



Comparing results: Dr. Lawrence Palmer and Maryam Shafae discuss the level of expression of the protein epithelial sodium channel (ENaC) under different conditions in laboratory rats. This was Shafae's first taste of research, in an environment that she described as "very friendly and relaxed."

Qatar Students Hone Research

"Scientific study integrated with patient care is the core of medical education ... At Cornell, research and the advancement of medical knowledge are not only ends in themselves but are integrated in a vision of the scientific basis of a thorough medical education."

By Jill Gormley

This excerpt from the Weill Medical College of Cornell University's mission statement reflects the school's emphasis on research and science as the foundation of good clinical medicine. In keeping with this philosophy, a group of eleven medical students from the WCMC-Q Class of 2008 spent an eight-week fellowship at Weill Medical College in New York City during the summer. They worked in the labs of Weill Cornell faculty, collaborating with, and learning from, other medical, graduate and post-doctoral students, and enjoying an interaction with active researchers that is not yet available at the Qatar campus. All the students who participated in the research fellowships, which are funded by Qatar Foundation, will present their findings at the Annual Medical Student Research Forum in November.

Olaf Sparre Andersen, M.D., professor of physiology and biophysics, Director of the MD-PhD Program, and Thomas H. Meickle, Jr., Professor of Medical Education at

Weill Cornell, explains why an early exposure to research is important for medical students: "Only by experiencing it can a student learn what high quality research is. They learn what is involved in science – discipline and structure . . . Students learn to take a big problem and convert it into smaller, bite-size problems. This skill is of tremendous importance in clinical medicine as well as research."

Research experience tailored to each student

During their pre-medical education, members of the Class of 2008 had participated in research at Cornell's campuses in the U.S., but this was the first year of a formalized research program for WCMC-Q's medical students, said Gary Schneider, Ph.D., Senior Associate Dean for Research at WCMC-Q. Students were selected for the fellowships on the basis of merit, and had to commit to participate in the full eight-week program.

Many of the supervising faculty researchers had vis-



Summer research in the labs at Weill Cornell in New York City may lead to “significant” discoveries. Here, Subhi Al Aref and Dr. Olaf Andersen analyze the results of an experiment to measure changes in cell membranes following addition of the compound butanedione 2,3 monoxime.

Skills at New York City Campus

ited Doha during the school year to teach, and others had taught WCMC-Q medical students by e-Learning methods, so the participating faculty and students were familiar with each other. Dr. Schneider was able to place the students in laboratories that he felt best matched their interests, skill level and temperament. The supervising faculty made a sincere effort to design projects for the students that permitted them to make a significant contribution to the research work over the course of their short, eight-week fellowship, Dr. Schneider said.

Ali Farooki worked in the lab of Shahin Rafii, M.D., Arthur B. Belfer Professor of Genetic Medicine and recently named Howard Hughes Medical Institute Investigator. Farooki’s project focused on the importance of citrullination, a post-translational modification, in the formation of platelets. His duties most days involved preparing slides of tissues or cells, staining them with antibodies and observing them under ultraviolet light.

He enjoyed these tasks: “Being able to get beautiful images from my work is definitely rewarding,” Farooki said. Regarding the experience overall, he felt that working in a lab conducting cutting edge research provided him and his classmates a different perspective on their academic medical studies. “It expands our horizons and exposes us to the

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For Rana Biary, assigned to the physiology lab of Randi Silver, Ph.D., the experience has been critical to her development as a medical student. “Last year I sometimes had difficulty getting a real understanding when I read journal articles, because I didn’t have experience with the laboratory techniques,” she said.

Working in Dr. Silver’s lab investigating the synthesis and release of renin from mast cells has given her the ex-

perience she lacked and built up her confidence. Dr. Silver was very hands-on, spending several hours a day in the lab monitoring the researchers' procedures and results. Biary feels that she benefited from the attention. "It's not just what you study, it's how you approach it," she said. "You have to approach lab work like a logarithm, be very organized and go step by step. It doesn't come intuitively. But it will help me be a more dexterous clinician."

Dr. Silver, who is associate professor of physiology and biophysics, commented that Biary had benefited from the experience and contributed well to the work of the lab. "She has developed some good basic lab skills. She applied her basic chemistry, making all her own solutions and cell cultures, doing Western blots, and even assisting the grad students in calcium imaging, which is very complicated. She took an active role in exposing herself to different opportunities."

For Maryam Nemati Shafae, as for Biary, the fellowship was her first taste of research. She engaged in basic scientific research in the lab of Lawrence Palmer, Ph.D., professor of physiology and biophysics, investigating the expression of the protein ENaC (epithelial sodium chan-

nel) in the collecting ducts of the kidneys as compared with other parts of the kidney. Shafae spent the summer learning basic techniques like the Western blot, and becoming familiar with a variety of lab procedures. She was an active participant in lab meetings and journal club, and she presented a journal article to her laboratory colleagues in mid-August.

Shafae also tried clinical research during her fellowship, reviewing charts and conducting data analysis for Rache Simmons, M.D., Anne K. and Edwin C. Weiskopf Associate Professor of Surgical Oncology. Shafae said the experience taught her a great deal about the morphology and treatment of different types of breast cancer. She even had the opportunity to observe surgeries, an experience that greatly impressed her.

Shafae was hoping that her summer experience would give her an idea of how the fields of clinical and basic scientific research operate, and she feels it gave her that, and more. She was particularly impressed with, and grateful for, the camaraderie and kindness she found amongst the other researchers in the lab. "They knew that I don't have

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Students enjoy New York City offerings

The students' summer was not all work and no play. Although their duties kept them in the lab from 9-5 during the work week, their evenings and weekends were free, and they tried to make the most of their leisure time. As Jehan Al Rayahi said, "We realize this is the last summer of fun," as next summer must be spent in preparation for the USMLE.

Shortly after they arrived in New York in early July the students attended a Broadway production of *Fiddler on the Roof*, and they made excursions to museums, events in Central Park, and several of the city's interesting neighborhoods and attractions. Some, like Ali Farooki, spent leisure time visiting friends and relatives who live in the region.

In late July the Qatar campus students hosted a dinner in their apartment for all of the Medical College Class of 2008 students who were in New York City for the summer. About 30 students attended the dinner, which



While in New York, the WCMC-Q medical students had time to gather informally with faculty who were supervising them in the labs. Seen here are (standing, from left to right): Ali Farooki, Yasir Tarabichi (Class of 2009), Subhi Al Aref, Khaled Al Khelaifi, Dr. Lawrence Palmer, Maryam Shafae, Dino Terzic, Vildana Omerovic, Dr. Olaf Andersen, Dr. Domenick Falcone, Dr. Philip Leopold and Dr. Adam Asch. Seated are: Dr. Randi Silver, Amila Husic and Michelle Al Khulaifi.

afforded students from both campuses a rare chance to interact with each other on a social basis.

Rana Biary appreciated the fact that the students from the New York campus shared some of the advice and information they had received from more advanced students. She said "It's nice to talk to the students about the USMLE and other expectations for our studies."

Staff News

Congratulations to Laurie Summers on her promotion to the post of assistant dean for academic planning and development.

We also extend a warm welcome to the following new members of staff: Susan Lacey, assistant dean for administration; Sharon Hynes, director of human resources; Jeremy Merrill, director of the WCMC-Q New York Office; Nonie Pegoraro, director of research compliance.

Patrick Erbeck, senior support technician; Vadym

Nosovsky, Unix administrator; Krista Dobinson, assistant editor/writer; Leah Robinson, curriculum coordinator; Gavin Daley, building services coordinator; Nashira Abdhameed, academic planning and development coordinator; Glen Henderson, computer support technician; Michele Wathen, information and reference technician; Abeer Gohar, administrative secretary; Shyma Al Mizrakchi, data coordinator; Lorraine Timm, housing coordinator.

Summer research *(continued from page 8)*

any lab experience but they accepted me... Everyone works in a very friendly and relaxed environment... It's amazing the way everyone gets along in a very friendly manner, in a very competitive field," she remarked.

Jehan Al Rayahi and Subhi Al Aref both participated in research fellowships in 2004, Al Rayahi in New York City and Al Aref in Ithaca. They felt that last year's experience gave them grounding in basic scientific research techniques, but that their projects this year were more satisfying on an intellectual level.

This year Al Rayahi worked with Dr. Hazel Szeto, professor of pharmacology, investigating the role of a tetrapeptide created in Dr. Szeto's lab – SS31 – in apoptosis. She participated in lab meetings and journal clubs, and enjoyed the work so much that she is considering a career in academia – although she points out that, as she has yet to have any significant clinical experience, she may change her mind.

Working quite independently in Dr. Olaf Andersen's lab, Al Aref discovered that a compound called BDM (butanedione 2,3 monoxime), at physiological concentrations, has an effect on the elastic properties of the lipid bilayers in cell membranes. Dr. Andersen characterizes Al Aref's finding as "significant" and plans to submit a paper describing the finding to a peer-reviewed journal – with Al Aref as a co-author!

Al Aref said that he "fell in love" with research. He enjoys the creative aspect of medical research; he finds the opportunity to elucidate principles that clinicians apply to real patients pleasing. Andersen agrees that research is the right field for him: "With the curiosity and intensity he has shown... the considerable ownership he took of his aspect of the project... I have no doubt he will be a scientist."

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— Dr. Olaf Andersen

Enthusiasm all around for summer research fellowships

Clearly, the summer research fellowships have been a great success, as faculty and students feel enriched by the experience. Dr. Silver pointed out that, since most American students have had significant lab experience by the time they reach medical school, few are interested in doing basic research. This is in contrast to the students from WCMC-Q, who take to their basic research assignments eagerly. "It's refreshing to have enthusiastic students for the summer," Dr. Silver remarked, "and they bring up very good questions."

Dr. Olaf Andersen echoed that sentiment: "It is a joy to teach the(se) students. I appreciate their energy level, their level of excitement and dedication...they have no sense of entitlement." He is hopeful that many of them will use one of their fourth year elective classes to return to the New York City campus to engage in further research.

For their part the students were equally enthusiastic, despite the fact that participating meant that they had limited "chill" time during the summer. Farooki appreciates that the experience provided extra preparation for future clerkships. Shafae remarked that her experience not only taught her skills necessary to basic scientific research and clinical research, but also enabled her to expand her social skills. Perhaps Al Aref said it best: "This is one summer that I will carry until the last day of my life."