want to do research—and I think everybody should do a little bit while they're in college—is start as soon as possible! I don't like to regret, but I wish I had started earlier. When you go into lab, it's a new environment that takes time. You need time to learn how to adjust, and how to work in the lab. Now I know a little bit. . . I have one more year and I'm definitely going to make the most of it!