



كلية طب وايل كورنيل في قطر  
Weill Cornell Medical College in Qatar

*Member of Qatar Foundation*

## Press Release

### Qatar leading the way in date palm genetics

**Doha – May 13, 2014:** Researchers at Weill Cornell Medical College in Qatar (WCMC-Q) have published the first genetic map of the date palm, paving the way for Qatar to become a leader in date palm genetics and biotechnology.

The map has been produced by the genomics group under the direction of Dr. Joel Malek, Assistant Professor of Genetic Medicine at WCMC-Q, in collaboration with Dr. Karsten Suhre, Professor of Physiology and Biophysics at WCMC-Q, and with help from colleagues at the Ministry of Environment's Biotechnology Center and their Department of Agricultural Affairs. The program, entitled 'Establishing World Leadership in Date Palm Research in Qatar' (NPRP-EP X-014-4-001) was funded by Qatar National Research Fund's NPRP Exceptional Proposal program that provided \$4.5 million to the research.

The genetic map shows the order in which the date palm's chromosomes are placed and also which chromosome is responsible for reproduction. In theory, the information could one day allow growers to manipulate the development of seeds, creating more female fruit-bearing plants than male plants - which do not produce dates. It also places Qatar at the head of research into the date palm, an important food source for much of the Middle East.

Dr. Malek said: "This is us laying the foundation for establishing world leadership in date palm research. To be a world leader you have to have infrastructure and I consider this to be a genetic infrastructure that will allow us to be the leaders when it comes date palm biotechnology."

Three years ago Dr. Malek and his team produced a draft version of the date palm genome. It was this that paved the way for the more accurate map.

To create the map, Drs. Malek and Suhre worked with the Ministry of the Environment's Biotechnology Center and their Department of Agricultural Affairs. The ministry provided the researchers with 150 seeds from a single female tree and they were then propagated by

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Ameena Al-Malki at the Biotechnology Center. Once they were large enough, leaves and DNA were taken from the seedlings. A new process called genotyping-by-sequencing was then applied which sequenced portions of the genomes of all 150 seedlings. It allowed the researchers to look at the parent tree and ascertain how she passed her DNA to her offspring. Dr. Malek explained that if you always see two genetic variations being passed to the seedlings, this meant they were placed closely together on the chromosome. But if the variations were rarely seen together then it was likely they are on different chromosomes. Through scanning 5,000 variations in 150 seedlings and noting how often they appeared, the researchers were able to build a map of where the chromosomes lie. More work now needs to be done to ascertain for exactly what each gene is responsible, for example, gender, size of date, or resistance to drought.

Dr. Khaled Machaca, Associate Dean for Research at WCMC-Q, said the research demonstrates the value of funding novel, regionally relevant, collaborative research between different organizations in Qatar.

Dr. Machaca said: "The NPRP exceptional proposal (NPRP-EP) funding the date palm research was the first NPRP-EP awarded by QNRF. It funds regionally relevant research that has a high likelihood of contributing toward Qatar's knowledge-based economy vision. This funding is beginning to bear fruits by generating the first chromosome map for date palm through collaborative efforts of multiple institutions in Qatar."

- Ends -

### About Weill Cornell Medical College in Qatar

Weill Cornell Medical College in Qatar is a partnership between Cornell University and Qatar Foundation. It offers pre-medical and medical courses leading to the Cornell University M.D. degree with teaching by Cornell and Weill Cornell faculty and by physicians at Hamad Medical Corporation (HMC) and Aspetar Orthopedic and Sports Medicine Hospital who hold Weill Cornell appointments.

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Through its biomedical research program, WCMC-Q is building a sustainable research community in Qatar while advancing basic science and clinical research. Through its medical college, WCMC-Q seeks to provide the finest education possible for medical students, to improve health care both now and for future generations, and to provide high quality health care to the Qatari population.

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