Unlocking Genetic Secrets of the Date Palm
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On the cover: Researchers map the date palm genome, increasing knowledge of the gene space 1,000 fold and validating capabilities of WCMC-Q’s genomics lab.

At right: Medical student Nigel Pereira entertains at Coffee House 2009.

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A Story of the Human Cell

Fourth Qatar Foundation Distinguished Lecture Series held at WCMC-Q

Audience members from Weill Cornell Medical College in Qatar and beyond filled one of the campus lecture halls on March 17th to listen to world renowned scientist Günter Blobel explain cell mechanisms that have set the stage for research in the coming decades. Blobel, winner of the 1999 Nobel Prize for Medicine for his work in uncovering these mechanisms, spoke at the fourth Qatar Foundation Distinguished Lecture Series at WCMC-Q.

He chose to avoid complete focus on what might fall under the lecture’s title: “Access to the Nucleus, the Innermost Sanctuary of the Cell,” and broke the topic into several sections. He said he wanted students to be inspired about “how little we know” more than he intended to go deeply into his findings for the seasoned researchers in the audience.

“As you sit here in this room, from a cellular point of view, you are four billion years old. A continuous four billion years of cell division, and cell evolution — this is something that is absolutely magnificent… and we don’t really realize how old we are,” Blobel explained.

The audience gained a sense of how the cell evolved over time and how all of its parts, as they developed, have been replicated over the years in all living organisms. Until about 50 years ago, with the dawn of the electron microscope, all scientists could do was speculate about what the big black dot and other tiny dots in the cells were — then, the revolution in cell biology took place.

“And over the next 20 years people described everything you could possibly find in a cell. But what wasn’t really clear was how things talked to each other,” he said. “We made a very bold hypothesis and there was absolutely zero evidence.”

Blobel was a pioneer in a research field now known as intracellular protein traffic, and would eventually win the Nobel Prize for discovering that proteins have intrinsic signals that govern their transport and localization in the cell.

“Specific sequence elements in proteins are like a zip code to direct proteins to a cellular address, and if the protein does not arrive at the cellu-
As you sit here in this room, from a cellular point of view, you are four billion years old. A continuous four billion years of cell division, and cell evolution — this is something that is absolutely magnificent … and we don’t really realize how old we are.”

— Günter Blobel

lar address, it cannot function. It’s very much like a love letter that isn’t sent to the right address… well, if it isn’t sent to the right address it may have an adverse reaction,” he explained.

To inspire the students and young researchers in the audience, Blobel described a phase in his research where he challenged the idea that ion regulation around membranes would not possibly allow his hypothesized protein conducting channel. Everyone around him expressed doubt, including his funders, who withdrew grants. Luckily, Rockefeller University in the United States found his work interesting and invested in him.

“So, you must not give up if you really think you have a good idea. I wish I could tell you the excitement as we detected the protein conducting channel by electrophysiology,” he said gleefully.

Although he spent 40 years working to open many doors for upcoming researchers, Blobel said he wished he had 40 more years to walk through those doors himself. It’s an exciting time in a line of work that has no end.

“Human knowledge will be imperfect forever…but is indefinitely perfectable,” he said quoting an acquaintance. “I think this indefinite perfectability is what drives us, what inspires us and is the inspiration that I wanted to transmit to you.”

—Emily Alp
Building a Research Culture
Stem Cell Work, Science Park Transform Landscape

With Nobel Laureates as speakers and participation by scientists, diplomats, physicians and students from around the globe, Weill Cornell Medical College in Qatar and Qatar Foundation hosted the Gulf state’s first international conference on stem cell science and policy.

The topic is an important one for the entire medical and scientific community and for the ambitious biomedical research program spearheaded by WCMC-Q and Qatar Foundation.

“Stem cell research is an integral part of our new genetic and molecular research program,” said Dr. Javaid Sheikh, MD, interim dean, who served as one of the moderators of the March conference. “Our study of stem cells and their use in therapies and treatments will help us improve the health of Qataris and others around the world. This forum and our research demonstrate clearly that there is a renaissance in science taking place in Qatar.”

Stem cell research is already underway at WCMC-Q in the laboratory of Arash Rafii Tabrizi, MD, PhD, assistant professor of genetic medicine in obstetrics and gynecology. He is working with embryonic stem cell lines from the Ansary Stem Cell Center for Regenerative Medicine at Weill Cornell Medical College in New York.

WCMC-Q Stem Cell Research

“We have four different cell lines and they are growing well. As we develop these cells into hematopoetic or blood forming cells, we want to study their attraction with the endothelium, the layer of cells that line the interior surface of blood vessels. Our goal is to learn how the stem cells interact and isolate the chemical signals that trigger their expansion and differentiation.”

Dr. Rafii Tabrizi also is working with ovarian and breast cancer cells to understand how cancer cells acquire chemoresistance.

For Fayez Safadi, PhD, adjunct assistant professor of cell and developmental biology at WCMC-Q, stem cells may ultimately be harnessed to help build new bone for those suffering from osteoporosis and arthritis and other musculoskeletal disorders.

Safadi recently received a five-year, $1.25 million grant from the National Institutes of Health in the United States to continue his research on the regulatory mechanisms of bone cell development, differentiation and function in normal and diseased bone and cartilage. Several years ago, he discovered a gene named osteoactivin that appears to activate bone growth. While he continues to study the gene and its role in osteoblast differentiation and bone formation, he plans to work with stem cells and try to harness their ability to differentiate into bone cells and promote bone growth.

Making the Connections

To ensure that WCMC-Q’s stem cell research is connected firmly to international science and health policy, Qatar Foundation formed a partnership with...
the James Baker III Institute for Public Policy at Rice University in the US. Together with WCMC-Q, they sponsored the international stem cell conference as part of the effort to bring together key researchers, ethicists, policymakers, and business leaders.

“The partnership helps bridge the gap between theory and practice and creates an international dialog that is essential for advancing scientific research,” said Edward P. Djerejian, a founding director of the James Baker Institute for Public Policy and a former US diplomat familiar with the Middle East.

Besides an overview of current research on stem cells by Nobel Laureate Sir Martin Evans, director of the School of Biosciences and professor of mammalian genetics, Cardiff University, and Günter Blobel, director of the Laboratory of Cell Biology at Rockefeller University in the US, conference participants discussed opportunities for future research and the moral, ethical and cultural implications of stem cell research.

Another Research Milestone

The stem cell workshop coincided with another major milestone in the development of Qatar’s research infrastructure — the opening of Qatar Science and Technology Park adjacent to Education City. The 11-acre, $800 million site, provides a platform for academicians, researchers, and industry to develop and commercialize new technologies emanating from the research programs at the nearby universities and others around the world. (See story on page 10.)

“The leadership by the government of Qatar is visionary,” said Khaled Machaca, PhD, associate dean for basic science research at WCMC-Q and professor of physiology and biophysics. “Education City demonstrates its commitment to building a world-class educational and research infrastructure. With QSTP, the government provides a forum for the application and commercialization of research.

“We are a small country, which makes it possible for everyone to work together and to make powerful connections,” said Machaca, who is working closely with Dr. Sheikh to implement WCMC-Q’s research program and with Qatar Foundation to build a vibrant biomedical research community and a world-class research program.

“Qatar’s commitment to research, education, science and technology is demonstrated by the dedication of 2.8 percent of its gross national product to research programs,” said Fathy Saoud, PhD, president of Qatar Foundation. “We are creating a research landscape that consists of both basic and applied research with our university partners, with industry and with centers of excellence around the world. We are opening our doors, our hands and our hearts to international collaboration.”

—Kristina Goodnough
WCMC-Q Student Authors Published in New Collection

A new book, *Qira’at: Readings from the Students of Weill Cornell Medical College in Qatar, 2004-2008* compiles the best essays by students from the last four years.

The essays were selected by competition. Of more than 40 submissions, 27 were selected for publication, and prizes awarded to the top three.

WCMC-Q writing faculty chose 10 finalists, and writing faculty from Cornell University in Ithaca determined the winners.

“Rieux: A Willing Victim of Abstraction” by Tasnim Khalife took first place for being, in the judges’ words, “the most nuanced and elegant of the ten semifinalist essays” and “an exemplary work of literary criticism.”

“Gulf Research: Stem Cell Research” by Marwa Saleh took second place, while third place went to Anayah Sarkar for “Adolescent Ethics,” an essay based on actual events from her clinical training.

“The Psychoanalytical Theory: Is it relevant today?” by Samarpit Rai received Honorable Mention — a category specifically created by the judges to recognize the high quality of his work.

“This process provides valuable advanced training for writing future scientific research papers, presentations, and notes in professional newsletters,” said Alan Weber, PhD, assistant professor of writing and driving force behind the book.

A reading and award ceremony was held to celebrate the release of the anthology and honor the contest winners. *Qira’at* is now available for purchase by the general public at select Doha bookstores. Profits from the sales of *Qira’at* will go to the Qatar National Cancer Society, an organization that campaigns to raise awareness of and funds for cancer education and research.

May this gift of a textbook about the beginnings of human life inspire and teach you in our shared discipline of medicine.

These words, inscribed by author Rebecca Baergen, MD in the front pages of her book helped inaugurate a new tradition, the Faculty Textbook & Monograph Collection in the Distributed eLibrary Reading Room.

To build the new collection, resident and visiting faculty are invited to donate copies of books they have authored or edited, or in which they have authored a chapter. The section will also contain books detailing the history of WCMC-Q.

The collection was the brainchild of Powers Peterson, MD, acting associate dean for basic science curriculum, with the cooperation of the DeLib staff. Her intent is to inspire students with the literary and academic achievements of their instructors, to help those faculty members lead by example.

“We want students to see the names of people whose educational activities include writing — physicians and scientists they actually know and who have contributed to their education here.”

Baergen, professor of clinical pathology and laboratory medicine at WCMC in New York, donated a copy...
Shaping Medicine’s Future Leaders

When you hear the word “leader,” you may think of a head of state stirring up the masses with a campaign promise or speech. You may also think “not me, I hate the spotlight.” This past January, pre-medical students at WCMC-Q signed a contract to discover the leader within themselves. The activities they signed up for—all part of a six-day Leadershape workshop—had little to do with speech giving or rally cries.

“Leadership doesn’t mean you’re in front. You can lead in your own way. Some may take over at some point but that doesn’t mean they’re the leader; it just means they’re the loudest,” said Eric Fry, director of student affairs at WCMC-Q and cluster facilitator for this year’s Leadershape workshop.

Selected by essay applications, 17 WCMC-Q students joined others from universities throughout Education City for the workshop, which took place at Al Khor beach resort. They were not allowed to bring laptops, and text messaging time was strictly limited to breaks.

The participants were randomly divided into clusters—teams of 10 that worked together and encouraged one another through the rest of the workshop. For most students, Fry said, being a part of the family group was the highlight of the workshop as it allowed them to do a lot of interpersonal work.

“It’s like magic, what we felt there. So when I feel worn out from work and stress, I look through the Leadershape program binder and it makes me feel happy again because we had lots of good memories there,” said Haneen Mohamhd.

Each day, students explored themes such as community, identity, and power. Related activities helped them develop a deeper sense of what it means to be a leader.

“The lessons are stuck in my mind, because it wasn’t lectures. It was ‘learn by doing,’” said Abdulhadi Al Saei, Leadershape participant and WCMC-Q student.

For WCMC-Q students in particular, Leadershape gave them the chance to see themselves as leaders in the field of medicine. “It’s actually a life-defining experience because it teaches you nothing is impossible. You can have your goals and dreams and know how to achieve them,” Mohamhd said.

Perhaps the most important lesson of all for the students was that leadership involves both those who seem to follow and those who seem to lead. A self-assessment test helped students uncover their own leadership type and the related strengths and challenges. Nour Barakat, Leadershape participant and WCMC-Q student, discovered that she has a tendency to be dominant and learned that there are ways to manage the trait to be a more effective leader.

“I learned that when I sit and listen to others’ opinions, it gives a better result in the end,” she said.

—Emily Alp

A New Tradition On The Books

(continued from page 6)

of her textbook, Manual of Benirschke and Kaufmann’s Pathology of the Human Placenta while at WCMC-Q as visiting faculty in the Basis of Disease course. A book signing was held in the Reading Room to celebrate the launch of the collection.

Other contributing visiting faculty members include WCMC clinical professor of medicine Paul Miskovitz, MD; and Cornell University psychology professor James B. Maas, MD, PhD.

WCMC-Q faculty members who have also contributed to the collection include professor of pediatrics and of genetic medicine Ahmad Teebi, MB-BCh, senior lecturer in writing Peter Fortunato, MFA, and associate dean for premedical education Michael Johnson, PhD.
Student research took the spotlight at the fifth Annual Medical Student Research Forum on November 11, where WCMC-Q medical students once again demonstrated their expertise in research activities.

In a series of oral and poster presentations, the students discussed their summer research projects investigating such areas as the causes of Alzheimer’s disease, how tumors resist radiation therapy, whether certain proteins inhibit the spread of breast cancer cells, and more.

The research forum remains a highlight of the fall semester. This year, prizes were awarded for the first time to the top two presenters in each category.

A total of 30 WCMC-Q students competed for and were awarded summer research fellowships in 2008, compared to 20 students the previous year.

The majority of the awardees traveled to the US to work with leading researchers in the labs of WCMC in New York and Cornell University in Ithaca. A handful of the students performed their research at WCMC-Q, taking advantage of its developing facilities and the expertise of the resident faculty.

Mohammed Hamza Shah and Mouayyad Zaza both chose to do their summer research locally in Qatar. Their project in the laboratory of Khaled Machaca, PhD, associate dean for basic science research, aims to better understand how calcium is regulated during oocyte maturation, which could have practical uses in in vitro fertilization and the treatment of female infertility.

Machaca believes the critical thinking and problem solving skills students get from research projects broaden their perspective, ultimately helping them become better

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2008 Medical Student Research Forum Presentation Winners

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Premed Researchers Head to Labs in Belfast

Undergraduate researchers at Weill Cornell Medical College in Qatar have been awarded just over £16,000 — more than $24,000 — from the United Kingdom. The money, in the form of a Prime Minister’s Initiative for International Education (PMI2) grant, will fund the travel to and accommodations in Belfast, Ireland, for premedical students, who will conduct research that will offer a bigger picture of the work they’ve been doing.

Students will travel over the two years that the grant is distributed, and pre-medical student Mason Al Nouri will be the first to go. Al Nouri is working on a project under the guidance of Michael Pungente, PhD, chemistry professor and researcher at WCMC-Q.

“Traveling to labs abroad helps enrich the students’ perception toward research by giving them a breadth of practical research experience,” Pungente said. “It’s funding opportunities like PMI2 that really allow this exchange of vital information to flow.”

Pungente collaborates directly with William Goldring, PhD, an organic chemistry professor and researcher at Queen’s University in Belfast. They are working on a project to synthesize and characterize novel compounds used in non-viral methods of inserting genetic material into cells for research and therapeutic purposes.

Under the guidance of Pungente, Al Nouri and two other WCMC-Q premed students have been working with novel compounds produced by Goldring’s lab to gain insights into how they will function. This work is supported by an Undergraduate Research Experience Program grant from Qatar Foundation. Al Nouri is traveling to Belfast to learn how those compounds were synthesized and to gain a more complete idea of the research underway.

“This is a wonderful experience for Mason to get a sense of the entire project, all the way from synthesizing these compounds to their biophysical characterization,” Pungente said.

Al Nouri’s summer study session in Belfast will last about six weeks and he hopes it will be productive. He said he is excited about the work coming up, a feeling that may carry over long term.

“I hope to gain experience in the diverse field of gene therapy using non-viral methods, which will be helpful to my research experience as a whole. I may continue this research further after completing my studies,” Al Nouri said.
Qatar Science and Technology Park, an 11-acre site of office and laboratory space, was officially opened this spring, providing fertile ground for research and technology developed at nearby WCMC-Q, which recently launched its biomedical research program.

QSTP will be connected to WCMC-Q and other universities in Education City by a tunnel for quick and easy access back and forth. The site already is home to several multinational corporations with expertise in information technology, hydrocarbons and the environment. Incubator space for start up companies also is available in the park, which is a partnership between Qatar Foundation and 21 major companies who have invested more than $850 million in the project.

The science and technology park will serve as “an incubator of creativity and innovation, a safe haven for free scientific research, a magnet for national and international expertise, and a space where cultures and ethnicities integrate,” said His Highness the Emir of Qatar Sheikh Hamad bin Khalifa Al-Thani at the ceremony inaugurating QSTP before more than 12,200 leaders of science, business and government from Qatar and around the world.

“As our research matures and expands, our scientists will have access to people and companies nearby to help translate their work into useable therapies and products,” said Khaled Machaca, PhD, professor of physiology and biophysics and associate dean for basic science research.

The WCMC-Q biomedical research program concentrates on genetic and molecular medicine with a focus on personalized medicine, gene therapy for cancer and stem cell research, and a women’s and children’s health program with a focus on maternal/fetal medicine and neurogenetic disorders of the newborn.

As a free-trade zone, QSTP makes it easy for companies to establish a 100 percent foreign-owned firm, incorporate as a local company or operate as a branch of a foreign company. They can trade without a local agent and sponsor or hire expatriate employees.

QSTP is an integral part of Qatar’s plan to transform itself, through sustainable development, into one of the world’s most advanced countries within two decades.

Cancer Expert Named Chief Research Advisor for Sidra

David Kerr, CBE, MA, MD, a cancer expert from Oxford University in the UK, has been named chief research advisor for Sidra Medical and Research Center, which will be a major academic, research and clinical partner with WCMC-Q.

Dr. Kerr has an international reputation for treatment of and research into colorectal cancer and has established a series of international collaborations to improve the delivery of cancer care in sub-Saharan Africa.

Biomedical research will be a major priority for Sidra Medical and Research Center when it opens in 2012. The $8 billion facility will house a 412-bed hospital along with state-of-the-art research and information technology resources. “Sidra will be one of the most advanced hospitals in the region,” said Kerr. “There is a fantastic vision in Qatar to build a leading academic medical center and make a dramatic difference in the health of the people here and around the world.”

Prior to his appointment, Kerr was Rhodes Professor of Clinical Pharmacology and Cancer Therapeutics at Oxford. He made a significant contribution to reforming the National Health System in the UK and was recently appointed president-elect of the European Society of Medical Oncology.
A Unified Vision for Arab Health

WCMC-Q and six other Qatar healthcare institutions joined the Qatar Ministry of Health at the Arab Health Exhibition and Congress in Dubai to present a unified vision of health care in a single display space of nearly 4,300 square feet, among the largest at the event.

Under the theme “Qatar: Leading the Change,” the group shared the Qatar Pavilion stand, intricately designed in the double-helix shape of a DNA molecule to represent the modernity of Qatar and its place in the 21st century health care community. In addition to WCMC-Q, exhibitors were Hamad Medical Corporation, ASPETAR, Qatar University College of Pharmacy, College of the North Atlantic in Qatar, University of Calgary Qatar, the Qatar Diabetes Association and Qatar Science and Technology Park.

“It was good to have all the Qatar health care institutions there because we are all connected,” said fourth year medical student Fouad Otaki, who volunteered to represent the student body at the pavilion. “If people asking about the WCMC-Q program also had questions about the HMC training, they could follow up by simply walking across the pavilion to Hamad.”

Collaborations such as this are indicative of WCMC-Q’s role in the Qatar medical community, working closely with its partners the Ministry of Health and HMC, Qatar Foundation entities such as QSTP, and other local universities. These relationships are key to furthering the mission of providing quality patient care, developing the culture of biomedical research in Qatar, and securing the best opportunities for clinical student education.

Arab Health is the region’s largest and most prestigious event for healthcare manufacturers, wholesalers, dealers and distributors in the Middle East, as well as some of the most important and influential decision-makers in the Arab world. It attracts more than 50,000 visitors each year.

Medical students at WCMC-Q have gained greater access to world-class clinical facilities for training in primary care, particularly in the area of musculoskeletal injuries and diseases, through a new agreement with ASPETAR, Qatar Orthopedic and Sports Medicine Hospital.

The agreement, which was signed earlier this year, makes the ASPETAR facilities available as a training site for students during their primary care clinical rotation and provides eligible ASPETAR teaching staff with WCMC-Q faculty appointments. ASPETAR physicians also will gain access to the WCMC-Q Distributed eLibrary, an electronic repository of more than 1,600 publications and periodicals.

ASPETAR is a 50-bed orthopedic and sports medicine facility located within the Aspire Zone campus in Doha.

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As equipment for the new high-tech genomics laboratory was being delivered and installed, director Joel Malek realized he needed a proof of concept project, something to establish and validate the capabilities of the lab.

Tackling the sequence of the date palm genome seemed like a good idea. “There were a couple of reasons,” said Malek. “The genome was believed to be about 250 million base pairs, which is small for a plant genome; and the information would be very relevant for this part of the world where date palms play a significant role in agriculture and the economy.”

So Malek and his team of laboratory assistants — all new graduates of the biomedical science research program at Qatar University — set to work.

Less than two months later, they managed to generate a draft DNA sequence of the date palm genome. “We increased the publicly available knowledge of the date palm gene space nearly 1,000 fold using the approach that takes advantage of the lower repetitive DNA in the date palm gene regions,” said Malek. The genome contained about 500 million base pairs, twice the size they anticipated.

Their success has tremendous significance for WCMC-Q. “It clearly demonstrates the feasibility and success of our advanced genomics technologies in the region and represents a milestone in the effort to establish Qatar and Weill Cornell as a regional research center of excellence,” said Khaled Machaca, PhD, professor of physiology and biophysics and associate dean for basic science research. “We now are confident we can begin to apply genomics technology to a better understanding of biomedical problems.”

**Next Generation Sequencing Approach**

To produce the draft map, the WCMC-Q researchers used a next generation sequencing approach, which Malek said offers data quality between that of the expressed sequence tag (EST) method and the traditional whole-genome mapping method. “We were able to develop a relatively unbiased view of the gene space of the entire date palm plant at a fraction of the cost and in a much shorter period of time.” The quality of their work is comparable to the versions of other plant draft sequences such as the rice and papaya genomes, according to Malek.

For laboratory assistant Eman Al-Dous, the project was a wonderful learning experience. “Everything we did, every step, is very carefully documented, not only for us, but also for those who might want to replicate our work. It was really exciting to think that we were establishing a new protocol.”

Al-Dous and research assistants Eman Al-Azwani, Yasmeen Salameh and Moneera Al-Jaber were born and raised in Qatar and came to their positions at WCMC-Q after graduating from Qatar University. The sequencing project helped train them on the equipment and in laboratory procedures.

“Their ability to make a scientific contribution of this magnitude in such a short time is a tremendous achievement,” said Malek.

“This accomplishment is tremendous validation for the vision of His Highness the Emir Sheikh Hamad bin Khalifa Al-Thani and Her Highness Sheikha Mozah bint Nasser Al Missned and their commitment to building a knowledge based society in Qatar,” said Machaca. “The research was made possible by the leadership and investment of Qatar Foundation,
which is building a robust research infrastructure in Qatar. It is exciting to see the ‘fruits’ of the commitment relatively early on. We are very excited about the great potential for exceptional discoveries in the future with the continued support of Qatar Foundation.”

For the sequencing work, Malek used DNA from the Khalas date, one of the most popular varieties of the fruit.

**Date Palm Crucial to Region**

Date palm trees play a significant role in farming throughout the Middle East, Northern Africa and Pakistan; and they are an important element in the development of sustainable agriculture in many drought and saline-affected regions of the world.

Currently, commercial growers propagate date palm trees for fruit production vegetatively, using offshoots or tissue culture to maintain fruit quality. Because vegetative propagation allows the accumulation of mutations in the genome over time, the plant tends to lose vigor and become more susceptible to disease, said Machaca.

Seed propagation or sexual propagation avoids that problem, but female seeds are difficult to identify until the trees start to bear fruit, which takes three to five years. Genomic information would make it possible to identify female seeds at an early stage and would make sexual propagation of the trees much more viable.

Additionally, the genome yields information about the enzymes, which control traits such as the sweetness of the fruit and the rate of ripening. “The more we understand the genes and their functions, the closer we come to being able to manipulate the genome to control characteristics like resistance to disease and fruit quality,” said Machaca.

Malek will publish the final, annotated version of the date palm genome, including data analysis and interpretation. In the meantime, he is making the date palm genome available on WCMC-Q’s website (http://qatar-weill.cornell.edu/research/datepalmGenome/index.html) as a resource for others interested in date palm genetics. “We hope our research provides a starting point for researchers doing genetic studies of date palm.”

Khaled Machaca, right, in the genomics lab with, from left, Yasmeen Salameh, Eman Al-Azwani, Eman Al-Dous, Moneera Al-Jaber, and Joel Malek.
Another Great Match

For the second year in a row, Match Day was a time of celebration for Weill Cornell Medical College in Qatar and its students, as the Class of 2009 learned where they would spend their next years of training.

Following the tradition set last year by WCMC-Q’s first class of physicians, most members of the Class of 2009 matched with major hospitals in the United States for their residency training. Four students will go to New York Presbyterian University Hospital of Columbia and Cornell, which is sixth in the nation out of more than 5,000 hospitals ranked by U.S. News and World Report magazine. Another student will go to Cleveland Clinic in Ohio, which is ranked fourth in the nation, and three will go to Virginia Commonwealth University Health System, which also is ranked among the major hospitals in the US. One student will go to Methodist Hospital in Houston, Texas; another will go to NY Hospital Medical Center in Queens, NY; and another will go to the University of Connecticut Health Center. Three students will remain in Qatar to do their residency training with Hamad Medical Corporation. Two students will do a year of research in the United States before joining a residency program.

“Way to go,” said Dr. Javaid Sheikh, interim dean. He advised the students to stay connected with each other and with faculty members who served as mentors. “As you intensify your focus, you will learn more and more about less and less,” said Dr. Sheikh. “There is a risk of becoming so focused and specialized that you lose touch with those around you. Ultimately, the goal is to combine humanity and science. Keep your humanity intact, and you will become better doctors. Congratulations.”

Assignments are made by a nonprofit organization, the National Resident Matching Program. Students submit their choices and the participating hospitals rank their preferred resident candidates. Sophisticated software does the matching, with the goal of not only creating a good fit for the student, but for the overall program as well.

“I can’t believe it! All these years of hard work have finally paid off,” exclaimed Yasir Tarabichi who matched at Cleveland Clinic for a residency in internal medicine.

“Everything feels completely surreal. I could hardly
imagine this day when I started medical school,” said Manisha Deb Roy, who matched at New York Hospital Medical Center in Queens, NY, for an internal medicine residency. “I’m grateful to the faculty at WCMC-Q who made this day possible, and I am especially grateful to my parents for their support.”

Ali Saad, who matched at NewYork-Presbyterian Hospital of Weill Cornell Medical College in New York for a residency in neurology, said of his medical school experience, “Above all else I thank my class for things that cannot be conveyed through words. They were the greatest part of my experience at WCMC-Q.”

WCMC-Q Students Compete in World Debate Championship

The WCMC-Q Debating Society and teams from four other Qatar colleges competed in the 29th World Universities Debating Championships at University College Cork in Ireland, the first time Middle Eastern universities joined the competition.

With teams from more than 40 countries, the championships are billed as the largest academic event in the world.

“There was a great energy to the event and a real sense of it being organized by people who love debating for people who love debating,” said Rodney Sharkey, PhD, assistant professor of writing who coached the students for the eight-day competition. That love of debating is flourishing in Qatar, from Qatar Foundation’s Doha Debates to the successful QatarDebate program in schools and universities throughout the country. That program culminated last year in the National Universities’ Debating Competition, where WCMC-Q students took top honors.

Mirroring their success in the nationals, the WCMC-Q teams overall fared best of the Qatar contingent at the worlds. Team A, Marwa Saleh and Rahima Sanya, ranked highest among the Middle-East participants. Anas Abou-Ismail and Abdullah Firoze also competed at the

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Members of the WCMC-Q debate team, left, stand with coaches Sam Neill, wearing the red scarf, and Rodney Sharkey and with some members of the Cornell University debating team, right, during the World Universities Debating Championships in Ireland. Tournament. The WCMC-Q team also met their debating counterparts from Cornell in Ithaca, and discussed establishing an annual debate between the two campuses.
One of the first graduates of Weill Cornell Medical College in Qatar has published a research study on women’s health in a leading international journal.

Research on the rate of episiotomy in a local women’s hospital by Dr. Amila Husic, a graduate of WCMC-Q’s inaugural class of 2008, was published in the *International Journal of Gynecology and Obstetrics*.

Episiotomy, a surgical procedure to enlarge the opening of the vagina during labor, has been performed traditionally to prevent tearing during childbirth, to speed up delivery and to protect against future incontinence and pelvic relaxation. While the rate varies widely around the world, anywhere from 8 to 95 percent, the World Health Organization has begun calling for a rate of 10 percent.

Dr. Husic found that episiotomy was performed on more than 95 percent of women giving birth to their first babies at Hamad Medical Corporation’s Women’s Hospital in Doha, Qatar, between January and March 2008. The overall rate of episiotomy was 60 percent during that time, she found.

The idea for the research study came to Dr. Husic during her third year of the medical program, after finishing her obstetrics and gynecology rotation. “I was curious about episiotomy because my experience in Qatar was different from my readings in books and papers,” said Dr. Husic, who is currently doing a general surgery residency at the Lahey Clinic in Boston, Massachusetts, in the United States.

With a $10,000 grant from the Undergraduate Research Experience Program (UREP), Dr. Husic got the research project approved by the Department of Gynecology and Obstetrics and then by HMC General Hospital. After obtaining Internal Review Board approval for the proposal, Dr. Husic started collecting data in early 2008 with help from third-year medical students doing their ob/gyn rotations. She submitted the paper to the *International Journal of Gynecology and Obstetrics*, where it was published in November, 2008.

Dr. Husic’s research is one of 99 student projects funded through the UREP, a program established in 2006 by Qatar National Research Fund to provide research opportunities to students in Education City and Qatar University. Each year, Qatar dedicates about 2.8 percent of its gross domestic product, or $1.5 billion, to support research at all levels, from undergraduates to professionals, to diversify the country’s economy and build a knowledge-based society.

“It’s encouraging to see a research paper published in an international journal by one of our alumni based on work performed while she was a medical student,” said Dr. Javaid Sheikh, interim dean for WCMC-Q. “It’s an important effort by one of our students to stimulate more research on women’s health and ways we can work to improve it. This is also a great example of UREP support for the establishment of a biomedical research culture in the country.”

—Kristina Goodnough
Sustainable Development in Qatar “Achievable,” Says Renee Richer

Qatar is growing at a frenetic pace. Life expectancy and standard of living are on the rise. The country’s population increased an estimated 79 percent between 2006 and 2008, its annual GDP growth rate averages over 18 percent, and building construction and road expansion are everywhere.

But is economic development in Qatar at the expense of the social well-being of the population? And how can Qatar balance today’s growth against the resources available to future generations?

Renee Richer, PhD, assistant professor of biology, addressed those and other issues in a chapter on sustainable development in Qatar’s “Second National Human Development Report.”

The authors of the report, prepared under the guidance of the Qatar General Secretariat for Development Planning, recently presented its content in a national seminar entitled, “Achieving the Environmental Development Outcomes of the Qatar National Vision 2030.” The seminar allowed the public to hear and comment on the report, and the results of that open discussion are to be incorporated in the report’s findings.

“Countries promoting stricter environmental standards have been able to capture a market share in technologies meeting those standards.”

— Renee Richer

With a majority of Qatar’s economy based on natural capital — in this case, non-renewable natural resources — Richer asserts that the country’s leadership must maintain overall capital levels by investing profits from these natural resources into other forms. These include durable capital such as physical infrastructure, human capital through its citizens’ education and skills, as well as financial capital.

“Qatar can approach sustainability if it invests the profits wisely,” she said. There are financial incentives to sustainability, and she believes improved efficiencies can also improve the bottom line.

“Countries promoting stricter environmental standards have been able to capture a market share in technologies meeting those standards,” she added.

Success, Richer said, will require stakeholder engagement and transparency, an improved and integrated set of indicators, and the creation and implementation of a comprehensive development plan.

But Richer warned that time is of the essence. The establishment of the regulatory framework to guide development already lags dangerously behind the pace of growth.

The good news: “Qatar is a relatively small country with bold and forward-thinking leadership that has the ability to make and implement these decisions. Qatar is really in a unique situation to make it happen.”

Richer came to the attention of the GSDP through the reputation of her 2008 paper, “Conservation in Qatar: Impacts of Increasing Industrialization.” Her background paper and input contributed to the production of the HDR.

This and subsequent HDRs will inform the national strategy to realize the Qatar National Vision — a statement of strategic goals Qatar hopes to achieve by the year 2030, encompassing four “pillars” of development: human, social, economic and environmental. 🌟

—Chris Gibbons
New arrivals to the WCMC-Q faculty

Hassan Al-Amin has joined WCMC-Q as Visiting Associate Professor of Psychiatry

Dr. Al-Amin received his MD from the American University of Beirut and has been a faculty member at AUB since 1997. He has been an active teacher since joining the AUB, involved in teaching psychopathology, ethics and the psychiatry rotation for the family medicine department as well as supervision of pharmacy students from Lebanese American University.

Dr. Al-Amin has served on a number of committees and boards including the Med II and Med III teaching committees, the Pharmacy and Therapeutic Committee, the Ambulatory Services Committee, and the committee to help internally displaced people in Lebanon. His current research interests include neurobiology of pain and schizophrenia and neuropsychopharmacology. He has served as principal investigator on a number of funded research projects.

Thurayya Arayssi has joined WCMC-Q as Visiting Associate Professor of Medicine

Dr. Arayssi received her MD from the American University of Beirut and has been a faculty member at AUB since 1997. She has been an active teacher since joining the American University of Beirut, involved in teaching 2nd, 3rd and 4th year medical students, residents and fellows with extensive efforts in lectures in biochemistry, epidemiology, physical diagnosis, and introduction to medicine.

In 2006, she was appointed assistant dean for graduate medical education specifically to work on the organization of the residency programs at AUB, an effort that led to their meeting the full criteria of the Accreditation Council on Graduate Medical Education, which accredits post-MD medical training programs in the United States. In addition she has served on a number of committees and boards, ranging from the Dean’s Medical Affairs Committee to Graduate Medical Education Committee to the Research Committee, Department of Internal Medicine. Dr. Arayssi’s current research interests focus on rheumatoid arthritis for which she has received funding for grants as the principal investigator. She has also served as external reviewer for half a dozen journals.
Nour Named Chief of Clinical Affairs

Dr. Bakr Nour, professor and vice chair of surgery and director of the surgery clerkship, has been appointed acting chief of clinical affairs at WCMC-Q.

Dr. Nour has built a strong and competitive surgical rotation and has started a hepatopancreatico-biliary surgical service and a liver transplant clinic at Hamad Medical Corporation. Long term, he hopes to establish a multi-organ transplantation institute that will serve the entire Gulf Region. He joined WCMC-Q in 2007.

Dr. Nour received his MBChB, his master’s of surgery, and his doctorate in surgery from the University of Alexandria in Alexandria, Egypt. He completed his post-graduate training at the University of Alexandria Hospitals, the Children’s Hospital of Pittsburgh in Pennsylvania and the University of Pittsburgh Medical Center & Children’s Hospital of Pittsburgh.

He has held a variety of academic positions, most recently at INTEGRIS Health Medical Center where he served consecutively as chief of pediatric liver transplantation, chief of abdominal organ transplantation and chairman of the Department of Transplantation. He also served as director of INTEGRIS Nazih Zundi Transplant Institute in Oklahoma City.

Dr. Nour has also been appointed to the Executive Committee of WCMC-Q. He replaces Dr. Bruce Davidson who resigned in March.

Kronfol Named APA Distinguished Fellow

Dr. Ziad Kronfol, associate professor of psychiatry, has been elected a distinguished fellow of the American Psychiatric Association, one of the highest honors bestowed by the organization.

Kronfol joined the faculty of WCMC-Q in 2007 after 20 years on the faculty in the Department of Psychiatry at the University of Michigan. He is an expert in the pharmacological treatment of bipolar disorders and treatment resistant depression and has done extensive research on the relationship between the brain and the immune system and the effects of stress and depression on the course of medical illness.

At WCMC-Q, Dr. Kronfol is director of the psychiatry clerkship, co-director of the brain and mind course for medical students, and a consultant at Hamad Medical Corporation.
Doha high school students flocked to the Intercontinental Hotel this fall for an opportunity to test their skills as potential doctors and scientists and learn whether a career in health care might be in their future.

Medical mannequins allowed them to try out a range of medical procedures, from providing CPR to examining the inner workings of the ear and eye. A virtual microscope provided a view into the unseen world of viruses and bacteria. Science tables offered opportunities to explore anatomy, physics, chemistry, biology, neurology, surgery and transplantation, while a research table offered insight into the fascinating field of biomedical research from genetics and molecular biology to stem cells.

It was all part of the first annual Medicine Unlimited, an event organized by WCMC-Q in partnership with Hamad Medical Corporation and Qatar Diabetes Association to raise awareness of the many career opportunities available in the health professions. With more than 540 students and 200 parents in attendance, it was WCMC-Q’s largest and most ambitious outreach program ever.

The students were treated to a variety of activities that explored the complex relationship between their bodies and the world around them, including live experiments, hands-on simulations, quizzes, and fun demonstrations.

Faculty and students from WCMC-Q as well as physicians from Hamad Medical Corporation conducted many of the activities, answered questions, and offered advice about being a medical student and a doctor.

The attending students were highly engaged, and asked thoughtful questions of the presenters. How does
DNA testing work? Why does the sun leave a lingering image in our vision? Why shouldn’t every tumor be surgically removed? Many also had questions about WCMC-Q programs and admissions requirements.

Some students came in groups organized by their high schools, accompanied by their teachers. Still others came with their families and friends. School spirit was high: every correct quiz answer was punctuated by cheers from classmates; every mention of a school brought a roar of support from its students.

In addition to the informational and educational opportunities for students, their parents benefited from free health screenings provided by WCMC-Q partners, including tests for blood pressure, blood sugar, pulmonary function and bone density.

“This event highlights our commitment to fostering the talents of Qatar’s young students,” said Dr. Javaid Sheikh, interim dean. “They are the doctors and researchers of tomorrow who will ensure quality patient care and advance biomedical research for the country and the region.”

“The evening turned out to be an even greater success than we had anticipated,” said Noha Saleh, director of student recruitment. “We are already looking forward to next year’s event.”

—Chris Gibbons

“Men who are occupied in the restoration of health to other men, by the joint exertion of skill and humanity, are above all the great of the earth. They even partake of divinity, since to preserve and renew is almost as noble as to create.”

—Voltaire (1694-1778) French writer and historian

In addition to preparing local primary and secondary school students for the challenge of practicing medicine, Weill Cornell Medical College in Qatar faculty are reaching out in ever-increasing ways to help more of them view the medical profession as a venerated one.

“In Britain, in Europe, in North America, the idea of wanting to become a physician is totally acceptable. Here in Qatar, it is being kindled as a novel but important concept,” said Dr. Mohamud Verjee, assistant professor of family medicine at WCMC-Q.

Through increasing participation in outreach activities, WCMC-Q faculty and staff are working to make strong, positive impressions on students across Doha. In particular, faculty members visit local high schools to provide demonstrations and contribute to school programs; and the WCMC-Q campus welcomes groups of students in a range of grades to view and experience the facilities, meet faculty and learn about the admissions process.

“We’re working very hard with a measure of success to encourage young students to think about science and medicine not only as a career but as an educative process from the word go,” Dr. Verjee said.

Through their experiences, it is hoped that students will be better able to understand both the demands and the rewards of becoming a doctor. And even if the students don’t apply to WCMC-Q in the future, the larger goal of spreading the word about medicine is achieved.
Dr. Arash Rafii Tabrizi, assistant professor of genetic medicine in obstetrics and gynecology at WCMC-Q has performed laparoscopic surgery to remove a tumor and lymph nodes at HMC Woman’s Hospital, a new procedure for Qatar.

Working with Dr. Afaf Al Ansari, consultant at HMC Woman’s Hospital, Dr. Rafii Tabrizi used the laparoscopic technique, also known as minimally invasive surgery, on two different gynecologic oncology surgeries on two different patients.

Laparoscopic surgery has many advantages for patients. It is less invasive because the surgery is performed through small incisions. “Instead of a single, large incision, we use several very small incisions to insert a tiny tube with a light, a camera and a cutting device,” said Dr. Rafii Tabrizi. “Generally, the smaller incisions mean less pain, less blood loss, and a quicker recovery for the patient. In addition, because the laparoscope images are magnified onto a nearby monitor, the surgeon can see greater detail than allowed with traditional surgery.”

One of the surgeries involved adnexectomy, or removal of fallopian tubes and ovaries, and omentectomy, or removal of tissue lining the abdomen, which would have required an eight-inch incision. The second surgery was pelvic lymphadenectomy, which is removal of lymph nodes.

“My hope is that we can do more surgeries laparoscopically on a routine basis in the future. The procedure is done commonly elsewhere and we want to make it the gold standard for care in Qatar,” said Dr. Rafii Tabrizi, who trained with Dr. Denis Querleu who pioneered the procedure in France in the 1990’s.

Students Gain Access to World Class Orthopedic Clinical Facilities

Built to internationally accredited standards, ASPETAR is designed to treat orthopedic problems and athletic injuries using the latest technology and therapies. Its staff includes internationally recognized sports medicine experts from around the world.

“Our agreement with ASPETAR is a testimony to our commitment to provide WCMC-Q students with a variety of excellent opportunities for clinical education,” says Dr. Javaid Sheikh. “At ASPETAR, our students will have the opportunity to directly observe the emerging field of sports medicine with some of the most renowned physicians in the field.”

“The clinical training agreement with ASPETAR complements the existing affiliation agreement we have with Hamad Medical Corporation,” says Antonio M. Gotto Jr., MD, provost for medical affairs and dean of Weill Cornell Medical College in New York, who signed the agreement with Dr. Sheikh and Mohammed GA Al Maadheed, MD, PhD, director-general of ASPETAR. “It is welcome evidence of the growing relationship between the United States and the Islamic world and helps promote understanding among international societies.”

“This agreement enhances Qatar’s position as a center of both academic and health care excellence in the region,” says Dr. Al Maadheed. “We are delighted to welcome WCMC-Q students for part of their clinical training and we look forward to welcoming them back as physicians in the future.”
It’s pretty much unanimous. The great teachers make their lectures really interesting and really care about their students.

That was the verdict of the students who voted for this year’s best teachers.

Master of Ceremonies Michael Johnson, PhD, associate dean for pre-medical education, quoted from the students’ nomination forms as he named the winners of the awards. Shared characteristics for the teachers acclaimed by the students was their ability to make their presentations “really interesting” and their “caring” treatment for those in their classes.

Winners of the 2009 Annual Faculty Teaching Awards follow.

**Foundation program**
Sheila Qureshi, senior lecturer, chemistry
Renee Richer, assistant professor, biology

**Pre-medical year 1**
Rodney Sharkey, assistant professor, writing
Marco Ameduri, senior lecturer, physics

**Premedical year 2**
Kevin Smith, associate professor, organic chemistry
Marco Ameduri, senior lecturer, physics +
Syed Naqi, professor, microbiology and immunology +

**Molecules, Genes and Cells**
Khaled Machaca, professor, physiology and biophysics

**Human Structure and Function**
Nithila Isaac, assistant professor, anatomy in surgery +
Fayez Safadi, adjunct assistant professor, cell and developmental biology +

**Host Defenses**
Syed Naqi, professor, microbiology and immunology

**Brain and Mind**
Leopold Streletz, associate professor, neurology

**Basis of Disease**
Gerardo Guiter, assistant professor, pathology and laboratory medicine

**Advanced Biomedical Science**
Ravinder Mamani, professor, public health

**Medicine, Patients & Society I**
Ravinder Mamani, professor, public health

**Medicine Patients and Society II**
Mohamud Verjee, assistant professor, medicine

**Clinical Clerkships**
Nady Nady-Mohamed, assistant professor, ob/gyn
Bakr Nour, professor, surgery
Mohamud Verjee, assistant professor, medicine

**Visiting Faculty**
Suresh Tate
Estomih Mtui
Robert Kim

+ indicates a tie
Pablo Rodriguez del Pozo, MD, JD, PhD, associate professor of public health, with his black and white photograph that won an award at this year’s Capture Light photography competition.

Pankit Vachhani, left, wears a blindfold, and Bassem Zaki provides guidance during an exercise designed to help students experience, briefly, life with a disability.

Dhritiman Gurkha and Rama El Yafawi step lively on the dance floor during International Night 2009, sponsored by the Medical Student Executive Council-Qatar, to celebrate cultures from around the world.

Dr. Abdul Latif Al Khal, left, director of the Department of Medical Education at Hamad Medical Corporation, receives congratulations from Dr. Marcellina Mian, associate dean for clinical curriculum, and Dr. Javaid Sheikh, interim dean, at Medical Education Day, which celebrates the partnership between HMC and WCMC-Q for providing clinical training to medical students.

Muhamed Baljevic controls the ball during a match. After an undefeated season, the team won the championship game and took home the trophy for the 2009 Education City Soccer League.

Students gather information about medical careers and WCMC-Q from Suha Sami, Admissions, and Nada Hassen, Public Affairs, at the 2009 Qatar Career Fair.
Weill Cornell Medical College in Qatar was jointly established by the Qatar Foundation for Education, Science and Community Development and Cornell University