CURRICULUM VITAE

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A. Areas of Research Interest

Space biology and space life science, Cell signaling and pathways, Oxidative stress, Redox Biology, Biomechanics, Mechanotransduction, Skeletal muscles, Muscle atrophy diseases, Cell cycle Regulation, Cell growth, Chromatin remodeling, Proteomics, and Transcriptomics.

B. Education

Ph.D.	Biology	Dec 2014	Universidad Complutense de Madrid, SPAIN
M.S.	Molecular & Cellular Biology	Jul 2012	Universidad Complutense de Madrid, SPAIN
B.S.	Agriculture Science	Jun 2007	Zagazig University, EGYPT

C. Postdoctoral Training

2021 - Present	Assistant Research Scientist	TEXAS A&M UNIVERSITY, Redox Biology, and Cell signaling Lab, KNSM, College Station, TX, USA.
2020-2021	Postdoctoral Fellow	TEXAS A&M UNIVERSITY, Redox Biology, and Cell signaling Lab, KNSM, College Station, TX. USA.
2016-2017	Postdoctoral Fellow	Université de Toulouse II, LRSV-CNRS, Toulouse, FRANCE.

D. Professional Appointments

2021-	Investigator, NASA GeneLab, Multi-omics working group, vertebrate and microorganisms' projects.
2020 -	Assistant Research Scientist, TEXAS A&M UNIVERSITY, KSNM, TX, USA
2019 - 2020	Junior Researcher, Palacký University, Olomouc, Czech Republic.
2015 - 2019	Assistant Professor [Tenure Faculty], ZAGAZIG UNIVERSITY, Zagazig, EGYPT.
2016 - 2017	Postdoctoral Fellow, Université de Toulouse II, LRSV-CNRS, Toulouse, FRANCE.
2010 - 2015	Research Assistant, Centro de Investigaciones Biologicas, CSIC, Madrid, SPAIN.

E. Visiting researcher and assistant

2013	Research Assistant	Space Biology Lab, Florida University, USA.
2012-2014	Research Assistant	European Space Agency – ESTEC, Netherlands.
2011 - 2013	Research Assistant	German Aerospace Center DLR, Cologne, Germany.
2011	Research Assistant	Radboud University, Nijmegen, Netherlands.

F. Honors and Awards

2021	Staff Appreciation Award, College of Education, Texas A&M University, USA
2019	DAAD-Exceed Fellowship, DAAD, Germany.
2018	TWAS-ARO fellowship Grant, TWAS-ARO, Alexandria, EGYPT.
2015	National Academy of Science Grant [RCR-Award], NAS, USA.
2014	ESA short term fellowship, ESTEC-ESA, Noordwijk, The NETHERLANDS.
2010	JAE-preDoc fellowship, CSIC-CIB, Madrid, SPAIN.
2008	Graduate Research Award, Zagazig University, EGYPT.

G. Editorial Board Member

- Frontiers in Space Technologies: Microgravity (Review Editor).
- International Journal of Molecular Science (Guest Editor).

H. Journal Reviewer

Astrobiology, Frontiers in Microgravity, Frontiers in Space Technologies, Gravitational and Space Research, Frontiers in Genetics, Frontiers cell and Development, Aerospace, Frontiers in Microbiology, International Journal of Molecular Science, Plants, Life, Foods IMDP, Frontiers in physiology and integrative physiology, Journal of Advanced Research, PlosONE, BMC Genomics.

I. Professional Affiliations

- American Physiological Society.
- American Society for Gravitational and Space Research.
- European Low Gravity Research Association.
- American Heart Association.
- Huffines Institute for Sports Medicine.

I. Research Funding

A. RECENT AND REPRESENTATIVE GRANT AWARDS

- Master Materials and Funding Agreement with AMGEN. Inc: **Khaled Kamal (PI)**, John M. Lawler (CO-PI), (No. 8544409) 'RANKL as a novel trigger of skeletal muscle with Duchenne muscular dystrophy. 2021-2023, $30,000
- NASA Space Biology COVID Augmentation Award: John M. Lawler (PI), Khaled Kamal (CO-PI), 2021-2022. $150,0000.
- Huffines' Bramhall Faculty Seed Grant: John M. Lawler (PI), Khaled Kamal (CO-PI), 2022-2023. $7,500.
- 2022 CEHD Renew, Reinvest, & Resubmit (R3) Program: John M. Lawler (PI), Khaled Kamal (CO-PI), 2022-2023. $30,000.
- MBR Space Settlement Challenge - Seed Grants for Ambitious Space Settlement Concepts- Dubai Future Foundation: **Khaled Kamal (PI)**, 2018-2019, $50,000
- IFE-STDF: **Khaled Kamal (PI)**, Christian Mazars (CO-PI), 2016-2017, $130,000
- The U.S. National Academies of Sciences (NAS): Professionalism in Science: Conducting research responsibly: **Khaled Kamal (PI),** 2015-2016. $10,000

B. PARTICIPATION IN FUNDED PROJECTS

- Texas A&M University Office of the President T3. John M. Lawler (PI), Shaodong Guo (CoI), Thomas Kent (CoI), 2019-2021, $30,000 NASA
- NASA (ROSBio 2018) (80NSSC19K0432) John Lawler (PI), Jim Fluckey (CoI), 2019-2022, $750,000.
- NASA HERO (Human Exploration Research) 16-16Flag1_2-0043 (NNX-80NSSC17K0118). JM Lawler (PI), JF Ford (CoI), N Turner (CoI), 2017-2022, $180,000.
- NASA-ESA Joint Project: Plants in the International Space Station (ISS). Javier Medina (PI) and John Kiss (CO-PI), 2013-2015.
- ESA-GIA Project: From GBF to ISS with A. thaliana: Javier Medina (PI) and Raul Herranz (COI), 2011-2014.
- ESA-GBF project: Systematic Evaluation of the ground-based (micro-) gravity simulation paradigms available in Europe. Raúl Herranz (PI), 2010-2013.

C. PENDING GRANTS/PROPOSALS

- NASA Animal Studies: Early Career Investigator. **KY Kamal (PI)**, John M. Lawler (COI). 2023-2024.
- NIH R01 John M. Lawler (PI), KY Kamal (COI), P Nghiem, Sun Y, White-Springer S. 2023-2028.
- NASA Animal Studies: Investigators. John M. Lawler (PI), KY Kamal (Co-PI). 2021-2024

II. PUBLICATIONS

H-index = 11 on Google Scholar, i10 = 12, 246 citations

*A. Peer-Reviewed Articles - * indicates the corresponding author*

Under revision/ Pending/In preparation with anticipated submission in 2022 AY (5 papers)

- **Kamal KY**, Mariam Othman, Lawler JM, Mechanosensing and Mechanotransduction during spaceflight-induced muscle atrophy. '*Under revision'*
- Lawler JM, Botchlett RE, Woob SL, Li H, Hord JF, Fluckey JD, **Kamal KY***, and Wu C. Metformin Ablates High Fat Diet-induced Skeletal Muscle Hypertrophy and Elevation of Sarcolemmal GLUT4 When Feeding is Initiated in Adolescent Mice. '*Under revision'*
- **Kamal KY**, Mariam Othman, Lawler JM, Nox2 peptidyl inhibition mitigates muscle damage and inflammation in MDX mice. '*In preparation'*
- **Kamal KY**, Mariam Othman, Lawler JM, Nox2 peptidyl inhibition mitigates muscle damage and inflammation in MDX mice. '*In preparation'*
- Othman M, **Kamal KY***, Roeming D, Ramanuja S, Lawler JM. AAV9/shRNA knockdown of target proteins in skeletal muscles utilizing systemic drug delivery: proof of concept. '*In preparation'*

Published

- Lawler JM, Hord JM, Ryan P, Holly D, Janini Gomes M, Rodriguez D, Guzzoni V, Garcia-Villatoro E, Brooks MC, Lawler MS, Keys N, Mohajeri A, **Kamal KY***. Nox2 Inhibition Regulates Stress Response and Mitigates Skeletal Muscle Fiber Atrophy during Simulated Microgravity. *Int J Mol Sci*. 2021, 23;22(6). **IF = 6.208**
- **Kamal KY,** Mohajeri A, Lawler JM. Stress Response Proteins and Nox2 Signaling in the Gastrocnemius Muscle of Dystrophic Mice. Experimental Biology. EB 2021; 2021 April 27; Wiley Online Library: *The FASEB Journal*; 2021.35. S1.05252 **IF = 5.834**
- Mohajeri A, **Kamal KY***, Lawler JM. Peptidyl Inhibition of Nox2 Enhances Stress Response and Mitigates Muscle Fiber Atrophy with Simulated Microgravity. *The FASEB Journal*, 2021. 35.S1.05433. **IF = 5.834**
- Shahzad K, Hussain S, Arfan M, Waraich EZ, Zamir S, Saddique M, Rauf A, **Kamal KY***, Hano C, El-Esawi MA. Exogenously Applied Gibberellic Acid Enhances Growth and Salinity Stress Tolerance of Maize through Modulating the Morpho-Physiological, Biochemical and Molecular Attributes. *Biomolecules*. 2021 11;7. **IF = 6.064**
- **Kamal KY**, Khodaeiaminjan M, Yahya G, El-Tantawy AA, El-Moneim DA, El-Esawi MA, Abd-Elaziz MA, Nassrallah MA. Modulation of cell cycle progression and chromatin dynamic as tolerance mechanisms to salinity and drought stress in maize. *Physiologia Plantarum*. 2021; 172: 684– 695. **IF = 5.081**
- **Kamal KY**, Khodaeiaminjan M, El-Tantawy AA, Moneim DA, Salam AA, Ash-shormillesy SM, Attia A, Ali MA, Herranz R, El-Esawi MA, Nassrallah AA, Ramadan MF. Evaluation of

growth and nutritional value of Brassica microgreens grown under red, blue and green LEDs combinations. *Physiologia Plantarum.* 2020, 169: 625-638. **IF = 5.081**

- El-Hallouty S, Soliman AF, Nassrallah A, Salamatullah A, Alkaltham MS, **Kamal KY***, A Hanafy E, Gaballa H, Aboul-Soud MA. Crude methanol extract of rosin gum exhibits specific cytotoxicity against human breast cancer cells via apoptosis induction. Anti-Cancer Agents in Medicinal Chemistry. 2020, 20:8. 1028-1036 **IF = 2.527**
- **Kamal KY**, van Loon JJWA, Medina FJ, Herranz R. Differential transcriptional profile through cell cycle progression in Arabidopsis cultures under simulated microgravity. Genomics. 2019 Dec;111(6):1956-1965. PubMed PMID: 30641127. **IF = 4.315**
- Ormancey M, Thuleau P, van der Hoorn R, **Kamal KY***, Boudsocq M, Cotelle V, Mazars C. Sphingolipid-induced cell death in Arabidopsis is negatively regulated by the papain-like cysteine protease RD21. Plant Science. 2019, 280: 12-17. **IF = 5.363**
- **Kamal KY**, Herranz R, van Loon JJWA, Medina FJ. Cell cycle acceleration and changes in essential nuclear functions induced by simulated microgravity in a synchronized Arabidopsis cell culture. Plant, cell & environment. 2019 Feb;42(2):480-494. **IF = 7.947**
- **Kamal KY**, Herranz R, van Loon JJWA, Medina FJ. Simulated microgravity, Mars gravity, and 2g hypergravity affect cell cycle regulation, ribosome biogenesis, and epigenetics in Arabidopsis cell cultures. Scientific Reports. 2018 Apr 23;8(1):6424. **IF = 4.996**
- **Kamal K**, van Loon J, Medina F, Herranz R. Embedding Arabidopsis Plant Cell Suspensions in Low-Melting Agarose Facilitates Altered Gravity Studies. Microgravity Science and Technology. 2017; 29(1-2):115-119. **IF = 1.64**
- **Kamal KY**, Herranz R, van Loon JJWA, Christianen P, Medina FJ. Evaluation of Simulated Microgravity Environments Induced by Diamagnetic Levitation of Plant Cell Suspension Cultures. Microgravity Sci. and Technology. 2016, 28:3, 309–317. **IF = 1.64**
- **Kamal KY**, Hemmersbach R, Medina FJ, Herranz R. Proper selection of 1 g controls in simulated microgravity research as illustrated with clinorotated plant cell suspension cultures. Life sciences in space research. 2015, 5:47-52. **IF = 2.73**
- Medina FJ, Herranz R, Valbuena MA, **Youssef KY* (Kamal KY)**. Mechanisms of disruption of meristematic competence by microgravity in Arabidopsis seedlings. Plant Signaling & Behavior. 2014, 9, e28289. **IF = 2.734**

B. Book Chapters (3 book chapters)

- Methods in Molecular Biology: Plant Gravitropism, *'Chapter 16. Use of Reduced Gravity Simulators for Plant Biological Studies'* Editor: Elison B. Blancaflor, Springer 2022.
- Progress in Botany, '*Chapter 1. Plants in Space: Novel Physiological Challenges and Adaptation Mechanisms'* Editors: Ulrich Lüttge, Francisco M. Cánovas, María-Carmen Risueño, Christoph Leuschner, Springer 2022.
- Methods in Molecular Biology: Plant Gravitropism, *'Chapter 18. Use of Microgravity Simulators for Plant Biological Studies'* Editor: Elison B. Blancaflor, Springer 2015.

*C. Research Presentations and Proceedings - * indicates the corresponding author*

- **Kamal KY**, Othman M, Lawler JM, Proof of Concept: Developing a novel bioreactor for skeletal muscle hypertrophy and atrophy by manipulating uniaxial cyclic strain, 2022 ASGSR Annual meeting, 9-12 November 2022, Houston, TX
- Lawler JM, **Kamal KY***, Othman M, Roeming D, Ramanuja S, Redox Regulation of Mechanotransduction in Skeletal Muscle During Spaceflight: New Insights, 2022 ASGSR Annual meeting, 9-12 November 2022, Houston, TX
- Lawler JM**., Kamal KY***, Spaceflight Sarcopenia: Solutions in Redȯx Biology, TACSM 22 meeting, Waco, TX, March 2022.
- **Kamal KY**, Hord JM, Wu C, Talcott S., Gomes MJ, Fluckey JF, Ford JF, Turner ND, and Lawler JM. Combination Nutrition Interventions Against Spaceflight Sarcopenia. NASA HRP-IWS 2022.
- **Kamal KY**, Mohajeri A, Lawler JM. Towards mitigating skeletal muscle atrophy: peptidyl inhibition of Nox2 enhances stress response signaling during mechanical unloading. American Society for Gravitational and Space Research. ASGSR 2021; 2021 November 05; Baltimore, MA, United States.
- Lawler JM., **Kamal KY***, Mohajeri A. I Hear You kNOX-ing: the Emerging Role of NADPH Oxidase-2 in Spaceflight Sarcopenia. American Society for Gravitational and Space Research. ASGSR 2021; 2021 November 05; Baltimore, MA, United States.
- Mohajeri A, Othman M, **Kamal KY***, Lawler JM. Translating Lessons from the Microgravity of Spaceflight: Elevation of Nox2 Signaling and Impaired Stress Protection. American Society for Gravitational and Space Research. ASGSR 2021; 2021 November 05; Baltimore, MA, United States.
- Lawler JM., **Kamal KY*,** Mohajeri A. Probing the Nox2 Pathway and Stress Response Signaling: Identifying Therapeutic Targets in the Gastrocnemius Muscle of Dystrophic Mice. parent project muscular dystrophy. 2021 PPMD Virtual; 2021 June 23.
- Mohajeri A, **Kamal KY,** Lawler JM. The Evaluation of Nox2 Role in Microgravity–Induced Skeletal Muscle Atrophy. 2021 International Journal of Exercise Science: Conference Proceedings; February 2021.
- **Kamal KY**, Plant Biotechnology: Green for Good V. G4Green V, Olomouc, Czech Republic, June 2019
- Herranz R, A. Manzano, **Kamal KY***, van Loon JJWA, and F. Medina, Plant cell growth and cell proliferation balance under novel, Moon and Mars, partial gravity simulation paradigms, XXIII Meeting of the Spanish Society of Plant Physiology and the XVI Hispano-Portuguese Congress of Plant Physiology. Pamplona, SPAIN, June 2019
- **Kamal KY**, Initial assessment of the nutritional quality of the Brassica Species Microgreens as a component of Space Life Support Systems, Water-Energy-Food-Nexus in MENA Region, Regional Expert Workshop, Aswan, Egypt November 2018
- **Kamal KY**. Eukaryote cell cycle meets microgravity CNES young researchers, Toulouse, France March 2017
- **Kamal KY**. Future aspects for cell biology research under the gravitational domain. Space life science for Earth life science. LRSV, CNRS annual meeting, université Toulouse III-Paul Sabatier, Toulouse, France March 2017
- **Kamal KY**, van Loon JJWA, Herranz R, Medina FJ. Alterations in cell cycle regulation induced by simulated microgravity in a plant cell culture. ESA/ISGP/CNES joint life sciences meeting, Toulouse, France 2016

- **Kamal KY**, Herranz R, Medina FJ. Space biology research, recent notes from space exploration experiments. Bio-vision (The world life science forum), Alexandria, Egypt 2016
- **Kamal KY**, Herranz R, Medina FJ. Microgravity causes changes in Arabidopsis cell developmental processes, cell growth, chromatin organizations, and cell proliferation. National Academy of Science of Ukraine young scientists conference, Kyiv, Ukraine, 2015
- Medina FJ, Valbuena MA, **Kamal KY***, Kiss JZ, van Loon JJWA, Herranz R. Meristematic competence is disrupted by microgravity, real or simulated, in seedlings and cultures cells of Arabidopsis. COSPAR MOSCO 2014
- **Kamal KY,** Herranz R, Medina FJ. Altered gravity induces changes in the plant cell cycle: Growth of a synchronic cell culture in a random positioning machine. ELGRA Rome, September 2013
- **Kamal KY,** Herranz R, Medina FJ. Disruption of Cell Growth and Proliferation Induced by Simulated Microgravity on Synchronic Plant Cell Cultures. ASGSR Orlando November 2013