Khaled Y. Kamal

Post-doctoral fellow – Molecular & cellular Biology

Studying the molecular and cellular processes occurring in plants under the alteration of their environment. Focused on the unmarked microgravity stress by developing a broad genetic screening approach also dedicated to other stresses caused by climate changes. Aiming to investigate the consequences of these environmental changes on plant development processes; cell proliferation; cell growth, and chromatin remodeling including epigenetic modifications. Furthermore using the recent powerful bio-informatics resources and tools to identify proteins and gene networks related to biotic/and abiotic alterations.

EXPERIENCE

Profile

Postdoctoral Fellow
2016-Present

Post-doctoral fellow at Laboratoire de Recherche en Sciences Végétales, Université de Toulouse II, Toulouse, FRANCE.
Role of the calcium-dependent protein kinase CPK3 and nuclear calcium in Fumonisin B1-induced programmed cell death.

Zagazig University
2015 - Present

Lecturer at Agronomy department – Faculty of Agriculture, Zagazig, EGYPT.
Lecturer on plant breeding and genetics – crop physiology – biostatistics.

CIB-CSIC
2010 - 2015

PhD Thesis CIB-CSIC, Madrid, SPAIN.
PhD thesis on the alterations caused by microgravity on the plant developmental processes using *Arabidopsis thaliana* cell culture.

ESTEC-ESA
2011 - 2014

Visiting PhD student, Noordwijk, The NETHERLANDS.
Using ground based facilities to study the impact of microgravity on plant cell biology.

Florida University
2014

Visiting PhD student, Gainesville, Florida, USA.
Using *in vitro* cell cultures on the Space Biology research

Radboud University
2011

Visiting PhD student, Nijmegen, the NETHERLANDS.
Using Magnetic levitation to study the impact of microgravity and Diamagnetic levitation on plant cell biology.

German Aerospace Center,
2011

Visiting PhD student, Köln, GERMANY.
Using Pipette clinostat to study the impact of microgravity and Diamagnetic levitation on plant cell biology.

Zagazig University
2007 - 2010

Demonstrator – Teaching assistance, Zagazig, EGYPT
Teaching assistance, Agronomy department, Faculty of Agriculture on the field of Crops breeding , Genetics, Plant physiology, Abiotic stress and biostatistics.

Education

PhD
December, 2014
Doctorate in Biology ¨Excellent with CUM LAUDE¨
Faculty of Biology, University of Complutense, SPAIN

Master
June, 2012
Master of Science in Genetics and Cellular Biology
Department of Genetics, University of Complutense, SPAIN

Bachelor
June, 2007
Bachelor of Science in Agronomy (Crops Breeding and Genetics) ¨GPA = 3.9 ¨
Department of Agronomy, Zagazig University, EGYPT

FELLOWSHIPS AND AWARDS

IFE– STDF Cooperation France 2016
Postdoctoral grant funded by the French Government and STDF to implement research in LRSV – CNRS- University of Toulouse III – France.

National Academy of Sciences, USA. Zagazig, 2015
Fellowship to help implement teaching of responsible science; Professionalism in science: Conducting research responsibly.

JAE-PreDoc, CSIC, Spain. Madrid, 2010-2014
Four years fellowship from the Spanish National R+D Program (Ministry of Science and Innovation), to prepare Master and PhD degrees in the CIB-CSIC.

European Space Agency (ESA), The Netherlands. Leiden, 2013
Short stay fellowship (1 month) for conducting scientific experiments in Space Plant Biology) by ESA-GIA project in the ESA technical and technology center (ESTEC).

FAPESP Foundation, Brazil. São Paulo, 2009
Short stay fellowship (6 months) for Identification of new morphological and physiological parameters associated with drought tolerance in sugarcane.

SMHI-SIDA fellowship, Sweden. Norrkoping, 2009
The advanced international training program on Climate Change - Mitigation and Adaptation for community planners and decision makers in developing countries.

Egyptian Ministry of Education, Egypt
Fellowship for Undergraduate studies by Egyptian Ministry of Education, Egypt (Zagazig, 2004-2007).

PARTICIPATION IN FUNDED RESEARCH PROJECTS

Ministerio de Ciencia y Tecnología. Programa Nacional del Espacio en Espana.
Functional alteration on plants caused by the microgravity in the space and on Earth as a part of European multi-laboratories. AYA2009-07952. PI: Dr. F. Javier Medina (2010-2014).

European Space Agency
Systematic Evaluation of the ground based (micro-) gravity simulation paradigms available in Europe. First Phase: Similarities and Differences between the different approaches. PI: Dr. Raúl Herranz Barranco (2010-2013).

European Space Agency (Mission to the International Space Station)
GIA Project: From GBF to ISS with A. thaliana: Utilization of ground based microgravity simulation to improve the scientific knowledge and expected returns from already approved experiments to be performed with Arabidopsis thaliana in the ISS. PI: Dr. F. J. Medina / Dr. Raul Herranz (2011-2014).

ESA and NASA programs.
Plants in the International Space Station (ISS). Investigations in Earth and Space in ESA and NASA programs. PI: Dr. F. J. Medina (2013-2015).

TECHNICAL EXPERIENCE

Biological systems	Eukaryotic systems (mainly Arabidopsis), Plant seedling, cell cultures (Cell suspension, semisolid callus), transgenic systems and cultures
Cell Biology	Flow cytometry, Immunofluorescence, Nuclei Isolation, Microscopy (Confocal Microscopy, Contrast Microscopy, Electron Microscopy and in vivo multi-dimensional microscopy),
Molecular Biology and Genetics	PCR, DNA analysis on agarose gels ,molecular cloning and DNA sequencing, RT-qPCR, Microarrays, protein expression and purification, mutants
Proteomics	- Protein Extraction - Immunoprecipitation Protocol SDS-Polyacrylamide gel electrophoresis, SDS-PAGE, Western Blot.
Bioinformatics	R-Bioconductor, Cytoscape, GeneMANIA, GEDI clusters, STRING networks.
Statistical analyses	SPSS, MSTAT, Sigma plot.
Languages	English (fluent), Spanish (v. good), French (Beginner) and Arabic (native).

PUBLICATIONS

Published in 2017

Kamal KY, Herranz R, van Loon J J W A, Medina FJ. (2017). *Microgravity Sci. Technol*, DOI: 10.1007/s12217-016-9531-8
Embedding Arabidopsis Plant Cell Suspensions in Low-Melting Agarose Facilitates Altered Gravity Studies

Published in 2016

Kamal KY, Herranz R, van Loon J J W A, Christianen P C M, Medina FJ. (2015). *Microgravity Sci. Technol*. 28: 309. doi:10.1007/s12217-015-9472-7.
Evaluation of Simulated Microgravity Environments Induced by Diamagnetic Levitation of Plant Cell Suspension Cultures.

Published in 2015

Herranz R, Valbuena MA, Manzano A, **Kamal KY**, Medina FJ. (2015). Plant Gravitropism. *Methods Mol Biol*. 1309:239-54. doi: 10.1007/978-1-4939-2697-8_18.
Use of microgravity simulators for plant biological studies.

Kamal KY, Herranz R, Hemmersbach R, Medina FJ (2015). *Life sciences and space research* 5; 47-52. DOI: 10.1016/j.lssr.
Proper selection of 1g controls in simulated microgravity research as shown for clinorotated plant cell suspension cultures.

Published in 2014

Herranz R, Valbuena MA, **Youssef K**, Medina FJ. (*Plant Signal Behav*. 2014, 10;9(2))
Mechanisms of disruption of meristematic competence by microgravity in Arabidopsis seedlings.

PUBLICATIONS

Published in 2012

A.H.Salem, H.A. Awaad, M.M.A. Ali, A.E.A. Omar and **K.Y.Kamal**.(Egypt. *Journal of Agronomy*. 34(2):141-153. 2012).
Some stability parameters in sunflower (Helianthus annuus L.) genotypes at various environments.

In Submission process

Kamal KY, Herranz R, van Loon J J W A, Medina FJ. (*Submitted in Scientific Reports*).
Gravity alterations generated by ground-based facilities significantly affect cell cycle regulation and ribosome biogenesis in Arabidopsis in vitro cell cultures .

Alzohairy, A. M.; Amin, I. I.; Elazma, A. H.; Elsawy, H.; **Kamal KY**.; Elhamamsy, A. R.; Gyulai, G. Ibrahim, H. M. M.; Bahieldin, A. (*Submitted in CR Biologies*)
Universal Epigenetic Regulation of Gene expression through DNA methylation in Human and plants.

Under preparation

Kamal KY, Herranz R, van Loon J J W A, Medina FJ. (*In Preparation*).
Earth gravity maintains cell proliferation and cell growth balance while reduced gravity environments lead to hyper-proliferaion activity by means of genome scale epigenetic and G2/M checkpoint control alterations.

Kamal KY, Herranz R, van Loon J J W A, Medina FJ. (*In Preparation*)
Overall genome transcriptional profile in Arabidopsis in vitro cultures (Synchronous/Asynchronous) under simulated microgravity conditions.

CONFERENCE/WORKSHOP ATTENDANCE/TALKS PRESENTED

Conference 2016

Kamal KY, van Loon JJWA, Herranz R, Medina FJ. ESA/ISGP/CNES joint life sciences meeting, Toulouse, France 2016
Alterations in cell cycle regulation induced by simulated microgravity in a plant cell culture.

Conference 2014

Medina FJ, Valbuena MA, Kamal KY, Kiss JZ, van Loon JJWA, Herranz R. COSPAR MOSCO 2014
Meristematic competence is disrupted by microgravity, real or simulated, in seedlings and cultures cells of Arabidopsis.

Conference 2013

Medina FJ, Manzano AI, Kamal KY, Valbuena MA, Kiss JZ, van Loon JJWA, Herranz R. ELGRA Rome September 2013
Plant cell cycle is altered by microgravity, real or simulated, in root meristematic and cultures cells.

Kamal KY, van Loon JJWA, Herranz R, Medina FJ. ELGRA Rome September 2013
Altered gravity induces changes in the plant cell cycle: Growth a synchronic cell culture in a random positioning machine.

Kamal KY, van Loon JJWA, Herranz R, Medina FJ. ASGSR Orlando Novemeber 2013
Disruption of Cell Growth and Proliferation Induced by Simulated Microgravity on Synchronic Plant Cell Cultures.

Conference 2011

Kamal KY, van Loon JJWA, Herranz R, Medina FJ. CIP- CIB- Madrid 2011
Ground-based facilities simulated microgravity affects cell proliferation and cell growth in plant cell cultures".

Contact reference

PhD Thesis Supervisors

Dr. Fransisco Javier Medina
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Plant Cell Nucleolus, Proliferation & Microgravity
Centro de investigaciones biologicas, CSIC, Madrid, Spain.
Email: herranz.raul@gmail.com
Phone: +34 91 837 31 12, ext. 4261
Fax: +34 91 536 04 32

Post-doctoral supervisor

Dr. Christian Mazars
Research Director DR2 CNRS
Laboratoire de Recherche en Sciences Végétales, CNRS
Universitè Toulouse III-Paul Sabatier
E-mail: mazars@lrsv.ups-tlse.fr

Cellular Biology Technical skills

Dr. Mª Teresa Seisdedos Domínguez
Plataforma de Microscopía para Biociencias
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