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Biophysicist in Profile



Aldrin Gomes

By the age of 14, Aldrin Gomes already had a small lab in a tool shed in his back yard. When Gomes' school was selling chemistry sets to the students, he convinced his father to buy one. As his fellow students lost interest, Gomes would buy their sets. "By the time I was 14," he explains, "I had my own little lab at home with over 300 chemicals."

This passion for science has trickled down to influence many people, and his knowledge and contagious energy have made him a respected scientist and valued mentor.

Growing up in his native Port of Spain, Trinidad, with his parents Lionel and Linda, Gomes was one of five children. Although he describes himself as a "quiet child," Gomes was also athletic, winning medals for his running talent. He was also a good student with substantial initiative, which allowed him to excel in both science and art in high school.

Accepted to the very selective University of the West Indies, in St. Augustine, Trinidad, Gomes chose to major in biochemistry. "That was one of the best decisions of my life," he explains. "Just looking at the biology of life was so fascinating; it really helped me to become the person I am now." The British three-year university system practiced in Trinidad proved challenging. Each course required six hours of practical hands-on training, leaving him little

time for anything else. "Those practical courses, I would not substitute for anything in the world," he says, "They helped me learn all the techniques I'd be using in different labs around the world."

After graduating, Gomes taught high school science. "I loved that," he exclaims, adding that "I am a visual scientist so when I taught, I taught with a lot of visual aids and I think students were able to really benefit from that." Although he enjoyed teaching, he felt the need for a greater challenge. "I realized that I needed stimulation and I wanted to do something that would allow me to utilize the curiosity that I was blessed with," he explains.

Returning to the University of the West Indies for graduate work, he studied under Junor Barnes, a British- and Canadian-trained scientist, which was very different from studying under someone trained in Trinidad. "In Trinidad," Gomes explains, "we don't have the same equipment or facilities that are available in America. Chemicals take about three months to reach us, so science is a lot tougher." Barnes still wanted to do first

"Chemicals take about three months to reach us, so science is a lot tougher."

rate science in Trinidad despite the limitations. Once Barnes felt confident that Gomes had a strong arsenal of scientific skills, he sent Gomes around the world to various labs to gain experience. Gomes trained at the University of Alberta and in Basel, Switzerland, but it was the three months he spent at the University of Calgary that influenced him the most.

"Those three months I spent in Calgary were probably the greatest learning period of my life. I was able to learn so much in that short time there," remembers Gomes. Under the careful guidance of Hans Vogel, currently a professor in the department of Biological Sciences at the University of Calgary, Gomes was thrust into an NMR lab without the benefit of previous NMR experience. There, he was able to learn in three months what would take others years. "It was very tough. I remember many sleepless nights watching

the data, not understanding it," Gomes reminisces. "Once they started showing me how to interpret it, it was like everything went from night to day." Within two months, Gomes was able to publish his data. He credits this experience for the confidence he has today.

Just prior to finishing graduate school, James Potter, currently Professor and Chairman of the Department of Molecular and Cellular Pharmacology at the University of Miami Miller School of Medicine, visited Barnes' lab. "I had only talked to Aldrin, who was a PhD student at the time, for about three minutes when I realized that he had exceptional talents," remembers Potter. "During his PhD work, he did some really nice work under very difficult circumstances, since the laboratories he worked in were not terribly well equipped and his department was very small." A week after this meeting, Gomes received an invitation to be a postdoctoral fellow in Potter's lab. The lab, which studied muscle contraction and calcium-binding proteins, was right up Gomes' alley, so he accepted and moved to Miami.

While the weather remained similar to Trinidad's, the science was very different. "The science was a lot better and the instrumentation that I craved was now available to me," says Gomes. With the instruments and the help of others in the lab, Gomes succeeded rapidly, in large part,

American Heart Association Fellowship and a Muscular Dystrophy Association Fellowship.

rapidly emerging field of proteomics. Gomes saw immense potential for proteomic techniques to further

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Gomes' scientific skills proved to be not his only strength. "Aldrin Gomes is also a brilliant teacher," says Potter. "Aldrin really believes in teaching by learning," says Aldrin's former undergraduate student Ansel Amaral, currently a senior at the University of Miami. "Whenever he was teaching me new techniques, he first let me observe him and then I would replicate the procedure." In addition to teaching at the University of Miami, Gomes also worked with high school students in a program called the academic advancement program. "Every year, for the last four years, his students have participated in several national competitions, and in the last two consecutive years, a number of his students have won prestigious awards including the Florida Science Fair," says Potter. But his energy is not only focused on science, notes Danuta Szczesna-Cordary, currently Associate Professor of Molecular and Cellular Pharmacology, Miller School of Medicine at the University of Miami. "As an example of his unstinting behavior, he would make himself available at a moment's notice to help a new lab member to move into his/her new apartment or to help them to get started in the laboratory,"

advance the troponin field and muscle contraction in general. Potter's lab did not have the proper equipment for this new field and Gomes desperately wanted to learn more about it. Potter called Peipei Ping at the University of California, Los Angeles, an expert in the field. "He spoke to



Aldrin Gomes skiing in Taos, New Mexico.

her on my behalf, asked her if she was interested," says Gomes. "She invited me over, we immediately clicked, and she offered me an assistant research professor position in her lab." Aldrin has a great positive influence on the lab mainly because his love for science can be easily seen on a daily basis," says Jun Zhang, a postdoctoral fellow at UCLA. "His love for science is very contagious and motivates other people in the lab." Gomes is one of the best researchers in the field, according to colleague Man-soureh

Eghbali, a research assistant professor at UCLA. "He is very optimistic and he encourages other people not to give up when things are not going well," she says.

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according to Potter, because Gomes uses whatever techniques are needed to find an answer. He obtained funding for his work, which focused on the role of troponin in cardiac and skeletal muscle contraction, from an

she says. She does, however, add that such actions do not diminish his scientific passion, which allows him to stay on top of literature in the field.

During his last year in Potter's lab, Gomes became very interested in the

Congress Extends Protection for Animal Research

In the fall, the House approved the Animal Enterprise Protection Act, S.3880, which punishes animal rights activists that threaten scientists conducting animal research. The bill extends the current protection, which included damage to animal research organizations, farms, zoos, and pet stores, to insurance companies, investment firms, and law firms that conduct business with animal researchers. Those convicted under the law of "harassing, intimidating, trespassing against, or vandalizing the property of anyone associated with animal research" would face jail time. It is expected that the bill will be signed into law by President Bush. Animal rights groups oppose the bill and say it infringes on their right to free speech.

BPS at ABRCMS 2006

The Annual Biomedical Research Conference for Minority Students (ABRCMS) was held in Anaheim, California, November 8-11, 2006. Two members of the Minority Affairs Committee (MAC), *Don Rufus Ranatunga* and *Lydia Sohn*, attended this conference as exhibitors to represent the Biophysical Society. In addition, *Ishita Mukerji*, Chair of MAC, attended the conference and served as an on-site judge for the student poster presentations. Stephen Mayo, another MAC member, delivered a lecture sponsored by the Society on Designing Novel Proteins for Applications from Research to Medicine. The lecture focused on the development and application of computational design methods that are transforming the protein engineering field. The talk

was well received by many scientists as evidenced by the number of attendees. Mayo also served as a panelist in one of the Plenary Professional Development Sessions on Career Pathways and Opportunities.

The Society exhibit booth displayed materials and information about graduate and undergraduate programs as well as summer research opportunities in biophysics and related disciplines from various institutions (University of Illinois at Urbana-Champaign, Wesleyan University, Harvard University Biophysics Program, Cornell University, University of Wisconsin-Medical School, University of Michigan-Medical School, University of Rochester, SUNY-Staten Island, and University of Illinois at Chicago). Many students visited the Society and showed interest in gaining information about research and career opportunities in biophysics and interdisciplinary areas as well as other activities of the Society. Meeting attendees were encouraged to keep in touch with the Society Office and/or MAC members in helping promote and support biophysics, and to collaborate at future conferences.

Overall, ABRCMS was a great success with more than 2000 attendees, including students, faculty members, program directors, and recruiters from graduate and professional schools. Nearly 240 exhibitors representing various programs and departments participated in the meeting including government agencies, research institutes, foundations, research hospitals, societies/associations/non-profit organizations, and industry.

—*Don Rufus Ranatunga* and
Lydia Sohn Member, Minority
Affairs Committee

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Gomes' research is currently focused on the proteasome, specifically in regards to ischemia/reperfusion injury using a proteomic approach. He has recently received another grant from the American Heart Association to study the role of the proteasome in cardiovascular disease and is pleased with the success he has had so far. "I came here to learn proteomics and ischemia/reperfusion injury with an expert in these fields and now I've got my own grant in this area," he explains.

Gomes attended his first Biophysical Society meeting while a postdoc in Potter's lab. "At that meeting I was able to make some really good contacts, which later turned out to be very important for collaborations," Gomes says. He continues to attend the meeting every year. As a member of the Early Careers Committee, he helped design the website, which allowed him to learn more about early careers and about how the Society works in general. He enjoys being able to give information to the younger scientists and likes to help them.

Aldrin has been married for nearly two years to Gayathri Venkatraman, whom he met while they were at the University of Miami. Venkatraman has a PhD in physiology and is currently working to understand the mechanism of limb girdle muscular dystrophy at UCLA. Gomes has remained athletic, exchanging his love of running for hiking and skiing. He also enjoys listening to music and collecting money, especially bank notes, from around the world.

Gomes' next goal is to have his own lab. According to Potter, he would be a dream recruit for any school looking for someone in this field because of Gomes' technical abilities. No matter where he goes, Gomes will continue to help the field grow and expand through his research and his influence on young people.